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Health Selection and Immigrant Integration: A Longitudinal Analysis of Philippine Emigrants to the United States

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Health Selection and Immigrant Integration:

A Longitudinal Analysis of Philippine Emigrants to the United States

A dissertation submitted in partial satisfaction of the requirements for

the degree of Doctor of Philosophy

in Community Health Sciences

by

Adrian Matias Bacong

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ABSTRACT OF THE DISSERTATION

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by

Adrian Matias Bacong

Doctor of Philosophy in Community Health Sciences

University of California, Los Angeles, 2022

Professor Gilbert Chee-Leung Gee, Chair

Studies on the relationship of immigration on health often find that immigrants are healthier compared to their United States (U.S.)-born counterparts despite having lower socioeconomic attainment, a finding known as the "immigrant health paradox". However, this health advantage declines over time. Two popular theories have been proposed as explanations for this advantage: migrant selectivity and acculturation. Migrant selectivity suggests that those who immigrate to the U.S. are not representative of their host country. Instead, immigrants may be positively selected upon social, socioeconomic, and health factors that allow for them to thrive upon arrival to the U.S. and give them the observed health advantage compared to U.S.-born residents. Acculturation theory suggests that immigrants' health declines because of exposure and adoption of U.S. culture and values.

Although these theories continue to remain popular, there remain two serious methodological issues to consider. First, in order to claim that migrant selectivity occurs, it

would be necessary to compare immigrants to those who did not immigrate – non-migrants from the sending country. Thus, non-migrants serve as a more ideal counterfactual to evaluate the effects of migration on health. However, there remains a dearth of studies making this comparison because of the difficulty in simultaneously recruiting recent immigrants to the U.S. and their corresponding sending country counterparts. Second, there are also few longitudinal studies examining the effects of acculturation on health. Most studies are cross-sectional and rely on proxy measures of acculturation (e.g., English proficiency and years in the U.S.). Although these measures are useful, it is difficulty to disentangle whether changes in health are indeed related to acculturation or if they are due to secular effects.

This dissertation uses the baseline, 1-year, and 2-year waves of the Health of Philippine Emigrants Study (HoPES, n = 1,637) to 1) examine if migrant selection for health, social and socioeconomic factors occurs prior to migration; 2) track how migrant health, social, and socioeconomic profiles change up to two years after migration; and 3) evaluate the extent that changes in social and socioeconomic factors explain changes in health for migrants post-migration. Overall, I found that migrants had lower levels of psychological distress and sleep disturbance compared to non-migrants both before migration, even after accounting for demographic, social, and socioeconomic factors. However, there was little evidence to suggest that migrants had lower allostatic load compared to non-migrants before departure. Furthermore, I found that psychological distress and sleep disturbance declined for both migrants and non-migrants through 2-year follow-up. However, migrants maintained a health advantage relative to non-migrants over time. Moreover, I found that migrants also had lower financial strain, fewer experiences of interpersonal discrimination, and higher social resources compared to non-migrants both before and after migration. Finally, I found that changes in financial strain,

interpersonal discrimination, and social resources over time somewhat explained changes in psychological distress and sleep disturbance over time. Changes in these social factors over time did not differ between migrants and non-migrants.

This dissertation builds upon the limited work examining immigrant health before migration as well as examining immigrant health longitudinally. This dissertation also provides a new theoretical examination of immigrant integration by examining how migrants change relative to their non-migrant counterparts. These results also reiterate the importance of migrant selection as a factor contributing to health, social, and socioeconomic advantages for migrants both before and after migration. Finally, although these social and economic factors partially contribute to changes in health over time, the finding that migrants do not differ from non-migrants over time emphasizes that changes in migrant health over time may be the result of secular effects, rather than acculturation.

The dissertation of Adrian Matias Bacong is approved.

Hiram Beltrán-Sánchez

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Gilbert Chee-Leung Gee, Committee Chair

University of California, Los Angeles

2022

DEDICATION

To my Lola, Juana Corpuz Matias, my mother, Alejandra Matias Bacong, my father, Eugenio Comia Bacong, and my brothers Andrew Matias Bacong and Austin Matias Bacong, and all my friends, family, and mentors, whom I love with all my heart, body, mind, and soul. To all my ancestors known and unknown, and to all those who will come after me. This dissertation is our story and our legacy.

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LIST OF ACRONYMS

AIC = Akaike Information Criterion

BIC = Bayesian Information Criterion

BMI = Body Mass Index

DBS = Dried Blood Spot

EDS = Everyday Discrimination Scale

GDP = Gross Domestic Product

HoPES = Health of Philippine Emigrants Study

IPW = Inverse Probability Weighting

NIH = National Institutes of Health

LPR = Lawful Permanent Resident

MxFLS = Mexican Family Life Survey

NIS = New Immigrant Survey

OFW = Overseas Filipino Workers

OLS = Ordinary Least Squares Regression

PROMIS = Patient-Reported Outcomes Measurement Information System

U.S. = United States

WC = Waist Circumference

WHR = Waist-to-Hip Ratio

ZIP = Zero-Inflated Poisson Regression

ZINB = Zero-Inflated Negative Binomial Regression

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The Role of Financial Strain, Discrimination, and Social Capital on the Health of Immigrants Over Time
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REFEREED PUBLICATIONS

Journal Articles

1. Gee GC, Morey BN, **Bacong AM**, Doan TT, Penaia CS. (*Accepted)* Considerations of Racism and Data Equity Among Asian Americans, Native Hawaiians, and Pacific Islanders in the Context of COVID-19. *Current Epidemiology Reports*
2. Sabado-Liwag MD, Manalo-Pedro E, Taggueg Jr. R, **Bacong AM**, Adia A, Demanarig D, Sumibcay JR, Valderama-Wallace C, Oronce CIA, Bonus R, Ponce N. (2022) Addressing the interlocking impact of colonialism and racism on Filipinx/a/o American health inequities. *Health Affairs 41 (2).* doi: https://doi.org/10.1377/hlthaff.2021.0141
3. McSorley AMM, Manalo-Pedro E, **Bacong AM.** (2021) Doctoral Students as Agents for Change: Shaping Our Public Health Training Environment. *Pedagogy in Health Promotion 7(4).* doi: https://doi.org/10.1177/23733799211042642
4. Sohn H, **Bacong AM.** (2021) Selection, experience, and disadvantage: Examining sources of health inequalities among naturalized US citizens. *Social Science and Medicine – Population Health (15).* doi: https://doi.org/10.1016/j.ssmph.2021.100895
5. Ma KPK, **Bacong AM,** Kwon SC, Yi SS, Đoàn LN**.** (2021) The Impact of Structural Inequities on Older Asian Americans during COVID-19. *Frontiers in Public Health 9(1183).* Doi: https://doi.org/10.3389/fpubh.2021.690014

6. **Bacong AM,** Menjivar C. (2021) Recasting the Immigrant Health Paradox through Intersections of Legal Status and Race. *Journal of Immigrant and Minority Health.* https://doi.org/10.1007/s10903-021-01162-2
7. **Bacong AM.** (2020) The Association Between Educational Attainment and Citizenship on Resting Pulse Rate. *Public Health Review (University of Minnesota), 3(2).*
8. **Bacong AM,** Sohn H. (2020) Disentangling the Contribution of Demographic, Family, and Socioeconomic Differences in the Association Between Immigrants' Legal Status and Health. *The Journal of Epidemiology and Community Health, 75(6).* doi: https://doi.org/10.1136/jech-2020-214245
9. **Bacong AM**, Nguyen A, Hing AK. (2020) Making the Invisible Visible: The Importance of Data Disaggregation in the Midst of the COVID-19 Pandemic. *AAPI Nexus.*
10. Morey BN, **Bacong AM,** Hing AK, de Castro AB, Gee GC. (2020) Heterogeneity in Migrant Health Selection: The Role of Immigrant Visas. *The Journal of Health and Social Behavior, 61(3)* doi: https://doi.org/10.1177/0022146520942896
11. **Bacong AM**. (2020) Heterogeneity in the Association of Citizenship Status on Self-Rated Health Among Asians in California. *The Journal of Immigrant and Minority Health, 23 (1), 121-136*. doi: https://doi.org/10.1007/s10903-020-01039-w ***Awarded "Best Research Paper" by the UCLA Department of Community Health Sciences, May 2021**
12. Đoàn LN, **Bacong AM**, Ma KPK, Morey BN. (2020) "Epidemiologists Count": the Role of Diversity and Inclusion in the Field of Epidemiology. *The American Journal of Epidemiology, 189 (10).* doi: https://doi.org/10.1093/aje/kwaa108
13. Gee GC, de Castro AB, Crespi C, Wang M, Hing AK, **Bacong AM**, Llave K. (2019) Pre-Acculturation as a risk factor for obesity: Findings from the Health of Philippine Emigrants Study (HoPES). *Social Science and Medicine – Population Health*, (9). doi: https://doi.org/10.1016/j.ssmph.2019.100482
14. McBride K, **Bacong AM,** Reynoso A, Benjamin T, Wallace SP, Kietzman KG. (2019) Healthcare Decision-Making Among Dual-Eligible Immigrants: Implications from an Integrated Medicare-Medicaid Demonstration Program in California. *Journal of Immigrant and Minority Health*, 22(3). Doi: https://doi.org/10.1007/s10903-019-00922-5
15. **Bacong AM**, Holub C, Porotesano L. (2016). Comparing Obesity-Related Health Disparities among Native Hawaiians/Pacific Islanders, Asians, and Whites in California: Reinforcing the Need for Data Disaggregation and Operationalization. *Hawai'i Journal of Medicine & Public Health*, *75*(11), 337.

Book Chapters

1. **Bacong AM,** Dillard A, Bradford N. (2019) Glossary of Key Terms in *Is it Race or Racism?: State of the evidence & Tools for the Public Health Professional. APHA Press*

Reports and Policy Briefs

1. Kiezman, KG, Palimaru A, **Bacong AM,** Guitierrez B, Miao E, Pourat N. (2019) Housing for Health: Assessing the Cross-Sector Impacts of Providing Permanent Supportive Housing to Homeless High Utilizers of Health Care Services. Report submittted to the Robert Wood Johnson Foundation (Report)
2. McBride K, Reynosos A, Alunan T, Guitierrez B, **Bacong AM**, Moon M, Bacigalupo A, Benjamin AE, Wallace SP, Kietzman KG. (2017). Enrollment challenges in Cal MediConnect: Why are dual eligible consumers in Los Angeles opting out? Los Angeles, CA: UCLA Center for Health Policy Research. (Policy Brief)

CHAPTER 1: INTRODUCTION

Accounting for nearly 45 million people in 2018, the population of immigrants in the United States (U.S.) is expected to double to 105 million in 2065 (Budiman 2020). The growth of the immigration population is important as it will contribute to the ongoing aging of the U.S. population. The immigrant population in the U.S. is also diversifying, as the largest growth of immigrants to the U.S. is arriving from Asian countries, such as the Philippines (Budiman 2020; Budiman 2021).

One point of theoretical debate surrounds the association between immigration and health. Traditionally, the research on immigration and health has focused on uncovering an immigrant health advantage, the observation that first-generation immigrants tend to have better physical health compared to U.S.-born citizens, despite having lower socioeconomic attainment on average (Markides and Rote 2015) This observation has been found for a number of health outcomes, including diabetes (Commodore-Mensah et al. 2018), obesity (Bacong and Sohn 2020), cardiovascular disease (Markides and Coreil 1986), and mortality (Palloni and Arias 2004). However, not all health outcomes have an immigrant health advantage (John et al. 2012; Martinez et al. 2015; Salas-Wright, Kagotho and Vaughn 2014; Singh et al. 2017; Wang and Kaushal 2011). Recent studies have found fewer differences in mental health (Gee et al. 2016; Morey et al. 2020d; Mossakowski 2007; Singh et al. 2017). These disparities are important as achieving health equity for all remains an overarching goal of Healthy People 2030 (Office of Disease Prevention and Health Promotion 2020).

However, research has been moving away from comparing immigrants to U.S.-born citizens as a method to understand the effects of migration on health. Although finding a difference between immigrants and U.S.-born individuals remains the foundation for most

immigration studies, these comparisons may be biased because both groups often grow up in different social and economic circumstances (Acevedo-Garcia et al. 2012; Boen and Hummer 2019b; Bostean 2013; Hamilton and Hummer 2011; Rubalcava et al. 2008b; Viruell-Fuentes, Miranda and Abdulrahim 2012). Therefore, studies are naturally set up to find differences between immigrants and U.S.-born individuals, even after accounting for possible confounding variables. Furthermore, it is impossible to disentangle whether changes in health over time between immigrants and U.S.-born people are indeed due to the assumed methods of "acculturation" or a natural part of global and general changes in health and quality of life.

Instead of comparing immigrants to U.S.-born people, a more appropriate comparison would be to examine if immigrants (i.e., migrants) are different from people who do not immigrate (i.e., non-migrants). Non-migrants can serve as a better counterfactual group than U.S.-born/host country born individuals because it is assumed that both migrants and non-migrants grow in similar social and socioeconomic environments. Comparing immigrants to their non-migrant counterparts allows for an examination of migrant health selection by determining the "baseline" level of health for migrants prior to migration. Furthermore, comparing migrants to non-migrants allows researchers to determine whether the changes immigrants undergo result from migration or secular trends, something that is difficult in cross-sectional studies (Gee et al. 2018). Overall, conducting comparisons between migrants and non-migrants allows for a more accurate description of the effects of migration, rather than how the trajectories of migrants' health and socioeconomic wellbeing converge with that of their host-country born counterparts.

The literature is mixed and limited regarding this this comparison (Gee et al. 2019; Goldman et al. 2014; Morey et al. 2020b; Rubalcava et al. 2008b). Some studies have found that immigrants to the U.S. may be less obese (Gee et al. 2019; Riosmena, Wong and Palloni 2013),

have less hypertension (Riosmena, Wong and Palloni 2013) or have fewer health conditions upon arrival (Morey et al. 2020b). Others found few differences in health between immigrants and those who do not migrate (Rubalcava et al. 2008b). Moreover, some have found that after arrival, the immigrants' health becomes worse than those who do not migrate (Goldman et al. 2014).

There are also other factors that could contribute to changes in health among immigrants post-migration. Traditional immigration research has focused on the concept of acculturation, or the immigrants' adoption of their host country's values, culture, and behaviors (Lopez-Class, Castro and Ramirez 2011). For health, acculturation may appear as the adoption of unhealthy behaviors such as eating more fast food or consuming more sugar sweetened beverages (Okafor, Carter-Pokras and Zhan 2014; Ramírez et al. 2018; Serafica, Lane and Ceria-Ulep 2013; Vargas and Jurado 2016). Indeed, numerous studies have note how greater acculturation is associated with worse health for immigrants (Abraído-Lanza, Chao and Flórez 2005; Cedillo et al. 2021; Creighton et al. 2012; Serafica, Lane and Ceria-Ulep 2013; Vargas and Jurado 2016). Others have focused on acculturation as a stressor (Gee et al. 2016; Lee et al. 2021; Li and Anderson 2016; Morey et al. 2021b; Park et al. 2020; Torres, Driscoll and Voell 2012). In this alternative perspective, the processes of adapting to and becoming incorporated within the host country can become a stressor for immigrants, ultimately contributing to poorer health. This acculturative stress can appear in multiple forms such as experiences of discrimination (Lee et al. 2021; Singh et al. 2017; Torres, Driscoll and Voell 2012) or difficulties socially integrating within the U.S. (Lee et al. 2021; Morey et al. 2021b).

However, there remains some major theoretical and methodological debates surrounding the role of "acculturation" on health. These debates surround the measurement of acculturation

(Lommel and Chen 2016; Schumann et al. 2020), the use of cross-sectional data to evaluate the association of acculturation on health (Ro 2014), and when acculturation "begins" (Ferguson et al. 2017; Gee et al. 2019).

Alternatively, it is possible that changes in health among migrants may be driven by secular trends. For example, studies of acculturation and obesity note that longer time living in the U.S. is associated with greater obesity (Abraído-Lanza, Chao and Flórez 2005; Alidu and Grunfeld 2018; Creighton et al. 2012; Serafica, Lane and Ceria-Ulep 2013; Vargas and Jurado 2016; Young and Pebley 2017). However, rates of obesity are increasing globally (Caballero 2007; Jaacks et al. 2019; World Health Organization 2000). Thus, it is difficult to disentangle whether changes in health among migrants over time are due to acculturative factors or are part of a larger secular trend for the entire population.

Building upon the limited literature comparing migrant and non-migrant health, this dissertation uses a novel dataset of Philippine migrants and non-migrants to examine health immediately before migration occurs and evaluate whether changes in health longitudinally are indeed due to acculturation or if they are due to secular effects. Specifically, the goals of this dissertation are to (1) examine migrant health selection between migrants and their non-migrant counterparts before migration; (2) evaluate how health changes over time between migrant and non-migrant groups; (3) identify possible social factors (e.g., financial strain, interpersonal discrimination, and social resources) that could account for changes in health. The dissertation proceeds as follow. I first provide a literature review of the immigrant health paradox, migrant health section, and the current findings for the three outcomes of study: allostatic load, psychological distress, and sleep quality. Second, I review the literature regarding immigrant acculturation and integration and the role of financial strain, discrimination, and social resources.

I also discuss some of the methodological limitations of studying the immigrant health paradox. Third, I present my integrative conceptual model uniting discussions on migrant selection and integration. Fourth, I present the primary research questions and aims of the dissertation. Fifth, I present the methodological approach to answering the dissertation aims. Sixth, I present the univariate, bivariate, and multivariable results by aim. Finally, I synthesize and provide interpretation of my results with the broader literature with conclusion for directions moving forward.

LITERATURE REVIEW

Moving Away from the Immigrant Health Paradox Towards Migrant Health Selection

The "Immigrant Health Paradox" refers to the statistical finding that immigrants appear "healthier" compared to those who were born in the immigrants' host country (Markides and Rote 2019; Markides and Rote 2015). This finding has been mostly discussed among Hispanic populations (Boen and Hummer 2019b; Bostean 2013; Giuntella 2016; Goldman 2016; Markides and Coreil 1986; Seicean et al. 2011), but it has also been seen in Asian (John et al. 2012; Riosmena, Kuhn and Jochem 2017) and Black populations (Hamilton and Hummer 2011). This apparent immigrant advantage declines over time and across generations (Boen and Hummer 2019a; Giuntella 2016; Markides and Rote 2019).

I focus this review on international migration, though some studies have examined within-country (i.e., internal) migration (Gao et al. 2020; León-Pérez 2019; Lu and Qin 2014; Lu 2008; Saarela and Finnäs 2008). The immigrant health paradox has been found in multiple health outcomes including self-rated health (Ro, Fleischer and Blebu 2016), diabetes (Commodore-Mensah et al. 2018), cardiovascular disease (Markides and Coreil 1986), mental health (Alegría, Álvarez and DiMarzio 2017), and mortality (Palloni and Arias 2004). And although much of the

work examining the immigrant health paradox has happened in the U.S., there have been multiple studies worldwide that have found evidence of this paradox (Juárez and Revuelta-Eugercios 2016; Markides and Rote 2018; Speciale and Regidor 2011).

Immigration and immigrant status are often discussed as social determinants of health (Castañeda et al. 2015) or even as a Fundamental Cause of Health (Frank et al. 2019; Hamilton, Hale and Savinar 2018; Ro and Van Hook 2021). In this case, one's documentation status could affect access to health supporting resources. As a result, those with more precarious documentation statues (e.g., undocumented immigrants, temporary migrants), should theoretically have poorer health compared to those with more protected statues. Immigrants may also experience more discrimination due to immigration status' inextricable link with race and ethnicity (Asad and Clair 2018; Bacong and Menjívar 2021).

Despite this discussion of immigrant status as a fundamental cause of health, studies have shown that immigrants continue to appear healthier compared to U.S.-born individuals (Hamilton, Hale and Savinar 2018; Ro and Van Hook 2021). The most popular theory asserts that immigrants arrive to their host country with "healthy" behaviors, such as less smoking and less consumption of fatty or processed foods. However, over time, immigrants become "acculturated" and they forgo these behaviors in favor of behaviors of their host country (Abraído-Lanza, Chao and Flórez 2005; Creighton et al. 2012; Lopez-Class, Castro and Ramirez 2011). Contemporary studies have found that immigrants also engage in "unhealthy" behaviors even before arriving in destinations such as smoking (Riosmena, Kuhn and Jochem 2017), though at lower levels than U.S.-born individuals. Immigrants may also conduct migration preparatory activities, such that those who engage in more activities may be more likely to be obese (Gee et al. 2019). These current findings could be the result of increased exposure and

interconnectedness of developing countries with Western countries, such as the U.S., via globalization (Acevedo-Garcia et al. 2012; Ferguson et al. 2017; Ferguson and Bornstein 2012). Ferguson and Bornstein (2015), for example, found that increased exposure to U.S. media harbored greater "Americanization" and preferences for U.S. food and tourism among Jamaican boys and girls. Thus, although prospective migrants may not be in the country where acculturation may occur, they are still continually exposed to outside cultures through media and transnational connections.

While it is important to acknowledge how individual behaviors may matter in the healthiness and health decline of immigrants, it is equally as important to consider the role of institutional and structural factors (Acevedo-Garcia et al. 2012; Gee and Ford 2011; Viruell-Fuentes, Miranda and Abdulrahim 2012). Recently, the literature on immigration and health has shifted away from focusing on the immigrant health paradox in favor of understanding the effects of immigration on health. This perspective deemphasizes the framing of immigrants as "deviant" from U.S.-born individuals. Instead, it focuses on how institutional and structural factors may facilitate the process of migration and thereby health. One such focus of this perspective is migrant health selection – the idea that only the healthiest of migrants emigrate (Akresh and Frank 2008; Bostean 2013; Morey et al. 2020c; Riosmena, Kuhn and Jochem 2017). Founded often on racist rhetoric or ideologies, documented immigration to the U.S. has become a more highly regulated process over time (Cohen 2015; Gee and Ford 2011; Ngai 2003). Immigrants are expected to receive a petition from either family members or employers sponsoring their stay. Immigrants are also expected to pass a medical exam, approving their travel. These officials and medical examiners act as extensions of the host state, brokering passage of immigrants to their new country (Rodriguez 2010; Silverstein 2004). The time to

obtain visas or lawful permanent residence has increased over time, especially for countries that are "oversubscribed" in major visa categories, such as family reunification or employment migrants (Morey et al. 2020b; Obinna 2014; Obinna 2020). The process for becoming a full member of their host country, as a naturalized citizen, is an even longer and potentially more arduous process (Cohen 2015; Gubernskaya, Bean and Van Hook 2013). Thus, given these wait times, it would be expected that younger and healthier people would undergo immigration.

There has been an abundance of evidence pointing towards health selection as being one of the primary contributors to migrant health advantages. In a study using World Health Survey data, Ro, Fleischer and Blebu (2016) found evidence of health selection for self-rated health in 18 of the top 19 immigrant sending countries to the U.S. Greater urbanicity and greater proportion of immigrants with employment-based visas were factors correlated with positive health selection (i.e. healthier people migrate). However, having a greater proportion of family visas was associated with negative health selection. Similar findings were found for a different health outcome, the number of health conditions (Morey et al. 2020b). Morey et al. (2020), found that as an aggregate, Philippine migrants to the U.S. had fewer health conditions compared to the non-migrants to remained. However, family visa holders had significantly more health conditions compared to non-migrants, while employment visa holders had similar number of health conditions to non-migrants. It was fiancé(e) or marriage migrants who had the fewest health conditions and were the healthiest. Health selection was driven by educational attainment and financial strain (Morey et al. 2020b).

Despite health selection being touted as a universal experience of immigrants, the process is far from universal, as evidenced by the studies by Ro et al. (2016) and Morey et al. (2020). Some of the earlier empirical studies of immigrant health selection have shown that although

visa type can be a driver of health selection, certain countries and regions are less likely to experience health selection. For example, Akresh and Frank (2008) found evidence of health selection for general health for immigrants coming from Europe and Africa, but less so for immigrants coming from Mexico. Similar results were found by Ro et al. (2016), who found evidence of negative health selection for immigrants from Mexico.

As a related concept to health selection, the salmon hypothesis posits that older immigrants return to their home countries (Abraido-Lanza et al. 1999; Palloni and Arias 2004). As a result, immigrants in aggregate estimates may artificially appear healthy. A limited number of studies have attempted to test this idea (Abraido-Lanza et al. 1999; Bostean 2013; Diaz, Koning and Martinez-Donate 2016; Turra and Elo 2008). The evidence has been generally mixed regarding whether salmon bias occurs (Abraido-Lanza et al. 1999; Bostean 2013; Diaz, Koning and Martinez-Donate 2016; Turra and Elo 2008). In one of the earliest studies testing salmon bias, Abraido-Lanza et al. (1999) found little evidence of salmon bias affecting morality among Puerto Rican or Cuban people using data from the National Longitudinal Mortality Study. More recently however, Bostean (2013) found evidence of salmon bias on activity limitation among Mexican immigrants. In contrast, Diaz, Koning and Martinez-Donate (2016) found that although Mexican immigrants who had health limitations and greater stress were more likely to return to, they found little evidence of salmon bias occurring.

While the literature examining the effects of immigration on health has focused on migrant health selection, there remains a dearth of literature examining the effects of immigration on health longitudinally. In the U.S. context, there have been three major studies that have attempted to examine the effects of immigration on health: the New Immigrant Survey (NIS), the Mexican Family Life Survey (MxFLS), and the Health of Philippine Emigrants Study

(HoPES), the dataset examined for this dissertation. The earliest of these studies, the NIS, a retrospective-prospective study of recent immigrants to the U.S., did find some evidence of immigrant health selection for most countries, except Mexico (the most populous sending country to the U.S.) (Akresh and Frank 2008). However, there have been few studies examining changes in health among immigrants over time using the NIS. Instead, longitudinal studies using the NIS have focused on economic outcomes over time (Akresh 2008; Jasso 2011).

The second of these studies, the MxFLS, was a population-level and population-representative comparison of people from Mexico and those who had immigrated to the U.S. (Rubalcava et al. 2008b). The MxFLS found mixed evidence of health selection among Mexican migrants compared to non-migrants in Mexico, similar to the NIS (Rubalcava et al. 2008b). However, studies examining Mexican migrants longitudinally found evidence of a health decline of recent immigrants to the U.S. (within the past five years) relative to non-migrants who remained behind in Mexico (Goldman et al. 2014). Furthermore, Mexican migrants with poorer health were more likely to return to Mexico (Arenas et al. 2015). These results emphasized the potential detrimental effects of migration.

Finally, the third study, HoPES, which is the focus of my dissertation, provided a new look at the effects of migration on health by 1) examining the effects of migration within a different population; and 2) providing a more ideal counterfactual non-migrant group (de Castro et al. 2019; Gee et al. 2018). Unlike the MxFLS, which compared Mexican migrants to the general population-representative sample of all Mexican non-migrants, HoPES frequency-matched their non-migrant cohort based on age, sex, and education (de Castro et al. 2019; Gee et al. 2018). This matching was done to allow the non-migrant sample to act as a more appropriate counterfactual group. In this case, the non-migrants of HoPES are intended to represent the

migrant group, had they never decided to migrate. This matching also attempts to account for the inevitable health selection that occurs when comparing migrants to non-migrants. Initial analyses of the baseline data for HoPES found evidence of health selection for subjective health outcomes, such as the reported number of health outcomes (Morey et al. 2020a) and self-rated health (Bacong et al. Under Review), but less so for objective biomarker measures like body mass index and waist circumference (Gee et al. 2019). This dissertation is one of the first longitudinal analyses of the HoPES data. In the sections that follow, I provide some background on the association between immigration and health for the three health outcomes for this study, allostatic load, psychological distress, and sleep. These three health outcomes were chosen because they have been rarely evaluated in the pre-migration context and they represent three health outcomes that may be related to the stresses of immigration, as posited by ideas of acculturative stress. Allostatic load, which is discussed first, is an indicator of psychological distress, while psychological distress and sleep disturbance may be subjective measure of health related to acculturative stress.

Immigrant Health and Allostatic Load

Most studies that examine the role of immigration on health often rely on self-reported measures for health (Bacong 2021; Bacong and Sohn 2021; Bostean 2013; Goldman et al. 2014; John et al. 2012). Although there are some studies that have examined objectively measured health outcomes (Gee et al. 2019; Rubalcava et al. 2008b), understanding how the physical health of migrants differs from non-migrants continues to be a major area of exploration.

Uprooting one's life in one country to permanently establish a new life in another country can be a stressful process. Studies have noted how the immigration process can be psychologically stressful for both forced migrants (e.g., refugee and asylum seekers) in addition

to regular migrants (e.g., family and employment migrants) (Gong et al. 2011; Ryan et al. 2006; Sangalang et al. 2019; Tuggle, Cohen and Crews 2018; Wang and Kaushal 2019).

By extension, it would be reasonable to expect that immigrants would experience greater physiological wear and tear compared to those who did not migrate. The process of migration can contribute to greater physiological wear and tear due to additional burden of preparation for migration or poor preparation (Ryan et al. 2006) or unclear goals (Gong et al. 2011). Moreover, immigrants may experience new forms of discrimination (Kaestner et al. 2009; Yip, Gee and Takeuchi 2008) unlike anything experienced in their sending country. These experiences act as additional stressors above and beyond those originally experienced before migration.

Examining immigrants' allostatic load, as a physiological measure of the wear and tear on the body (Seeman et al. 2001), could serve as a new avenue for study of the role of immigration and immigration stress on health. The measure of allostatic load is based on the concept of allostasis – body systems' response to stressors in order to reestablish homeostasis (McEWEN 1998). Conceptually, allostatic load is representative of the "wear and tear" of stressors on the body, often referenced to in the "Weathering Hypothesis" (Geronimus et al. 2006). Greater allostatic load has been associated with a higher likelihood of adverse cardiovascular events (Barr 2017; Logan and Barksdale 2008), worse sleep quality (Chen et al. 2014), and greater mortality (Beydoun et al. 2016; Duru et al. 2012)

Since its conceptualization in the late 1990s, disparities in allostatic load have been well recorded. Studies have noted differences in allostatic load by common markers of social stratification such as socioeconomic status (Bird et al. 2010; Robertson and Watts 2016; Wickrama, O'Neal and Lee 2016), gender (Juster and Lupien 2012; Mair, Cutchin and Kristen Peek 2011; Wallace et al. 2013), and race/ethnicity (Borrell, Dallo and Nguyen 2010;

Doamekpor and Dinwiddie 2015; Parente, Hale and Palermo 2013; Tomfohr, Pung and Dimsdale 2016; Upchurch et al. 2015). In many of these cases, those with more privileged statues are more likely to have lower allostatic load compared to those with less privileged statuses.

The association between allostatic load and immigration status has also been examined, though in the context of immigrant assimilation and acculturation, and conducting comparisons between immigrants and U.S.-born people. Indeed, there has been evidence that immigrants may initially appear to have lower allostatic load than U.S.-born people (Peek et al. 2010). However, greater residence in the U.S. has been associated with higher allostatic load, even when accounting for age (Doamekpor and Dinwiddie 2015; Kaestner et al. 2009; Langellier et al. 2020; McClure et al. 2015). While these findings are important and reemphasize the immigrant health paradox, these studies examine immigrants after migration has occurred. Therefore, the "baseline" allostatic load of these groups is unknown. It is important to find a baseline level of allostatic load for immigrant groups, particularly pre-migration, in order to understand if increased allostatic load is the result of migration and attempts at immigrant integration themselves, or a secular trend.

Immigrant Mental Health

According to the National Institute of Mental Health, 21.0% of U.S. adults experienced mental illness in 2020 (National Institute of Mental Health 2022). Although the prevalence of any mental illness was lowest among Hispanic and Asian people (National Institute of Mental Health 2022), whom by extension comprise a large share of the immigrant population, it is important not to downplay the burden of poor mental health among immigrant populations.

The stresses related to the immigration process would lead one to assume that immigrants would have poorer mental health relative to U.S.-born and non-migrant individuals. For example,

higher acculturative stress has been associated with greater psychological distress among immigrants (Alegría, Álvarez and DiMarzio 2017; Li and Anderson 2016; Sangalang et al. 2019). Moreover, concerns related to finances also serve as a major source of stress and poorer mental health among immigrants (Arega et al. 2022).

However, this is not the universal case. There has been an abundance of research noting how immigrants have better mental health relative to their U.S.-born counterparts (Alegría, Álvarez and DiMarzio 2017; Filion, Fenelon and Boudreaux 2018). One recent scoping literature review found overwhelming evidence of an immigrant health advantage for mental health (Alegría, Álvarez and DiMarzio 2017). However, other aspects of immigrants' social position such as their documentation or citizenship status (Bacong and Sohn 2021; Filion, Fenelon and Boudreaux 2018; Gee et al. 2016) or their race and ethnicity may differentially impact their mental health (Alegría, Álvarez and DiMarzio 2017). These social positions may be stigmatized by the more socially and politically dominant populations of a country, leading to greater interpersonal discrimination, restrictive immigration policies, and lack of access to health and social services (Hatzenbuehler, Phelan and Link 2013; Morey 2018; Riley 2020; Wallace and Young 2018). Documentation status, specifically, can act as a form of social stratification separating those who have membership within the host country from those who do not (Bacong 2020a; Bacong 2020b; Bloemraad 2017). As non-members of the host country, immigrants may have poorer mental health because they are not entitled to the same access to healthcare as documented individuals (Derose et al. 2009; Ortega et al. 2018; Van Natta et al. 2018). Immigrants may also not use healthcare services in fear of deportation for revealing their documentation status (Derose, Escarce and Lurie 2007; Van Natta et al. 2018).

There are other risk factors that could also explain why mental health may be worse among immigrants compared to U.S.-born individuals. Similar to other health outcomes, mental health advantages among immigrants may decline over time (Bacong and Sohn 2021; Morey et al. 2020d). Limited English proficiency may limit the ability for immigrants to successfully communicate their needs and questions with healthcare providers (Derose, Escarce and Lurie 2007; Green et al. 2005).

Traumatic pre-migration experiences (Sangalang et al. 2019) or encounters with immigration enforcement (Manalo-Pedro and Sudhinaraset 2022; Martinez et al. 2015; Wang and Kaushal 2019) may further exacerbate mental health outcomes among immigrants. Finally, experiences of discrimination related to one's immigration status or other social characteristics could further influence poor mental health outcomes among immigrants (Choi et al. 2020; Esses 2021; Morey et al. 2020d).

In contrast, immigrants may have protective factors that beget better health. For example, living in an ethnic enclave, where immigrant-relevant social resources are available, could explain better mental health among immigrants (Morey et al. 2020d). Furthermore, having strong social ties and social support could allow immigrants to be more resilient to the stresses of acculturation (Alviar and del Prado 2022; Ruiz et al. 2016). Overall, there are a multitude of individual, interpersonal, and institutional factors that may account for both immigrants' mental health.

Immigrant Health and Sleep

Nationally, about 35% of U.S. adults were classified as having "short sleep duration", or less than 7 hours of sleep per night (Centers for Disease Control and Prevention 2017). There are also racial differences in short sleep duration. Non-Hispanic White people have the lowest

prevalence of short sleep (33.4%), followed by Hispanic (34.5%), and then Asian (37.5%) people.

Lack of sleep, poor sleep quality, and sleep disorders are associated with a number of chronic comorbidities including obesity (Beccuti and Pannain 2011; Rahe et al. 2015), diabetes (Lee, Ng and Chin 2017), cardiovascular disease (Floras 2014), metabolic syndrome (Lim et al. 2018), and inflammation (Meier-Ewert et al. 2004). Moreover, lack of sleep and poor sleep quality are associated with poorer mental health outcomes (Freeman et al. 2017). Insufficient or an overabundance of sleep and poor sleep quality can lead to the incidence of chronic comorbidities by disrupting a person's circadian rhythm altering food consumption behavior and physiological regulation.

There are multiple environmental and social factors that could account for insufficient/overabundance of sleep and poor sleep quality. Environmental factors include overexposure to light pollution, light at night (Xiao et al. 2020), noise pollution (Kawada 2011) or air pollution (Liu et al. 2020). Social factors include experiencing debt or financial strain (Walsemann, Ailshire and Gee 2016; Warth et al. 2019), involvement in night shift work (Lim et al. 2018), and experiences of interpersonal discrimination (Slopen, Lewis and Williams 2016).

There have been a growing number of studies examining the role of migration on sleep and sleep quality among immigrants (Hale and Rivero-Fuentes 2011; Lee et al. 2021; Lee, Slopen and Hong 2019; Sano et al. 2019b; Seicean et al. 2011; Villarroel and Artazcoz 2017). Although some indicated that the stress of immigrant integration and acculturation could lead to poorer sleep and sleep quality (Im et al. 2017; Lee et al. 2021; Park et al. 2020), the literature on the association on sleep and immigrant status is mixed. Sano et al. (2019a) show that both recent and established immigrants report less troubled sleep compared to their native-born counterparts.

However, the type of sleep condition studied also matters. Sleep quality can differ by occupational status, such that those in support or labor positions could have worse health compared to those in more professional positions (Jackson et al. 2014), Moreover, sleep conditions can also differ by region of origin, such that immigrants who come from poorer countries may have worse sleep relative to people who come from richer countries (Villarroel and Artazcoz 2017). Thus, the worse sleep that may occur among immigrants could be due to acculturative factors in addition to social and environmental factors.

Explanations for Changes in Migrant Health: Acculturation, Integration, and Secular Trends

Three major concepts about how immigrants change have been proposed since the 1960s. The first, assimilation theory, proposes that immigrants will become more like the host country residents over time and generation (Gordon 1961; Gordon 1964). This melding assumes that immigrants forgo the cultures and behaviors of their home country to become socially, economically, and politically the same as host country residents such that there no longer remain distinctions. Assimilation has been traditionally studied as both a single and multi-generational experience (Waters 1994; Waters and Jiménez 2005) and has been operationalized as four concepts: upward mobility in socioeconomic status, spatial concentration, language assimilation, and intermarriage with the prevalent race group (Waters and Jiménez 2005). Branches of assimilation theory, such as segmented assimilation, have become popular explanations as to why certain ethnic groups achieve socioeconomic success compared to others (Portes and Zhou 1993; Zhou and Portes 2012; Zhou and Xiong 2005). However, the emphasis of homogenization of typical non-Western ethnic groups that assimilation posits has been a point of contention and

confusion among immigration scholars (Gans 1997; Glazer 1993; Gordon 1961; Nee and Alba 2012).

In contrast, acculturation remains a popular alternative to assimilation theories. Instead of focusing on the absorption of immigrant ethnic groups into the larger host society, acculturation theory focuses on how immigrants adopt the host society's culture and behaviors (Gans 1997). This conceptualization provides an air of ethnic pluralism and coexistence, rather than homogenization (Gans 1997). In the health literature, acculturation has been operationalized in multiple forms, including English proficiency (Gee et al. 2019; Gee, Walsemann and Takeuchi 2010; Lee et al. 2013), language of interview (Lee, Nguyen and Tsui 2011; Viruell-Fuentes et al. 2011), time in the host country (Creighton et al. 2012; Lee et al. 2013; Ro et al. 2015), or changes in healthy behaviors (Abraído-Lanza, Chao and Flórez 2005; Okafor, Carter-Pokras and Zhan 2014; Ramírez et al. 2018). Moreover, some studies have examined acculturation in the context of acculturative stress. Instead of focusing on how immigrants gain or lose health behaviors or culture, the acculturative stress framework focuses on the stresses of adjusting to living in a new country (Gee et al. 2016; Lee et al. 2021; Sangalang et al. 2019; Torres, Driscoll and Voell 2012). While there is an abundance of evidence indicating the association between these operationalizations of acculturation with health, these factors ignore the historical context in which immigrants live today (Ro et al. 2015; Viruell-Fuentes, Miranda and Abdulrahim 2012) or the transfer of "Western" culture and behaviors due to globalization (Acevedo-Garcia et al. 2012; Ferguson et al. 2017; Ferguson and Bornstein 2012; Ferguson and Bornstein 2015). Furthermore, studies on acculturation often ignore how immigrants are socially stratified from those born in the host culture (Bacong 2020b; Jasso 2011; Morey et al. 2020b).

As an adaptation of acculturation theory, immigrant integration or incorporation has been an alternative approach to discussing how immigrants change over time. Immigrant integration is defined from a 2015 report by the National Academy of Sciences, Engineering, and Medicine as "the process by which members of immigrant groups and host societies come to resemble one another (pg. 19)" (National Academies of Sciences, Medicine and Population 2016).

If immigrants were to truly integrate with U.S.-born individuals, then they should achieve full socioeconomic and social parity. However, immigrants may initially experience difficulties in securing stable income or financial strain. Immigrants may spend years saving money in order to make the trip. Immigrants often forgo their employment in their sending country in hopes of gaining better, more lucrative employment in their host country (Stark and Bloom 1985). However, these aspirations for a better financial situation are not without expectations of financially or materially supporting kin in their sending country through remittances (Cohen 2011; Guitierrez 2018b; Gutierrez 2018a; Ratha 2005). Other immigrants may experience occupational downgrading when they arrive in the U.S. because their degree or credentials may not be recognized under U.S. institutions (Akresh 2008).

Immigrants may experience interpersonal discrimination as they socially integrate in a new country. Whether based on immigrant status or other factors, interpersonal discrimination is an indicator of social exclusion and could lead to isolation. Studies of Latinx immigrants found that those with greater perceived discrimination had greater psychological distress (Torres, Driscoll and Voell 2012) and self-rated health (Finch and Vega 2003). In this case, one could suspect that immigrants experience just as much discrimination as their non-migrant counterparts. However, post-migration, immigrants may experience more discrimination as they begin to socially integrate.

Some factors may ease the burden of the challenges of integration. Whether within the same country or abroad, having many social resources could ease the burden of stress among migrants (Finch and Vega 2003; Panchang et al. 2016). These social resources can come in many forms, including having someone to help with complicated immigration forms or having people who can introduce immigrants to social support services (Choi 2009; Sudhinaraset et al. 2017). For immigrants, living in communities of their same ethnicity may be particularly useful in pointing immigrants to resources needed for social or economic success (Li 2004; Zhou and Bankston III 1994). Moreover, having social resources in a new country by becoming more linguistically integrated can have health benefits for general health (Tegegne 2018).

While the early literature on assimilation, acculturation, and integration have focused on the experiences of immigrants from an individual or society level, it is equally important to consider the institutional and structural factors that facilitate integration. Viruell-Fuentes, Miranda and Abdulrahim (2012) and Gee and Ford (2011) highlight the importance of understanding immigration as a system embedded in structural racism. In this case, the selection of prospective immigrants to enter the U.S. is a practice that values immigrants who either align with imagined racial composition of the U.S. (Bacong and Menjívar 2021; Bonilla-Silva 2004; Gee and Ford 2011) or are beneficial to the U.S. labor force (Costa 2020). These historical and structural factors could lead to erroneous conclusions like the immigrant health paradox (Bacong and Menjívar 2021) or create stressful societal conditions that contribute to poorer health among immigrants (Morey et al. 2018).

Methodological Limitations of the Study of Migrant Health Selection, Acculturation, and Integration

Examining change over time remains the common theme of studies of immigration and health. However, despite the abundance of literature on immigrant health, studies are often limited by either one of two factors: an inadequate reference group or the limited ability to make a causal inference because of cross sectional data.

Inadequate Reference Groups. Many studies of immigrant health compare immigrants to those who were born in the host country (e.g., U.S.-born), usually noting the presence of an immigrant health paradox. While this comparison may be theoretically founded (e.g. acculturation or social stratification), both groups often grow up in different social and economic circumstances (Acevedo-Garcia et al. 2012; Boen and Hummer 2019b; Bostean 2013; Hamilton and Hummer 2011; Rubalcava et al. 2008b; Viruell-Fuentes, Miranda and Abdulrahim 2012). Therefore, studies are naturally set up to find a difference between both groups and results may be misinterpreted to assume that "immigration" had an effect, when it could be a secular trend. Instead, those who did not immigrate (i.e., non-migrants from the sending country) may be a more appropriate comparison group, assuming that both groups experience similar social and economic environments. Moreover, examining non-migrants allows for examination of whether health selection occurred, which could drive the immigrant health paradox seen with host-country residents. Many datasets are limited in that they do not have data specifically for non-migrants. However, there are a limited number of datasets that have formally made this comparison (Gee et al. 2018; Rubalcava et al. 2008a), with other synthetic datasets that have combined data from multiple sources (Riosmena, Kuhn and Jochem 2017; Ro, Fleischer and Blebu 2016). Some studies using these data have found that immigrants to the U.S. may be less obese (Gee et al. 2019) or have fewer health conditions (Morey et al. 2020c) upon arrival. Others found few differences between immigrants and those who do not migrate (Rubalcava et al.

2008b). Moreover, some have found that after arrival, the immigrants' health becomes worse than those who do not migrate (Goldman et al. 2014).

Cross Sectional Data. A second limitation of studies of immigrant health relates to the inability of cross-sectional data to make causal inference on the role of immigration. Many studies use proxies, such as English proficiency or language use, to evaluate the association between acculturation and health over time (Lee, Nguyen and Tsui 2011; Lee et al. 2013; Lommel and Chen 2016). However, while early theories of acculturation assumed that immigrants arrive as blank slates, immigrants may be aware of the cultures of their host country through remote acculturation ore pre-acculturation (Ferguson et al. 2017; Ferguson and Bornstein 2012; Ferguson and Bornstein 2015; Gee et al. 2019). Thus, it is difficult to assume that acculturation "causes" poorer health among immigrants if there is no baseline level of acculturation to start from. Other studies consider "time lived in the host country" as another proxy of acculturation (Bos et al. 2007; Creighton et al. 2012; Norredam et al. 2014). Although this measure better addresses issues of temporality (as a measure of time), this continues to measure prevalent cases, rather than incident cases, weakening its causal argument.

Although more time consuming, a longitudinal approach would be a better method to address the limitations of cross-sectional data. Moreover, a study that allows for comparison of immigrants to those who did not immigrate can better address issues of comparability. **Figure 1.1** displays four potential hypothesized trends of how immigrant health could change longitudinally. First, migrants could begin with an initial health advantage compared to non-migrants but have their health decline over time (i.e., increased risk). This first scenario would assume that immigrant health selection does indeed occur. Second, migrants could have similar health to non-migrants. However, the risk of poorer health decreases for migrants over time –

indicative of an improving migrant advantage. Third, migrants and non-migrants could initially have similar health. However, migrant health could decline over time. Finally, migrants could experience an initial decline in health, but return to baseline levels.

[Figure 1.1 about here]

Migration in the Philippines Context

Most studies on acculturation and immigration have focused on the experiences of Latinx people, particularly those who have migrated from Mexico. Though Mexico has the largest stream of immigrants to the U.S., it is worth noting that the barriers to migration are different because of its shared land border with the U.S. (Akresh and Frank 2008; Ro, Fleischer and Blebu 2016). Mexico has also mostly functioned autonomously with respect to its relationship with the U.S., though much of the interaction of Mexico and the U.S. surrounds labor and trade (e.g., the Bracero program and the North American Free Trade Agreement). When considering the remaining major migration streams to the U.S. (e.g., China, India, South Korea, and the Philippines), many of these countries have higher barriers to migration (i.e., oceans) to enter the U.S. This argument is not to discount the continued criminalization of Latinx immigrants and undocumented immigrants, but rather to show that Latinx migration and Mexican migration to the U.S. does not represent the entirety of migration streams.

The Philippines, on the other hand, provides an alternative perspective on the migration experience. The U.S. is the top receiving country for the Philippine emigrants is behind Chinese, Asian Indian, and Mexican immigrants in the total number of immigrants arriving (U.S. Department of Homeland Security 2017). The Philippines also has a higher barrier to migration and an intimate history with U.S. imperialism (Sabado-Liwag et al. 2022). The Philippines was initially colonized by Spain in 1500s where it was seen as focal point for Spanish trade with

China (Agoncillo and Alfonso 1969). However, in 1898, Spain relinquished control of the Philippines to the U.S. as a stipulation of the Spanish American war. Filipinos were formally included as U.S. colonial subjects following the overthrow of the First Philippine Republic government by the U.S. only a couple years after the Spanish American War. Filipinos were considered as U.S. nationals, a pseudo-citizenship status, that allowed them to migrate to the U.S. without being barred by immigration quotas. As a result, many Filipinos immigrated to the U.S., settling in Alaska, the Pacific Northwest, and California, establishing many of the Filipino ethnic enclaves seen in major cities today. Many of these Philippine immigrants worked in fisheries or agriculture. In the Philippines, U.S. colonial rule saw the introduction of English and American style education among Filipino elite and the establishment of military bases led by U.S. governors, including future U.S. president William Taft. After World War II, the Philippines was formally granted independence from the U.S. However, the U.S. influence is still present due to the presence of U.S. military bases, the installation of English as an official language (in addition to Tagalog), and the continued economic relationships between the two countries. This economic relationship has reified the Philippines economic importance to the U.S. The U.S. remains the number one destination for temporary Overseas Filipino Workers (OFWs) and permanent Filipino emigrants (Commission on Filipinos Overseas 2019). Many Filipinos who come to work in the U.S. arrive as healthcare professionals, caretakers, or military recruits. The high number of migrants is attributed to high unemployment and low pay within the Philippines. OFWs and Philippine emigrants are often seen as “New National Heroes” in the Philippines due to the abundances of remittances that are sent. Remittances make up a substantial portion of the total Philippine GDP (Bayangos and Jansen 2011). As we consider the effects of

migration on the health of people from the Philippines, it is important to consider this sociohistorical and economic context.

CONCEPTUAL MODEL

This dissertation builds upon the limited literature exploring migrant health selection and immigrant integration by comparing a representative sample of international Philippine migrants to the U.S. compared to non-migrants who do not leave the Philippines. **Figure 1.2** displays the conceptual model for this study. The model first begins by identifying macro-social historical and environmental factors that could influence immigration. These factors include the role of colonial legacies in creating migration streams (Sabado-Liwag et al. 2022), national and local economic policies (Bayangos and Jansen 2011; Semyonov and Gorodzeisky 2008), and political conditions (Gee and Ford 2011) which influence immigration. These macro-social historical and environmental factors lead to reduced social and economic opportunities in the host country and ultimately social and economic stratification. This social and economic stratification then influences the individual-level circumstances, such as individuals' financial and social needs in addition to their disposition to migrate. These individual level characteristics influence their experiences in their host country and ultimately their decision to migrate. Upon migrating, immigrants may experience changes in their financial strain, social resources, and encounter new forms of discrimination. On the other hand, non-migrants may experience little to no change in their current living conditions. Ultimately, these factors and experiences with these factors influence both migrants' and non-migrants' health.

[Figure 1.2 about here]

RESEARCH AIMS AND HYPOTHESES

Motivated by theories on migrant health selection and immigrant integration, I explored three specific aims:

Aim 1: To evaluate differences in allostatic load, psychological distress, and sleep disturbance by migrant status at baseline, and characterize how these differences change over 2 years of follow-up.

Hypothesis 1: Migrants will have lower allostatic load and psychological distress, and less sleep disturbance compared to non-migrants at baseline.

Hypothesis 2: Non-migrants will experience little change in psychological distress and sleep disturbance 1-year after migration that will continue by 2-year follow up. However, migrants will experience a greater in psychological distress and sleep disturbance during the same time period.

Aim 2: To characterize the changes in levels of financial strain, interpersonal discrimination, and social resources, individually, from baseline to 2-year and examine if these changes differ by migrant status.

Hypothesis 3: Migrants and non-migrants will have similar levels of financial strain, interpersonal discrimination, and social resources at baseline.

Hypothesis 4: Migrants will have less financial strain than non-migrants from 1-year to by 2-years follow-up.

Hypothesis 5: Migrants will experience greater levels of discrimination compared to non-migrants by 2-year follow up.

Hypothesis 6: Migrants will experience a decrease in social resources 1-year post-migration but regain similar levels of social resources as non-migrants by 2-year follow up.

Aim 3: To determine the relationship of financial strain, interpersonal discrimination, and social resources on health separately, and study whether these associations differ by migrant status.

Hypothesis 7: At baseline, greater financial strain and interpersonal discrimination will be associated with higher allostatic load, while more social resources will be associated with lower allostatic load.

Hypothesis 8: From baseline to 2-year follow-up, greater financial strain and interpersonal discrimination will be associated with greater psychological distress and sleep disturbance.

Hypothesis 9: Migrants with higher financial strain and interpersonal discrimination will 1) have higher allostatic load at baseline; and 2) have greater psychological distress and sleep disturbance over time compared to non-migrants with similar levels of financial strain and interpersonal discrimination.

Hypothesis 10: Migrants with greater levels of social resources will 1) have lower allostatic load at baseline; and 2) have less psychological distress and sleep disturbance over time compared to non-migrants with similar social resources.

CHAPTER 2: DATA, VARIABLES, AND ANALYTIC STRATEGY

DATASET AND PARTICIPANT RECRUITMENT

The baseline, 1-year, and 2-year waves of the Health of Philippine Emigrants Study (HoPES) served as the dataset for this dissertation (Gee et al. 2018). Started in 2017, HoPES is an ongoing longitudinal cohort study whose primary purpose is to the effects of migration on obesity. The 1-year and 2-year waves were collected in 2018 and 2019, respectively. At the time of writing of this dissertation, HoPES was collecting data for 3-year follow up. However, 3-year follow up was delayed to 2021-2022 due to the COVID-19 pandemic. This dissertation did not

use data from the 3-year follow up due to the ongoing data collection and anticipated period effects due to the pandemic.

In partnership with the Commission of Filipinos Overseas (CFO), HoPES recruited one migrant (n=832) and one non-migrant (n=805) cohort at baseline at two of the main CFO offices – Manila and Cebu. Although there is a third main CFO office in Davao, HoPES did not recruit at this office as it was not fully operational in 2017. Furthermore, although there are other satellite CFO offices throughout the Philippines, most migrants are required to travel to the Manila or Cebu offices to obtain the necessary paperwork to emigrate.

The migrant cohort was recruited in-person at mandatory Pre-Departure Orientation Sessions (PDOS) at the Manila and Cebu CFO offices. After receiving their visa, Filipino migrants are expected to attend the PDOS to obtain official authorization from the Philippine government to emigrate. Thus, the migrant sample of HoPES was recruited from the possible universe of all authorized migrants from the Philippines. Inclusion criteria encompassed adults ages 20 to 59 years old at the time of baseline recruitment and intended to emigrate internationally. Exclusion criteria included those who were pregnant, those whom the U.S. was not their final immigration destination, those who could not speak English, Tagalog, or Cebuano, and those who did not intend to emigrate within 3-months of recruitment.

Temporary migrants (e.g., H1-B visa holders), refugees or asylum seekers, and unauthorized migrants are not captured in this sample. These groups were left out because they may not go to CFO offices for migration (i.e., unauthorized migrants) or their potential for return migration to the Philippines (i.e., temporary migrants). Thus, this study is not generalizable to all Filipino migrants. However, most Filipinos travel to the U.S. as their migration destination (Commission on Filipinos Overseas 2019). In total, 3412 individual migrants were approached at

PDOS sessions in Manila and Cebu with 2279 meeting eligibility criteria. Of the 279 eligible migrants, 36.5% agreed to complete the baseline survey (de Castro et al. 2019). Given this low response rate among prospective migrants at baseline, the HoPES migrant sample may represent a select case of migrants who may not fully be representative of all U.S.-bound migrants from the Philippines.

After recruiting the migrant sample, the non-migrant sample was recruited in-person to frequency match to the migrant sample on age, gender, and education (more than high school vs. less). Specifically, stratified random sampling of households was conducted in three areas: Metro Manila – urban, Cebu – urban, and Cebu – rural. Within each stratum, barangays (e.g., equivalent to U.S. census tracts) were sample proportional to their population; 8 barangays in Manila, 7 barangays in Cebu-Urban, and 5 barangays in Cebu-Rural were sampled with the goal of about 40 people per barangay. After obtaining permission from the city/municipal mayor or local barangay captain, households were clustered sample by moving in a random direction from a chosen landmark. After a household was chosen, adults were enumerated and screened for inclusion in HoPES. Non-migrant inclusion criteria included living in the barangay for the past 2 years with no plans to move in the next 3 years (i.e., the study period), needed to be between 20 to 59 years old, and speak English, Tagalog, or Cebuano. Exclusion criteria included currently pregnant women or live-in domestic workers. A total of 2215 non-migrants were approached with 1173 individual who met criteria. Of those who met criteria, 805 (68.6% of eligible individuals) were recruited.

HoPES data include information on demographics, the migration process, acculturation, perceptions of the Philippines and United States, diet, exercise, physical and mental health, and biomarkers. Biomarkers include height, weight, waist circumference, hip circumference, lipid

profiles, creatine levels, and blood pressure. Biomarkers were collected by trained nurses. Further information on biomarker collection is noted elsewhere (Gee et al. 2018).

Follow-Up Interviews in Later Waves

Follow-up with the migrant sample occurred at 3-month, 1-year, and 2-year time points of the HoPES parent study. The 3-year data collection were still ongoing at the time of writing of this dissertation. Given that migrants may have relocated all over the U.S., follow-up interviews were done over phone or video. The 3-month follow-up was used as a check-in for the migrant sample to maintain phone or virtual correspondence with a limited set of interview questions. The 1-year, 2-year, and 3-year follow-up time points were used as they included relevant variables to address the specific research questions. Unlike migrants, the non-migrant sample was interviewed in-person by trained research staff at 1-year and 2-year follow-up time points. However, 3-year data were collected via phone and video chat due to COVID-19 stay-at-home orders in the Philippines. In this dissertation, I do not use data from 3-year follow up due to the anticipated period effects on health outcomes from the stresses of the COVID-19 pandemic. Table 2.1 presents the response rates of the HoPES by migrant status. At baseline, the response rate was higher among non-migrants (68.6%) compared to migrants (36.5%). At 1-year, non-migrants continued to have higher response rate (94.2%) compared to migrants (54.7%). Similarly, at 2-year non-migrants maintained a high level of response (94.7%) compared to migrants (45.9%).

VARIABLES

The accompanying section describes the key health outcomes, exposure variables, and covariates considered. Table 2.2 presents the full list of these variables by construct and survey wave. All cleaning, recoding, and analysis were done using Stata Version 17.0 MP.

[Table 2.2 about here]

Health Outcomes

Three health outcomes were examined in this dissertation that could be the result of stresses of migration. First, psychological distress was measured using a shortened version of the National Institutes of Health (NIH) (PROMIS) Anger, Anxiety, and Depression Scale (Pilkonis et al. 2014). This PROMIS Scale has been validated with other measures of psychological distress, including the Center for Epidemiological Studies Depression Scale (CESD) and the Patient Health Questionnaire (PHQ-9) (Amtmann et al. 2014; Pilkonis et al. 2014) and among diverse clinical samples (Schalet et al. 2016). Specifically, participants were asked if they felt any of the following emotions during the past seven days: 1) worthless, 2) helpless, 3) depressed, and 4) hopeless. There were five possible response categories for each emotion: 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always. Using these four items, responses were summed to create a scale which ranged from a score of "4" to a score of "20"; higher scores are indicative of worse psychological distress. The Cronbach's Alpha for the Depression, Anger, and Anxiety Scale at baseline was 0.8254. Studies have typically treated the shortened NIH PROMIS scale as a continuous variable (Pilkonis et al. 2014). However, the scale can be categorized into clinically relevant values. Previous studies on the psychometrics of the NIH PROMIS Anger, Anxiety, and Depression Scale (Kroenke et al. 2014; Pilkonis et al. 2014) have created cutoff values for both full (8 item) and short (4 item) scales. Thus, a score less than or equal to 7 was coded as "None to Slight Psychological Distress", which was used as a reference category for analyses. A score was from 8 to 10 was coded as "Mild Psychological Distress". A score from 11 to 16 was "Moderate Psychological Distress". Finally, a score of 17 to 20 was coded as "Severe Psychological Distress". An additional coding scheme created a dichotomous variable comparing

those with “None to Slight Psychological Distress” and “Mild Psychological Distress” versus those who had “Moderate or Severe Psychological Distress”. These scoring schemes were done for each wave.

The second outcome, sleep quality, was measured using a shortened version of the NIH PROMIS Sleep Quality Scale, which has been validated with the Pittsburgh Sleep Quality Index (PSQI) and Epworth Sleepiness Scale (ESS) (Yu et al. 2012). The shortened sleep quality scale was conducted in two parts. First, participants were asked to rate their “usual” sleep quality”. Possible responses included: 1=very good, 2= good, 3=fair, and 4=poor. Second, participants were asked to rate their sleep quality in the past seven days with a similar 1 to 5 scale as the NIH PROMIS Anger, Anxiety, and Depression Scale for the following items: 1) if their sleep in the past seven days was refreshing, 2) had problems sleeping through the night or staying awake, and 3) had difficulty falling asleep. The range of the Sleep Quality Scale was between 4 to 19 and Cronbach’s Alpha for the Sleep Quality Scale was 0.7171 at baseline. Similar to the NIH PROMIS Anger, Anxiety, and Depression Scale, scores on the 4-item Sleep Disturbance Scale can be converted into clinically relevant values. A score of 4 to 8 was coded as “None to Slight Sleep Disturbance”. A score of 9 to 10 was coded as “Mild Sleep Disturbance”. A score of 11 to 16 was coded as “Moderate Sleep Disturbance”. Finally, a score of 17 to 19 was coded as “Severe Sleep Disturbance”. Finally, I also dichotomized the sleep disturbance categories into “None to Mild Sleep Disturbance” versus “Moderate to Severe Sleep Disturbance”.

The third and final health outcome was allostatic load, which was chosen as an alternative to self-report outcomes and is a composite measure of physiological stress. Allostatic load was collected at baseline only. HoPES collected a series of 11 biomarkers which were used to create the allostatic load measure: systolic blood pressure, diastolic blood pressure, body mass

index (BMI), waist circumference (WC), waist-to-hip ratio (WHR), total cholesterol, high density lipoprotein, low density lipoprotein, triglycerides, apolipoprotein-B, and C-reactive protein. Each of these measures were completed by trained nursing staff during baseline assessment in the Philippines. Although follow-up for biomarkers was intended at 3-year, collection has been indefinitely postponed due to the ongoing COVID-19 pandemic. Further details on measurement procedures of biomarkers are provided elsewhere (Gee et al. 2018), but a brief description for each biomarker is provided below. Systolic and diastolic blood pressure, in mmHg, were measured using an Omron Healthcare Model BP785N, an electronic blood pressure monitor. Waist circumference and hip circumference, in centimeters (cm), were measured using Weight and Measure brand, Model CAN150, a standardized measuring tape. Height, in centimeters, was measured using a Charder brand, Model HM200P, a calibrated stadiometer. Weight, in kilograms (kg), was measured using a Tanita Corporation, Model BC-541 N pre-calibrated digital scale. This digital scale also collected other body composition measures, such as body fat percentage and muscle mass. All blood pressure and anthropomorphic measures were done thrice, with a fourth measure conducted if inter-observer error differed by more than 0.5 cm for height, 0.3 kg for weight, and 1.0 cm for hip and waist measurements. For each anthropometric and blood pressure measure, the mean of the measurement was taken to provide a summary measure for use in determining allostatic load. C-reactive protein and apolipoprotein-B measurements were obtained using dried blood spot sampling (DBS) by a trained nurse. Five blood droplets were collected on Whatman 903 Protein Saver cards after the participant's fingertip was pricked with a sterile lancet. DBS specimens were stored and analyzed at the University of Washington Center for Studies in Demography and Ecology. Lipid profiles were obtained using a PST diagnostic, CardioCheck PA, CHEK-1708, point-of-care device.

Following previous studies (Seeman et al. 2001), I first operationalized allostatic load based on whether participants were in the top decile (i.e. the 90th percentile) of each biomarker (coded as "1") or not (coded as "0"). These coding for each biomarker were then summed to create a composite score ranging from 0 to 11. I conducted two sensitivity analyses for allostatic load. First, I expanded range of inclusion for the percentiles, focusing on the top quartile (i.e. the 75th percentile). Finally, I examined whether participants' biomarker measures fell into a "high risk" category for clinical diagnosis. For example, participants were coded as having a "1" if their systolic blood pressure was greater than 130 mmHg (or hypertension) and coded as "0" if they were not. Table 2.3 presents the clinical cutoffs for each biomarker. In this analysis, I used the traditional 90th percentile cutoff as main operationalization of allostatic load. However, I provide the results of quartile-calculated and clinical-risk calculated allostatic load as sensitivity analyses.

[Table 2.3 about here]

Immigrant Integration Outcomes

Three variables related to immigrant integration were examined: financial strain, interpersonal discrimination, and social resources. In Aim 2, these three variables were treated as outcomes (i.e., to investigate how financial strain, discrimination and social resources change over time and whether these changes differ by migrant status). In Aim 3, each variable was treated as an exposure variable to evaluate their association with psychological distress and sleep disturbance.

Financial Strain. Financial strain is a categorical variable measured using the Financial Strain Scale by Kahn and Pearlin (2006). At each wave, participants were asked to describe their expenses as either "There is enough (money) with money left over", "Just enough to pay

expenses with no difficulty", "Some difficulty in meeting expenses", and "Considerable difficulty in meeting expenses". For ease of interpretation, each level of financial strain was coded as "Very Low", "Low", "Medium", and "High" respectively. Financial strain was considered as both a categorical and ordinal variable. In addition to the four-category variable, a three-category variable was created by combining those who had "some difficulty" with those who had "considerable difficulty" in meeting expenses. In this condensed version, financial strain was coded as "Low", "Medium", and "High". In this analysis, I used the 4-category version of the financial strain as the primary operationalization as the outcome in Aim 2 and exposure for Aim 3. The 3-category version was examined as a sensitivity analysis in Aim 2.

Everyday Discrimination. Interpersonal discrimination was measured using a shortened version of the Williams Everyday Discrimination Scale (EDS) (Sternthal, Slopen and Williams 2011; Williams et al. 1997). Five items were examined: whether participants were treated with less courtesy, had poorer service, were discriminated because of accent, if participants were perceived as not smart, and if participants have been harassed. The Cronbach's Alpha for these five items was 0.7150, indicating good reliability of the times. Items could be scored from 1 = "Almost everyday" to 6 = "Never or rarely". Items were reversed coded and scaled such that 0 = "Never or rarely" to 5 = "Almost everyday".

Studies have noted three distinct ways in which the EDS can be coded: 1) situation-based, 2) frequency-based, and 3) chronicity-based (Michaels et al. 2019). "Situation-based" coding dichotomizes each EDS item as 0 = "Never" and 1 = "Less than once a year or more". The five items are summed to create a scale from 0 to 5. A score of "0" indicates that a participant stated "Never" for each of the five items while a score of "5" indicates that the participant experienced any frequency of discrimination for each of the give items. Frequency-

summed coding, sums each item to create a scale from 0 to 25. A score of "0" indicates a participant who indicated that they "never" experienced discrimination for each of the five items while a score of 25 indicates a participant who experienced discrimination "almost everyday". Chronicity-based coding, the final type of EDS scoring, accounts for the frequency of occurrence for each response category for the EDS (Michaels et al. 2019). Michaels et al. (2019) provides an outline of scoring each response category of the EDS. "Never" is coded as 0. "Less than once a year" is coded as 0.5 given that the occurrence of discrimination occurs less than one time, but more than zero times. "A few times a year" is coded as "3" assuming that "a few" indicates 3 or more in 1 year (i.e. 3 time x 1 year = 3 times per year). "A few times a month" is coded as 36 (i.e. 3-times x 12-monts = 36-times per year). "At least once a week" is coded as 104 where "at least" indicates a value of at least 2 or more (i.e. 2 times x 52 weeks =104 times per year). Finally, "almost everyday" is coded as 260 assuming that "almost everyday" is 5 occurrences per week (i.e. 5 times x 52 weeks = 260 times per year). This study used a shortened 5-item version of the EDS unlike Michaels et al. (2019) who used a 10-item scale. The final range for the chronicity-based EDS was 0 to 1300. A score of "0" on the chronicity-based EDS indicates someone who experienced no discrimination for every item. A score of "1300" indicates someone who experience discrimination "almost everyday" for each of the five items. In this analysis, I use chronicity-based coding as the primary operationalization of EDS as an outcome for Aim 2 and exposure for Aim 3. Results for situation-based and frequency-summed coding are provided as sensitivity analyses.

In addition to the discrimination scale, participants could indicate the source of their discrimination from 11 sources: dialect, origin, race, gender or sex, age, height, weight, income, educational level, occupation, or religion. Participants were also allowed to freely indicate if

their discrimination came from other sources not originally asked in the scale. While not measured at baseline, immigration status was included as a possible source of discrimination in 1-year, 2-year, and 3-year follow-up. Attribution questions were asked of all participants who indicated they experienced discrimination for any of the five items of the EDS. These variables were coded as the following 0 “Never experienced discrimination” (among people who never experience discrimination), 1 “No, discrimination was not due to this attribute”, and 2 “Yes, discrimination was due to this attribute”. These attributions were grouped into 8 types of discrimination: age, gender/sex, height, weight, socioeconomic status (e.g. income, education, and occupation), race (e.g. race, dialect, and origin), religion, and other. These results are provided as in bivariate analyses for Aim 2.

Social Resources. Finally, social resources was measured using a shortened version of the Resource Generator Scale by Van Der Gaag and Snijders (2005). The Resource Generator Scale is intended to ask about “general” social resources and access to resources that could account for several aspects of life. Although originally created in a Dutch context, items can be used to apply to other social contexts (Van Der Gaag and Snijders 2005). The Resource Generator Scale is determined by asking participants if they know someone who can help them with the following activities: explaining complicated forms, knowing a politician, knowing someone who knows a lot about health, someone who can take care of them if they become sick, someone who can loan them money, and someone who can provide them with a job reference. Possible responses included “None”, “Family/Relatives”, “Friends”, “Other”, or “Yourself”. After asking participants about who they could receive help from, a second question about the ease of receiving help (i.e. “yes” or “no”) was asked. To create the scale, each item was weighted and summed in the following fashion based on both who the participant could receive help from

and the ease of help. For example, a person who did not know anyone as a potential job reference was coded as "0". However, a person who did know someone who could be a job reference, but it was not easy to contact, was coded as "1". Finally, a person who knew someone who could be a job reference and was easy to contact was coded as "2". With the six scenarios, possible values ranged between 0 (i.e. knew no one at all) to 12 (knew someone for each scenario and it was easy). The Cronbach's Alpha for the Resource Generator Scale was 0.4887.

Independent Variables

In each wave, ***survey interview wave*** (henceforth "survey wave" or "time") was one of two primary exposure variables. Each observation was coded as being measured at "0=Baseline", "1=1-year", or "2=2-year". These outcomes were treated as continuous variables. Baseline, 1-Year, and 2-Year data were collected during 2017, 2018, and 2019 respectively. The 3-Year data were collected during 2021 and 2022 rather than 2020 due to the COVID-19 pandemic. However, it was not included as data were still being collected at the time of writing. A 3-month follow up was also conducted in HoPES, but was excluded as it only obtained data for migrants and contained few of the outcomes of interest.

Migrant status was the other primary exposure variable. Migrant status was determined at recruitment as 0 = Non-Migrant and 1 = Migrant.

For Aim 3, financial strain, interpersonal discrimination, and social resources served as the primary independent variables to evaluate their effect on psychological distress and sleep disturbance over time.

Covariates

Potential confounders and mediators in the multivariable models were arranged in four different sets: demographic, social, socioeconomic, and health and health behaviors.

Demographic, social, and socioeconomic covariates were examined in all analyses. Health outcomes were only considered in aims examining health (i.e., Aim 1 and Aim 3).

Demographic variables included age, gender, and language of interview. **Age**, in years, was calculated by taking each participant's birthday and subtracting it from their date of interview. **Gender** was coded as "female" and "male". Participants who identified as "gay" were coded as male while participants who identified as "lesbian" were coded as female. **Language of Interview** was determined by the interviewers at each wave. Possible languages included English, Tagalog, Cebuano, a mixture of English with Tagalog/Cebuano, a mixture of English with other Philippine dialects, or a mixture of two or more Philippine dialects. For this study, language of interview was coded as a dichotomous variable of "Did not use English" (reference category) versus "Used English". **English proficiency** was an additional covariate that was considered in analysis and was coded as four categories: "very well", "well", "not very well", and "not at all". English proficiency was only evaluated at baseline.

Social variables included marital status and social isolation. **Martial Status** was asked at baseline, 1-year, and 2-year if participants were "married", "living-in", "widowed", "separated", "divorced/annulled", or "never married". Given low responses in some categories, a four category variable was created which included "married" (reference category), "living-in", "widowed, separated, or divorced/annulled", and "never married". Martial status was asked at all waves. **Social Isolation** was a single item from the NIH PROMIS Social Isolation Scale. Participants were asked how often they felt isolated from others in the past seven days. Responses included "Never", "Rarely", "Sometimes", "Often", and "Always". Social isolation was dichotomized comparing those who indicate that they "Never/Rarely" experience isolation

compared to those who “Sometimes, Often, or Always” feel isolated. Social isolation was asked at all waves.

Socioeconomic variables included educational attainment and current employment. **Educational attainment** was coded as “Less than high school”, “High school graduate”, “Some college”, and “College or above”. **Current Employment Status** was coded as either “No” (reference category) or “Yes”. It should be noted that migrants often forgo their employment just prior to migration.

Health and health behavior variables included current smoking status, current drinking status, hours of sleep and general poor health. **Current Smoking Status** was determined by first asking participants if they have ever smoked in their lifetime (i.e. yes or no). Of those who stated that they have ever smoked, an additional question about how often they smoke was asked (“Everyday”, “Some days”, or “None at all”). Current smoking status was coded as “Never smoked” (reference category), “Former smoker” (those who said that they have smoked in their lifetime, but do not current smoke), and “Current smoker” (those who have smoked in their lifetime and often smoke every day or some days).

Current drinking status was based on whether participants drank at least one alcoholic beverage in the past 30 days. Response ranged between 0 to 30 days. Participants who drank for 1 day or more were coded as “1” while those who did not indicate drinking more than one beverage were coded as “0”.

Health covariates included hours of sleep and self-rated poor health. **Hours of sleep** was asked as the following: “On average, how many hours of sleep do you get in a 24-hour period, including naps?”. Hours of sleep was asked at every wave and only included as a covariate in sleep disturbance analyses.

Self-rated health, which often functions as a global measure of health (Allen, McNeely and Orme 2016; Lommel and Chen 2016), was asked in the following manner: "Compared to other people your age, would you say that in general your health is…". Participants chose one of the five following responses: "excellent", "very good", "good", "fair", "poor". For simplicity in analyses, I treated self-rated health as an ordinal variable with 1=Excellent and 5=Poor.

Valid Analytical Samples

For each aim, a different valid sample was created by first examining the missingness of relevant study variables using the mvpatterns and egen varname = rowmiss (var1 var2 var3 …varn) command in Stata. After examining the missingness amongst the variables, a dichotomous variable to flag those with valid observations was created.

ANALYTIC STRATEGY

Below, I outline the analytic strategy employed for the project and by Aim.

Initial Univariate and Bivariate Analyses

Univariate Analyses. Preliminary analyses of unweighted univariate proportions and frequencies were determined for each categorical variable by survey wave. Unweighted means and standard deviations were calculated for continuous variables by survey wave. In these unweighted analyses, each wave was treated as an independent complete-case cross-sectional analysis.

In addition to evaluating these summary statistics, I also examined the distribution of the health variables by creating histograms. In Chapter 3, I present the results of these univariate analyses for the health outcomes, key exposure variables, and associated covariates.

Bivariate Analyses. First, differences in health outcomes, exposure variables, and covariates were done by wave (i.e. baseline vs. 1-year vs. 2-year vs. 3-year). Next, within each

wave, differences in key variables and covariates were examined by migrant status. Finally, a correlation matrix was created examining continuous, dichotomous, and ordinal variables at baseline to determine if associations were present among the variables.

Aim 1 Analyses

The first goal of Aim 1 was to examine differences in allostatic load, psychological distress, and sleep quality by migrant status at baseline. The second goal of Aim 1 was to examine how psychological distress and sleep quality change over time and whether these changes differ by migrant status.

Univariate and Bivariate Analyses. After determining a valid baseline sample size based on missingness, I examined the univariate distribution of the three health outcomes (i.e., allostatic load, psychological distress, and sleep disturbance), migrant status, and associated covariates. I then examined the bivariate distribution of the three health outcomes and associated covariates by migrant status – the key independent variable for Aim 1. Means and standard deviations were calculated for all continuous variables while frequencies were all categorical variables. T-tests were used to evaluate if there were differences in the continuous operationalizations of allostatic load, psychological distress, and sleep quality by migrant status. Chi-square tests were used to evaluate differences in the prevalence of moderate/severe psychological distress or sleep disturbance and the severity of psychological distress or sleep disturbance. An $\alpha = 0.05$ was used as the critical value to determine statistical significance. An $\alpha = 0.10$ was used as the critical value to determine marginal statistical significance. Survey weights were applied such that the sample could be representative of recent Filipino migrants to the U.S.

Multivariable Analyses. Below, I outline the analytical strategy of the multivariable analyses for allostatic load, psychological distress, and sleep disturbance.

Allostatic Load. Poisson distribution was first considered in multivariable analyses of allostatic load. However, overdispersion and the abundance of zero values in the decile-calculated version of allostatic load (i.e., the most commonly calculated method to determine allostatic load score) prompted the use of a zero-inflated negative binomial (ZINB) regression framework for all multivariable analyses involving allostatic load. It is important to consider reasons why zeroes may be abundant by considering what factors may theoretically contribute. In this case, the high abundance of zeroes may be because the sample is relatively young. The ZINB regression is useful in that it 1) provides a likelihood that a participant had a zero-value based on covariates that could be associated with a zero count (i.e., the "zero-inflated" component of the regression) and 2) among those who had non-zero values for allostatic load, it then examines the overall association sans zero values. (i.e., the negative binomial component of the regression). Migrant status and age were used as predictors of the zero inflated component of the model. Migrant status was used given that it is the main independent variable of interest in Aim 1, while age was used given that increasing age is often associated with greater allostatic load and presence of chronic conditions related to allostatic load.

For the negative binomial component of the model, a series of five models were run, adding in blocks of relevant covariates with each successive model. Model 1 examined the independent effect of migrant status on allostatic load at baseline, only. Model 2 accounted for baseline age and gender, factors previously identified as related to allostatic load. Model 3 included social factors, marital status and social isolation. Model 4 included baseline educational attainment and employment, which are socioeconomic factors that could contribute to

differences in allostatic load. Finally, Model 5 included smoking status and drinking status, two behavioral factors that can affect the measurement of components of allostatic load. After running each model in an unweighted, goodness-of-fit (GOF) tests were run to identify best model statistically by determining the Akaike Information Criteria (AIC) and Bayesian Information Criteria (BIC) After identifying the models with the best fit, analyses were re-run by weighting the data to the 2010 distribution of recent Filipino migrants from the ACS.

Sensitivity Analyses with Allostatic Load. Two sets of sensitivity analyses were run for allostatic load, based on the quartile-calculated and clinical-risk calculated coding schemes. These analyses were examined using Poisson regression. A Poisson model was chosen for both quartile-calculated risk-calculated allostatic load as they had few zero counts and lacked overdispersion.

Baseline Psychological Distress. Baseline analyses of psychological distress used a multivariable ordinary least squares (OLS) regression given the continuous nature of the scale. After examining the sample characteristics of psychological distress and its associated covariates, five models were run to determine if psychological distress indeed differed by migrant status at baseline. Model 1 examined the bivariate association between migrant status and psychological distress. Model 2 included demographic factors (age in years, gender, and language of interview). Language of interview (any English versus none) was used given potential differences in translation of the NIH PROMIS scale. Model 3 included social factors, marital status and social isolation, which could confound the association between migrant status and psychological distress. Marital status and social isolation are also additional explanatory variables that could account for variance in psychological distress independent of migrant status. Model 4 included socioeconomic contributors in the form of educational attainment and current

employment status. Financial strain was not included as a socioeconomic contributor because it will be examined as its own independent variable in Aim 3. Finally, Model 5 included drinking and smoking status as additional explanatory variables that contribute to variance on psychological distress.

***Sensitivity Analyses with Baseline Psychological Distress*.** The NIH PROMIS scale also allows for the categorization of psychological distress into four different levels of severity (i.e., none to slight, mild, moderate, or severe). Thus, an ordinal logistic regression was used to examine the odds that participants would have more severe psychological distress. Finally, a binary logistic regress was used to evaluate if there were differences in moderate or severe distress by migrant status.

Longitudinal Analyses with Psychological Distress. A mixed linear model (or growth curve model) using the xtmixed command in Stata was chosen to examine how the continuous operationalization of psychological distress changes over time. A mixed linear model was appropriate for this type of longitudinal analysis because it accounts for the autocorrelation of observations among participants in a multilevel framework. In this study, participants were surveyed at multiple time points. Thus, participant observations were nested within themselves, allowing for a hierarchical structure. Two levels were examined in this analysis. First, the Level-1 model, the time model that captures within-person changes, is as follows (**Equation 1A**):

Equation 1A. $$Y_{ij} = \pi_{0i} + \pi_{1i} Time_{ij} + \varepsilon_{ij},$$

where Y_{ij} represents the psychological distress score for person *i* at time *j*, π_{0i} represents the baseline psychological distress score for person *i*, π_{1i} represents the average linear rate of change for person *i* at the given time point *j*. Finally, ε_{ij} represents the error term of person *i* from the

mean psychological distress score at time *j*. Time was treated as a continuous variable were 1-unit change in time represents a 1-unit change in survey follow up wave (e.g. baseline to 1-year or 1-year to 2-year). A random intercept was given for each participant.

Time could also be considered as a categorical variable, allowing for comparisons of later time points with baseline. There are two possible considerations for treating time (i.e., survey wave) as a categorical variable. First, treating survey wave as disjointed allowed me to make comparisons between successive time points to baseline, rather than examining the average effect of time overall. Second, treating survey wave as disjointed allowed me to account for the potential non-linear nature of psychological distress's change over time. However, I chose to present the results of the continuous version of time given the greater parsimony within the models and for ease of interpretation.

The Level-2 model, the person model that captures between-person differences, was as follows (Equation 2A and 2B):

Equation 2A. $$\pi_{0i} = \beta_{00} + \beta_{01}Migrant + \boldsymbol{\alpha^T x_{ij}} + \varsigma_{0i}$$

Equation 2B $$\pi_{1i} = \beta_{10} + \beta_{11}Migrant + \boldsymbol{\alpha^T x_{ij}} + \varsigma_{1i}$$

Equation 2A predicts the baseline psychological distress for the entire sample. π_{0i} again represents the baseline psychological distress level for person *i*. β_{00} represents the mean baseline psychological distress score among the whole sample. β_{01} represents the mean baseline differences in psychological distress by migrant status. $\boldsymbol{\alpha^T x_{ij}}$ represents a vector of covariates while ς_{0i} represents the error term for person *i*. **Equation 2B** predicts the average linear rate of change in time for person *i*. β_{10} represents the average rate of change for the whole sample,

while β_{11} represents the rate of change for migrants relative to non-migrants. $\boldsymbol{\alpha^T x_{ij}}$ represents a vector of time-dependent covariates while ς_{1i} represents the error term.

Mixed linear models also account for the attrition of participants over time, especially relevant for the migrant cohort. Previous studies have utilized this approach when examining immigrant health over time (León-Pérez 2019; Setia et al. 2011). Although multiple imputation may appear as a logical choice to account for the attrition of the sample over time, it is not advisable in a mixed model framework due to the instability of estimates (Twisk et al. 2013). Instead, inverse probability weighting (IPW) was used to account for attrition (Cole and Hernán 2008; Jones, Mishra and Dobson 2015; Seaman and White 2013). Further information on the creation of IPW for my analysis are provided in **Appendix A**. I also compared the results of IWP models versus the baseline survey weights created by Gee et al. (2018). Overall, the results and conclusions were similar between IPW and the original survey weight models. In the subsequent chapters, I present the results of the IPW analysis.

Five models were examined for this mixed model analysis. Model 1 examined the change of psychological distress over time by survey wave (as a continuous variable). Model 2 included migrant status while Model 3 included three demographic covariates (age in years, gender, and interview language). Model 4 included social factors (marital status and isolation) while Model 5 included socioeconomic covariates (educational attainment and employment). I allowed for a random intercept when specifying my model to account for any additional unexplained variance that was not captured by my covariates. The following variables in these models were time varying: age in years, language of interview, marital status, social isolation, and employment status. After running these models, I graphed the demographic adjusted psychological distress

over time by migrant status (based on Model 3). Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were calculated for each model to evaluate model fit.

After examining whether psychological distress changed over time, I next examined if this relationship differed by migrant status by including an interaction term (e.g. survey wave x migrant status). Four models were examined. Model 1 tested the joint association (i.e., a statistical interaction) of survey wave and migrant status on psychological distress. Model 2 included demographic factors while Model 3 and Model 4 included social factors and socioeconomic factors, respectively. I then graphed the demographic adjusted trajectory of psychological distress over time by migrant status (based on Model 2). AIC and BIC were also calculated to evaluate model fit.

Psychological Distress Sensitivity Analyses. In addition to evaluating psychological distress as a continuous variable, I also examined the odds that participants had increasing psychological distress with the 4-category using a mixed model ordinal logistic framework. In Stata, the xtologit command was used for this analysis. Finally, I examined the log odds that participants reported "moderate to severe psychological distress" compared to "none to mild psychological distress" using the xtlogit command in Stata. A similar model building strategy was used to test both for the independent associations and joint associations of survey wave and migrant status on "moderate or severe psychological distress" or psychological distress severity. IPW was used in order to account for attrition and missingness of the sample.

Sleep Disturbance. Analyses for sleep disturbance followed a similar process as psychological distress with a couple of exceptions. First, six models were examined for sleep disturbance at baseline. Model 1 examined differences in sleep disturbance by migrant status. Model 2 included demographic factors (age, gender, interview language) while Model 3 included

social factors (marital status and isolation). Model 4 included socioeconomic factors (educational attainment and employment) while Model 5 included current smoking and drinking status. The new model, Model 6 included two health covariates, hours of sleep and general health status, that could account for some of the variance in sleep disturbance. OLS was the regression framework used to evaluate differences in sleep disturbance score between migrants and non-migrants at baseline.

The linear mixed models followed a similar model building strategy as psychological distress. In addition, a sixth model was included using hours of sleep and general health. Both hours of sleep and general health were time varying covariates. In all analyses, IPW was used to account for missingness and attrition of the sample over time.

After completing these initial longitudinal analyses, I then evaluated if changes in sleep disturbance over time differed between migrants and non-migrants. Five nested models were tested. Model 1 examined the joint association of migrant status and survey wave on sleep disturbance. Model 2 added in demographic factors (age, gender, English use) as possible confounders on the association sleep disturbance with time and migrant status. Model 3 built added social factors (marital status and isolation) as mediator variables that explain why sleep disturbance may change over time and may differ by migrant status. Model 4 included socioeconomic factors as additional mediator variables. Finally, Model 5 included health factors (hours of sleep and general health) as health mediator variables.

Sleep Disturbance Sensitivity Analyses. Like psychological distress, the log odds of increasing sleep disturbance were examined using a mixed ordinal logistic framework. In addition, I examined the log odds of reporting "moderate to severe sleep disturbance" using a

mixed binary logistic framework. A similar model building strategy to the continuous operationalization of sleep disturbance was used for both regressions.

For both psychological distress and sleep disturbance, demographically adjusted figures were created to visualize changes in each factor over time. Each figure accounts for demographic factors at the between-person level (i.e., Level 2).

Aim 2 Analyses

Univariate and Bivariate Analyses. The first goal of Aim 2 was to examine how financial strain, interpersonal discrimination, and social resources differed by migrant status at baseline (i.e., prior to migration). To achieve this, I first examined the univariate distribution of the key outcome variables – financial strain, discrimination, social resources – and relevant demographic, social, and socioeconomic covariates. After examining the univariate distribution of study variables, bivariate analyses (t-tests and chi-square tests) were completed to examine differences in the key study variables by migrant status. Like Aim 1, an $\alpha = 0.05$ was used as the critical value to determine statistical significance while an $\alpha = 0.10$ was used to determine marginal statistical significance. Survey weights were applied to these univariate and bivariate analyses so that the sample could be representative of recent Filipino migrants to the U.S.

Baseline Multivariable Analyses. After completing the univariate and bivariate analyses, a series of multivariable regressions were run to examine if differences in financial strain, interpersonal discrimination, and social resources by migrant status remained after accounting for other covariates/alternative explanations. Four models were run. Model 1 examined the bivariate association between migrant status and the outcome of interest. Model 2 included demographic covariates (age in years, gender, interview language). Model 3 added marital status and social isolation as social variables. Finally, Model 4 included educational

attainment and current employment as socioeconomic variables. Below, I outline the specific modeling specifications for each outcome.

Longitudinal Multivariable Analyses. The second goal of Aim 2 was to examine how financial strain, interpersonal discrimination, and social resources changed over time. Five models were examined for each outcome. Model 1 examined the effect of time (i.e. survey wave), which allows for within person comparisons (e.g. Level 1 or time-level). Model 2 though Model 5 included person-level (Level 2) covariates, which allow for between person comparisons. Model 2 included migrant status. Model 3 included age, gender, and English language use as person-level demographic covariates. Age and English language use during the interview were time varying covariates while gender was time invariant. Model 4 included marital status and social isolation as social covariates. Both marital status and social isolation were time varying. Finally, Model 5 included educational attainment and current employment as socioeconomic covariates. Current employment was time varying while educational attainment was only measured at baseline.

Each outcome of Aim 2 required a different mixed model regression framework. Analyses examining financial strain used a mixed model ordinal logistic framework for both 4-category and 3-category versions. In contrast, analyses exploring discrimination and social resources used mixed model linear regression. AIC and BIC were calculated for models examining discrimination and social capital. All mixed model regressions were weighted using IPW to account for attrition and missingness. An $\alpha = 0.05$ was used as the critical value to determine statistical significance and an $\alpha = 0.10$ was used as the critical value to determine marginal statistical significance.

The third goal of Aim 3 was to examine how changes in financial strain, interpersonal discrimination, and social resources changed over time. A mixed model regression framework was used for these analyses. Four models were tested for each outcome. Model 1 examined the joint association between survey wave and migrant status on the outcome of interest. Model 2 included demographic factors. Model 3 included social factors while Model 4 included socioeconomic factors. All models were weighted using IPW to account for attrition and missingness. Afterwards, I then graphed the interaction for each outcome based on the demographic adjusted model (Model 2).

Below I outline the specific details and sensitivity analyses for financial strain, interpersonal discrimination, and social resources.

***Financial Strain*.** Two coding schemes for financial strain were examined using mixed model ordinal logistic regression. The first version examined the original 4-category version of financial strain: Very Low, Low, Medium, and High. The second version combined "Very Low" and "Low" to examined three categories of financial strain: Low, Medium, and High.

***Interpersonal Discrimination*.** For both baseline and longitudinal analyses, I conducted three sets of analyses based on the three possible coding schemes for the Everyday Discrimination Scale (EDS): situation based, frequency based, and chronicity based.

***Social Resources*.** No additional sensitivity analyses were conducted for social resources as there was only one coding scheme.

Like psychological distress and sleep disturbance, demographically adjusted figures were created to visualize changes in financial strain, interpersonal discrimination, and social resources over time. These figures account for demographic factors at the between-person level (i.e., Level 2).

Aim 3 Analyses

The primary goal of Aim 3 was to examine the association of financial strain, interpersonal discrimination, and social resources on allostatic load, psychological distress, and sleep disturbance. Financial strain, interpersonal discrimination, and social resources were considered as factors related to immigrant integration. Two sets of analyses were conducted: 1) a baseline analysis involving allostatic load; 2) and a set of longitudinal analyses involving psychological distress and sleep disturbance. The three key exposures were examined separately with each health outcome (e.g. financial strain on allostatic load, financial strain on psychological distress, financial strain on sleep disturbance).

The second goal of Aim 3 was to examine if the associations of financial strain, interpersonal discrimination, and social resources on health differed by migrant status. These analyses included a two-way interaction term between each factor and migrant status in allostatic load analyses. For longitudinal analyses, a three-way interaction was included between the immigrant integration factor, migrant status, and time. Below I outline the model specifications for each health outcome.

Allostatic Load. Multivariable analyses for allostatic load used a similar strategy to Aim 1. In this case, the type of regression was dependent on the distribution of allostatic load and the prevalence of overdispersions and zeroes. Therefore, regressions with decile-calculated allostatic load used a zero-inflated negative binomial regression (ZINB). Quartile-calculated and clinical-cutoff calculated allostatic load used Poisson regression. Allostatic load was also only measured at baseline; thus, a mixed model framework was not necessary.

Five nested models per immigration integration factor were examined. Model 1 examined the bivariate association between one of the immigration integration factors (e.g. financial strain)

and allostatic load. Model 2 included migrant status, age in years, gender, and interview language as demographic factors. Model 3 included marital status and social isolation as social variables. Model 4 included educational attainment and employment as socioeconomic factors. Finally, Model 5 included drinking and smoking status as health behavior variables. These same five models were then repeated for the remaining integration factors. Finally, I included a two-way interaction term between the integration factor and migrant status to independently test whether the joint association of the immigrant integration factor and migrant status was associated with differences in allostatic load. This process was repeated for each integration factor.

Psychological Distress. A mixed-model framework was used for the longitudinal analysis of psychological distress. Two sets of analyses were done. In the first set of analyses, I examined if changes in each integration factor over time (e.g., discrimination) were associated with changes in psychological distress over time. This analysis involved a two-way cross-level interaction between time (Level-1) and the respective integration factor (Level-2). Five nested models were tested. Model 1 examined the independent effects of time, as survey wave, and the respective integration factor (e.g., discrimination) on psychological distress. This model allowed for both within person comparisons through survey wave and between-person comparisons with the integration. Model 2 then tested the cross-level interaction of survey wave with the integration factor. Models 3 through 5 then included relevant covariates. Model 3 included migrant status, age, gender, and interview language as sociodemographic variables. Age and interview language were the only time-varying variables of these sociodemographic variables. Model 4 included marital status and social isolation as time-varying social factors. Finally, Model 5 included educational attainment and current employment as socioeconomic factors.

Current employment was the only socioeconomic factor that was time varying. AIC and BIC were calculated for the continuous outcomes to evaluate model fit. All models accounted for attrition and missingness using IPW.

This process was then repeated for the remaining two integration factors. Furthermore, sensitivity analyses were conducted to examine the odds of reporting "moderate or severe" psychological distress over time and psychological distress severity using a mixed model binary logistic and ordinal logistic framework, respectively.

A three-way interaction was used to evaluate whether changes in psychological distress over time differed by both the integration factor and migrant status. Two models were tested. Model 1 examined the three-way joint association of survey wave, the key integration factor, and migrant status on psychological distress. Model 2 then included all demographic, social, and socioeconomic factors as a fully adjusted model. AIC and BIC were calculated to determine model fit in the continuous version of psychological distress. This process was repeated for the remaining integration factors, alternative coding of these factors, as well as alternative coding of psychological distress. Like Aim 1, analyses on "moderate or severe" psychological distress and psychological distress severity used a mixed model binary logistic and mixed model ordinal logistic regression, respectively.

Sleep Disturbance. A mixed model framework was also used for sleep disturbance and had a similar model building strategy to psychological distress. Model 1 examined the independent association of survey wave and the integration factor (e.g., social resources) on sleep disturbance. Model 2 examined the joint association of survey wave and the integration factor. Model 3 then included migrant status and demographic factors. Model 4 included social factors. Model 5 included socioeconomic factors. Finally, a sixth model was added to account for

hours of sleep and general poor health. This model building process was then repeated for the remaining integration factors. Sensitivity analyses were then completed to determine the odds of "moderate or severe" sleep disturbance and sleep disturbance severity. All models used IPW to account for attrition and missingness. AIC and BIC were calculated to determine model fit.

Finally, to determine if the three-way joint association of survey wave, the integration factor, and migrant status were associated with changes in sleep disturbance longitudinally, two models were tested. Model 1 examined this three-way joint association between survey wave, one of the integration factors, and migrant status. Model 2 provided the fully adjusted model accounting for demographic factors, social factors, socioeconomic factors, and health factors. This process was repeated for the remaining integration factors and sensitivity analyses used a mixed model binary logistic and mixed model ordinal logistic framework to determine the odds of "moderate/severe" sleep disturbance and sleep disturbance severity, respectively. I also created demographically adjusted figures (at between-person level), to visualize how changes in psychological distress and sleep disturbance over time differ by respective level of social factor and migrant status.

CHAPTER 3: SAMPLE DESCRIPTION

SAMPLE DESCRIPTIVES

Table 3.1 presents the unweighted characteristics of the sample by wave. A total of 1,637 people completed the baseline sample (805 non-migrants and 832 migrants), while 1,200 people completed 1-year (758 non-migrants, 442 migrants), and 1,133 people completed 2-year follow-up (762 non-migrants, 371 migrants).

[Table 3.1 about here]

Panel A of Table 3.1 displays the distribution of health outcomes among the full sample and by migrant status. Allostatic load was low among the full sample for all three operationalizations: decile-calculated (M = 1.1, SD = 1.4); quartile calculated (M = 2.7, SD = 2.4); clinical risk calculated (M = 2.9, SD = 1.9). Migrants had lower levels of allostatic load compared to migrants for all operationalizations of allostatic load.

Psychological distress was also low overall in the full sample (M = 6.1, SD = 2.9) at baseline. There was no apparent trend in psychological distress among the full sample over time. However, a clearer trend is apparent when examining by migrant status. Migrants had lower psychological distress (M = 5.3, SD = 2.3) compared to non-migrants (M = 7.0, SD = 3.2) at baseline. Migrants continued to have lower psychological distress compared to non-migrants at 1-year and 2-year follow up. Both groups experienced a general decrease in psychological distress over time.

I also examined the distribution of psychological distress by clinical category over time. At baseline, nearly 74% of participants had none-to-slight psychological distress. Migrants also experienced an advantage in psychological distress compared to non-migrants. Over 85% of migrants had none-to-slight psychological distress compared to about 62% of non-migrants. This disparity of psychological distress by migrant status is seen at 1-year and 2-year follow up. At 2-year follow up, about 91% of migrants had none-to-slight psychological distress compared to about 66% of non-migrants.

Sleep disturbance was also low in the full sample (M = 9.3, SD = 3.1). There were also differences in sleep disturbance by migrant status at baseline and each follow-up. At baseline, migrants had lower sleep disturbance (M = 8.4, SD = 3.0) compared to non-migrants (M = 10.3, SD = 2.8). This trend continued at 1-year follow-up (Migrants: M = 7.6, SD = 3.2; Non-

migrants: M = 10.2, SD = 2.5) and 2-year follow-up (Migrants: M = 7.5, SD = 3.2; Non-Migrants: M= 10.0, SD = 2.6).

Like psychological distress, I also examined the distribution of sleep disturbance severity by migrant status over time. At baseline, the majority of participants (42.6%) were classified as having none-to-slight sleep disturbance. However, there were vast differences by migrant status. Nearly 58% of migrants were classified as having none-to-slight sleep disturbance compared to only 27% of non-migrants. At baseline, nearly 47% of non-migrants had moderate sleep disturbance. This migrant advantage in sleep disturbance was also present at 1-year and 2-year follow up. At 1-year follow-up, 66.7% of migrants were classified as having none-to-slight sleep disturbance compared to only 26.1% of non-migrants. At 2-year follow-up, 71.4% of migrants had none-to-slight sleep disturbance compared to 30.8% of non-migrants.

Panel B of Table 3.1 displays the distribution of integration factors by wave and migrant status. Everyday discrimination decreased over time for all measures. Using chronicity calculated discrimination as an example, the mean level of discrimination at baseline was 63.1 incidents per year. At 1-year, the mean level of discrimination was 57.4 incidents per year. Finally, at 2-year, the mean level of discrimination was 38.4 incidents per year. Migrants also had lower levels of discrimination compared to non-migrants for all operationalizations of discrimination both at baseline and over time.

I also examined differences in types of discrimination over time. At baseline, racial discrimination represented the highest form of discrimination (46.2%), followed by discrimination based on socioeconomic status (35.5%), then discrimination based on gender or sex (23.2%). Although these three forms of discrimination represented the most reported forms of discrimination by both migrants and non-migrants, there were distinct differences in the

magnitude of reports at baseline and during follow-up. For example, over 50% of non-migrants reported experiencing racial discrimination at baseline compared to only 42% of migrants. For socioeconomic attainment, almost 42% of non-migrants reported experiencing some discrimination compared to about 29% of migrants. Finally, about 25% of non-migrants reported experiencing discrimination based on gender or sex compared to only 21% of migrants.

At 1-year and 2-year follow ups, there are changes in the types of discrimination reported between migrants and non-migrants. Racial discrimination remained the most reported form of discrimination between both groups at 1-year and 2-year follow ups, but with larger differences by migrant status. At 1-year, 82.8% of migrants reported that they experienced racial discrimination compared to 54.6% of non-migrants – an increase for both groups. At 2-year follow-up, 73% of migrants reported experiencing racial discrimination compared to 36.1% of non-migrants – a decrease for both groups relative to 1-year, but an overall increase from baseline. Similar trends were seen in discrimination based on socioeconomic status, although migrants continued to report less discrimination compared to non-migrants. Migrants continued to report lower levels of discrimination based on gender or sex at 1-year and 2-year follow up.

At baseline, 51.3% of participants reported having low financial strain while about 30% reported having medium or high financial strain. Only 1.1% of migrants at baseline reported having high financial strain compared to 10.5% of non-migrants. These differences in financial strain by migrant status continued for 1-year and 2-year follow-up. At 1-year follow up, 1.4% of migrants reported having high financial strain compared to 12.3% of non-migrants. Finally, at 2-year follow-up, only 0.3% of migrants reported having high financial strain compared to 7.7% of non-migrants.

Finally, the average social capital score at baseline for the sample was 7.6 (SD = 2.4). Migrants at baseline (M = 8.0, SD = 2.4) had greater social capital compared to non-migrants (M = 7.3, SD = 2.5). Although the mean social capital was greater at 1-year follow-up for the full sample (M = 8.3, SD = 2.7), migrants had slightly lower social capital on average (M = 7.9, SD = 2.7) compared to non-migrants (M = 8.5, SD = 2.6). However, at 2-year follow up, migrants had higher social capital (M = 8.3, SD = 2.5), compared to non-migrants (M = 8.2, SD = 2.8).

Panel C of Table 3.1 displays the distribution of demographic, social, socioeconomic, and health covariates by migrant status. The sample was about 37 years old on average, mostly female, and used Tagalog or Cebuano during the interview. For social factors, most participants were married, but there were differences by migrant status The majority of non-migrants were married (44.6%) while most migrants (47.5%) were never married. About 15% of all participants experienced high social isolation. However, there were differences in social isolation by migrant status. About 21% of migrants experienced high social isolation compared to about 9% of migrants.

For socioeconomic factors, most participants had a college degree and above and were unemployed. However, there were differences in these socioeconomic factors by migrant status. Over half of the migrant sample had a college degree and above compared to a third of non-migrants. For employment, over 60% of non-migrants were currently employed compared to about 23% of migrants.

Migrants and non-migrants also differed on some of the health conditions and health behaviors. About 27% of migrants reported having fair or poor health at baseline compared 65% of non-migrants. Drinking status was similar between migrants and non-migrants. About 44% of non-migrants and 43% of migrants drank at least 1 alcoholic beverage in the past 30 days.

Smoking status differed by migrant status. The majority of both migrants and non-migrants were classified as those who "never smoked". However, twice the number of non-migrants were classified as "current smokers" compared to migrants.

Correlations Between Outcomes and Key Independent Variables

Table 3.2 displays the unweighted correlation matrix between the outcome variables, migrant status, and key independent variables for the full sample at baseline. Beginning with decile-calculated allostatic load, migrant status and each coding version of the Everyday Discrimination Scale was significantly negatively correlated with allostatic load. Similar trends were seen with quartile-calculated and clinical-risk calculated versions of allostatic load. Financial strain was positively correlated with allostatic load for all versions.

Financial strain and discrimination were significantly positively correlated with psychological distress score and psychological distress severity. Migrant status and social resources were significantly negatively correlated with psychological distress and psychological distress severity. Similar trends were also seen for sleep disturbance and sleep disturbance severity. Financial strain and discrimination were positively correlated with greater sleep disturbance and sleep disturbance severity while migrant status and source resources were associated with less sleep disturbance and sleep disturbance severity.

Finally, migrant status was significantly correlated with lower financial strain and discrimination. On the other hand, migrant status was significantly correlated with a higher social resources score.

[Table 3.2 about here]

COMPARISONS WITH RECENT FILIPINO MIGRANTS AND THE GENERAL PHILIPPINES POPULATION

In the initial recruitment and report of the HoPES baseline sample, Gee et al. (2018) provide a comparison of the HoPES migrants and non-migrant samples to that of recent (i.e. less than 2 years of residence) Filipino migrants of the 2010 American Community Survey (ACS). They concluded that their sampling of migrants and non-migrants had similar distribution to recent Filipino immigrants in the ACS. Thus, full baseline sample is weighted using the 2010 American Community Survey to be representative of recent migrants to the U.S.

For this dissertation, additional analyses were done to examine age-gender-education distribution for follow-up waves and compare the HoPES sample with the general Philippines population. I used data from the Philippine Statistics Authority's "2010 Census of Population and Housing", which were obtained through IPUMS International (Minnesota Population Center 2020). **Table 3.3** presents the result of these comparisons.

[Table 3.3 about here]

Of the 1,637 participants recruited at baseline, 1,635 had complete data on age, gender, and if they had any college education. Table 3.3 displays the distribution of the HoPES sample by age (20-34 years old vs. 34-59 years old), gender (Male vs. Female), and college education (Yes vs. No).

There are three of takeaways from this table. First, that the distribution of migrants and non-migrants on age, gender, and college education are similar between migrants and non-migrants of the HoPES baseline sample. This indicates that baseline recruitment creates a comparable set of groups to make inferences from. Second, we see that the distribution of migrants in the baseline HoPES sample is similar to that of recent Filipino migrants collected in the 2010 ACS. Given these similarities in age, gender, and college education, we can assume that the HoPES sample is somewhat representative of recent permanent Filipino migrants to the U.S.

Moreover, since non-migrants are also similar to recent Filipino migrants to the U.S., this indicates the comparability between groups. Third, we see that both migrants and non-migrants are different in the distribution of age, gender, and college education from the general Filipino population. These differences are similar to other studies on migration, where immigrants tend to have more education compared to the general population.

When comparing across survey ways, we see that there are changes in the distribution of migrants by age, gender, and education between baseline and 1-year. Non-migrants, given the low attrition, are still similar to non-migrants at baseline.

For migrants, we see that the people remaining are more educated, younger, and female compared to the baseline. Similar trends are seen at 2-year, where the distribution of female migrants remains the same, especially among female migrants with any college education. For migrant males, those with any college education tend to be retained compared to those without any college education.

As expected, both migrant and non-migrant samples were different compared to the general Philippines population. Migrants and non-migrants were more educated compared to the general Philippines population. The HoPES sample also had more people who identified as female compared to the general Philippines population. These differences were expected given selectivity of migration for people who are more educated.

Attrition and Sample Weighting

Baseline analyses used sampling weights created by Gee et al. (2018). These sampling weights are intended to make the sample representative of recent Filipino migrants to the U.S. but are limited to cross-sectional analyses only.

For the longitudinal analyses, I first examined the unweighted association between variables. Then, I created inverse probability weights (IPW) to account for attrition of participants over time (Cole and Hernán 2008; Seaman and White 2013). These IPW upweight those who experience attrition while downweighing those who are retained. Further description of the creation of IPW are provided in Appendix A.

CHAPTER 4: AIM 1 RESULTS

Aim 1 had two goals. The first goal was to examine if there was health selection on allostatic load, psychological distress, and sleep quality by migrant status, prior to migration. The second goal was to examine how psychological distress and sleep quality change two years post-migration. Hypothesis 1 tested whether migrants had lower allostatic load, psychological distress, and sleep disturbance compared to non-migrants prior to migration (i.e., at baseline). Hypothesis 2 tested whether migrants' levels of psychological distress and sleep disturbance increased over time compared to non-migrants.

Of the 1637 participants (805 non-migrants, 832 migrants) at baseline, a total of 1634 participants had complete data and were included in the final analytical sample for Hypothesis 1 (99.8% of the sample). Given the high completeness of data, a complete-case analysis was used. All recruited migrants (n = 832) were included in the final sample. Of the non-migrants, 802 of the original 805 recruited participants were included. All analyses were weighted to be representative of recent Filipino migrants to the U.S. using weights created by Gee et al. (2018).

The analysis for Hypothesis 2 used 1635 participants of the original 1637. Of these 1,635 participants (Level-2 person-level), there were 3,961 valid observations (Level-1 time level). Although, there was significant attrition of the migrant sample during 1-year and 2-year follow-up surveys, multiple imputation is not necessary when using a mixed-models analysis due to the

possibility of unstable estimates (Twisk et al. 2013). Instead, inverse probability weighting (IPW) was used to account for attrition over time.

The results presented below are organized by hypothesis and outcome: allostatic load, psychological distress, and sleep disturbance. Hypothesis 1 utilized cross sectional analyses to evaluate health selection and Hypothesis 2 utilized mixed models (i.e., growth curve modeling) to evaluate health changes over time. At baseline, I find that there was a migrant health advantage in allostatic load, psychological distress, and sleep disturbance. Migrants had lower allostatic load, lower psychological distress, and less sleep disturbance compared to non-migrants. The advantage persisted when accounting for demographic, social, socioeconomic, and health behavior covariates for psychological distress and sleep disturbance, but not allostatic load. In longitudinal analyses (Hypothesis 2), I find that while psychological distress and sleep disturbance declined over time for both migrants and non-migrants, and migrants experienced an overall advantage relative to non-migrants. When examining the trajectories of psychological distress and sleep disturbance over time for both groups, there was a significant statistical interaction effect between survey follow-up wave and migrant status for sleep disturbance. Non-migrants had a generally slow decline in sleep disturbance over time while migrants experienced a drastic decline in sleep disturbance between baseline and 1-year follow-up followed by a slower decline.

HYPOTHESIS 1

Allostatic Load

In the weighted analyses (**Table 4.1, Panel A**), migrant status was not significantly associated with decile-calculated allostatic load. The mean decile allostatic load for non-migrants was 0.1 units higher compared to migrants. However, the overall average decile-calculated

allostatic load within the sample was low (M = 1.1, Range: 0 – 11). It is worth noting that the standard deviation of decile-calculated allostatic load was greater than the mean among the total sample (SD = 1.5), and by migrant status (SD = 1.6 for non-migrant, SD = 1.4 for migrants), indicating possible overdispersion and an abundance of zeroes. The overall population is generally healthy, physiologically, given the low mean allostatic load score. I also examined differences in two alternative coding schemes of allostatic load (i.e., quartile-calculated and clinical-risk calculated), but did not find any significant differences by migrant status.

[Table 4.1 about here]

Although bivariate analyses did not indicate a statistically significant difference in allostatic load by migrant status, multivariable analyses provided a different story. Zero-Inflated Negative Binomial (ZINB) regression was used given the abundance of zeroes in decile-calculated allostatic load and overdispersion. **Table 4.2.1** displays the results of the ZINB regression of decile-calculated allostatic load on migrant status and associated covariates. The ZINB regression results provide two areas for consideration. Panel A displays the negative binomial regression, which examines the association between each variable of interest and the count for a non-zero score of allostatic load. Panel B displays the zero-inflated portion of the model, which presents the log odds between variables that may be associated with a "zero" allostatic load score. In this analysis migrant status and age were included as variables that could account for possible heterogeneity in the distribution of zeroes for allostatic load. Migrant status was included given the primary focus of this study to examine differences in allostatic load by migrant status. Age was included because allostatic load generally higher among older people. Panel A models variables for all non-zero scores of allostatic load while Panel B models the likelihood of having a "zero" allostatic load score.

[Table 4.2.1 about here]

Five models were examined. Model 1 examines the bivariate association between migrant status and allostatic load, accounting for overdispersion and zero-inflation through the ZINB model. Unlike the bivariate comparison from Table 4.1, migrants had significantly lower allostatic load score compared to non-migrants for all non-zero values of allostatic load (Panel A $\beta = -0.15$, $p < .05$). The overall magnitude of the association was relatively small. In Model 1, Panel B, migrant status did not significantly predict the likelihood of having a zero allostatic load score. However, increased age was significantly associated with a higher likelihood of having at least one biomarker above the 90^{th} percentile cutoff. Model 2, Panel A included demographic variables (age and sex). The migrant health advantage remained robust with the inclusion of demographic variables (Model 2, Panel A $\beta = -0.16$, $p < .05$). Increased age and male sex were both significantly associated with increased allostatic load. The results of the zero-inflated portion (Model 2, Panel B) remained the same. Migrant status was not significantly associated with a zero allostatic load score, while increased age was associated with a lower likelihood of having a zero allostatic load score.

Inclusion of social factors attenuated allostatic load score such that migrant status became marginally significant (Model 3, Panel A). However, the conclusions remain the same. Migrants had lower allostatic load when compared to non-migrants ($\beta = -0.13$, $p < .10$). The social factors on their own, were not significantly associated with allostatic load. Conclusions remained the same for the zero-inflated portion of the model (Model 3, Panel B).

The migrant advantage was still seen with inclusion of socioeconomic factors (Model 4, Panel A), albeit still marginally significant ($\beta = -0.16$, $p < .10$). There was little change in the magnitude and conclusions for the zero-inflated portion (Model 4, Panel B).

The final model (Model 5, Panel A) included health behaviors. Although migrants continued to have an advantage in allostatic load relative to non-migrants ($\beta = -0.16$, $p < .10$), results were still marginally significant while the conclusions of the zero-inflated portion (Model 5, Panel B) remained the same.

Sensitivity Analyses

While decile-calculated allostatic load remains the mostly commonly used operationalization of allostatic load and served as the main operationalization used in this analysis, two other versions – quartile-calculated and clinical-risk calculated allostatic load – are also used.

Quartile allostatic load scores were calculated as a sensitivity analysis to increase the scoring criteria for allostatic load (i.e. top 25% instead of top 10%). In this calculation (Table 4.1, Panel A), the mean quartile-calculated allostatic load score as similar among migrants and non-migrants, and the entire sample ($M = 2.7$, $SD = 2.4$). T-tests emphasized the similarities between migrants and non-migrants ($p = .614$).

Clinical-risk allostatic load scores were used as an additional sensitivity analysis (see Methods for cutoffs and Table 4.1, Panel A for results). The average allostatic load score for this operationalization was 2.9 ($SD = 1.9$). Non-migrants ($M = 3.0$, $SD = 2.0$) had slightly higher clinical-risk allostatic load score when compared to migrants ($M = 2.9$, $SD = 1.8$). However, differences between these groups were not statistically significant ($p = .329$).

Table 4.2.2 and Table 4.2.3 display the respective results of the multivariable Poisson regression of quartile-calculated and clinical-risk calculated allostatic load on migrant status at baseline. Migrant status was not significantly associated with both quartile- and clinical-risk

calculated allostatic load, even when accounting for demographic, social, socioeconomic, and health factors.

[Table 4.2.2 about here]

[Table 4.2.3 about here]

Finally, some studies also consider using cut-points were created for defining "high" allostatic load score (AL score ≥ 3) versus "low" allostatic load (AL score < 3). I also examined a "high" versus "low" version of allostatic load for all operationalizations (Table 4.1 Panel A). For decile allostatic load, more non-migrants (17.3%) were classified as having "high" allostatic load than migrants (15.2%). However, these differences were not statistically significant (p =.271). The opposite finding was seen for quartile allostatic load. More migrants (46.1%) were classified as having "high" allostatic load than non-migrants (45.9%). However, these differences were not statistically significant (p = .949). Finally, for clinical-risk allostatic load, more non-migrants (53.4%) had "high" allostatic load when compared to migrants (50.9%). However, differences between groups were not statistically significant (p = .329).

Psychological Distress

Migrants also had a health advantage for psychological distress (Table 4.1, Panel A). Migrants had significantly lower psychological distress score (M = 5.3, SD = 2.3) when compared to non-migrants (M = 6.9, SD = 3.2). This migrant advantage trend was also seen when looking at clinical classifications. About 74% of participants were classified as having "none to slight" psychological distress. However, more migrants were classified as having "none to slight" psychological distress (85.3%) compared to non-migrants (62.6%). Even at the highest

levels of psychological distress, more non-migrants were classified as having “Moderate” or “Severe” psychological distress (16.6%) compared to migrants (4.7%).

Table 4.3.1 presents the multivariable ordinary least squares regression of psychological distress on migrant status and associated covariates. Four models were examined. Model 1 presents the demographic adjusted association between migrant status and psychological distress. Migrants continued to have lower psychological distress when compared to non-migrants ($\beta = -1.65$, $p < .001$).

[Table 4.3.1 about here]

After accounting for social factors (Model 2), the association between migrant status became attenuated ($\beta = -1.20$, $p < .001$), but the association was still statistically significant. The migrant advantage remained robust when accounting for socioeconomic factors (Model 3 $\beta = -1.26$, $p < .001$). The final model (Model 4), which accounts for drinking and smoking behavior, shows that the migrant health advantage in psychological distress remained ($\beta = -1.29$, $p < .001$).

Sensitivity Analyses. **Table 4.3.2** and **4.3.3** display the weighted results of the ordinal logistic regression of clinical psychological distress category and binary logistic regression of moderate to severe psychological distress on migrant status, respectively. The results remain same in these alternative operationalizations. Compared to non-migrants, migrants had lower odds of psychological distress compared to non-migrants. This advantage is robust when accounting for all covariates. In the fully adjusted models, migrants had 79% lower odds of being in a higher psychological distress category compared to non-migrants in the ordinal logistic model and 73% lower odds of having moderate to severe psychological distress in the binary logistic model.

[Table 4.3.2 about here]

[Table 4.3.3 about here]

Sleep Disturbance

Migrant status was also significantly associated with sleep disturbance score, clinical classification of sleep disturbance, general sleep quality, and hours of sleep per night (Table 4.1, Panel A). Migrants (M = 8.4, SD = 3.0) had significantly lower sleep disturbance compared to non-migrants (M = 10.4, SD = 2.8). When examining the clinical classification of participants' sleep disturbance scores, about 43% of participants were classified as having "None to Slight" sleep disturbance. However, differences within this category were drastic between migrants and non-migrants. Nearly 58% of migrants were classified as having "None to Slight" sleep disturbance compared to about 27% of non-migrants. At the highest level of sleep disturbance, the proportion of non-migrants who had "Moderate" or "Severe" sleep disturbance" (48.7%) was over double that of migrants (22.8%). Differences in sleep disturbance classification between migrants and non-migrants were statistically significant ($p < .001$).

This migrant advantage for sleep disturbance was also mirrored in hours of sleep per night. Migrants had more hours of sleep (M = 8.0, SD = 1.6) compared to non-migrants (M = 7.7, SD = 1.8). For general sleep quality, over 58% of migrants had good or very good sleep quality compared to only 23% of non-migrants.

Table 4.4.1 displays the results of the ordinary least squares regression of sleep disturbance score on migrant status. Five models were examined. Model 1 presents the demographic adjusted association between migrant status and sleep disturbance. Migrants had two-point lower sleep disturbance scores on average compared to non-migrants ($p < .001$). This

migrant advantage remained robust, but attenuated when accounting for social factors (Model 2: $\beta = -1.68$, $p < .001$).

[Table 4.4.1 about here]

Migrants continued to have lower sleep disturbance compared to non-migrants when accounting for socioeconomic factors (Model 3 $\beta = -1.70$, $p < .001$). The migrant advantage remained the same when accounting for health behaviors (Model 4). The final model included health factors (Model 5). When accounting for all variables, migrants continued to have a robust advantage in sleep disturbance ($\beta = -1.32$, $p < .001$) when compared to migrants.

Sensitivity Analyses. **Tables 4.4.2** and **4.4.3** display the weighted results of the ordinal logistic regression of sleep disturbance clinical category and the binary logistic regression of moderate to severe sleep disturbance on migrant status and associated covariates. The findings remained similar to the continuous operationalization of sleep disturbance. In both operationalizations, migrants had significantly lower odds of sleep disturbance compared to non-migrants. These significant differences remained robust when accounting for demographic, social, socioeconomic, health behavior, and health factors. In the fully adjusted models, migrants had 63% lower odds of being in a higher sleep disturbance clinical category (Table 4.4.2, Model 5) than non-migrants and 61% lower odds of having moderate to severe sleep disturbance (Table 4.4.3, Model 5).

HYPOTHESIS 2

The goal of Hypothesis 2 was to examine how psychological distress and sleep disturbance change over time and whether these changes differ by migrant status. Below, I present the results for psychological distress, followed by sleep disturbance.

Changes in Psychological Distress Over Time

Table 4.5.1 displays the weighted mixed model regression of psychological distress on survey wave, migrant status, and associated covariates. The sample was weighted using IPW to adjust for attrition (see Appendix A for discussion on how IPW creation). Five models were tested. Model 1, which examined the effect of survey wave (as a continuous variable) on psychological distress, showed that increased time was associated with decreased psychological distress score ($\beta = -0.21$, $p < .01$). Said another way, there was a negative rate of change in psychological distress. Model 2 adds in the additional effect of migrant status. The magnitude of the association for time increased and remained statistically significant ($\beta = -0.24$, $p < .001$). There was also a migrant advantage in psychological distress. Migrants had lower psychological distress when compared to non-migrants, accounting for survey follow-up time ($\beta = -1.64$, $p < .001$).

[Table 4.6.1 about here]

When accounting for demographic factors (Model 3), increased time and migrant status remained associated with lower psychological distress. When accounting for social factors (Model 4), there was a slight attenuation for both survey wave and migrant status. However, both trends remained statistically significant. Finally, Model 5 included educational attainment and employment as socioeconomic factors that could explain differences in psychological distress. The inclusion of socioeconomic factors saw further attenuation of the independent associations of both survey wave and migrant status on psychological distress. Thus, psychological distress decreased by 0.14 units on average per year ($p < .05$). Furthermore, migrants had 1.34 lower average psychological distress score compared to non-migrants ($p < .001$) This fully adjusted model provided the best model fit, as indicated by the lower AIC and BIC relative to the other models.

Sensitivity Analyses. **Tables 4.5.2 and 4.5.3** examine if these associations remained robust when different operationalizations of psychological distress were used (e.g. dichotomous psychological distress or ordinal psychological distress). Table 4.6.2, which examined the odds of reporting "moderate to severe" psychological distress, showed similar trends to the continuous operationalization of psychological distress. In the fully adjusted model (Model 5), increasing survey wave was associated with lower odds of reporting moderate to severe psychological distress (OR = 0.80, $p < .05$). Migrants also reported lower odds of moderate to severe psychological distress when compared to non-migrants (OR = 0.31, $p < .001$).

[Table 4.5.2 about here]

Results were somewhat different, however, when psychological distress was operationalized as a 4-category variable (Table 4.6.3). Increasing survey wave was associated with lower odds of psychological distress in the unadjusted model (Model 1). The inclusion of migrant status (Model 2) attenuated the association between survey wave and lower odds of psychological distress. However, the association remained statistically significant ($p < .01$). Similar to previous operationalizations, there was a migrant advantage in psychological distress compared to non-migrants. Migrants had lower odds of increased psychological distress when compared to non-migrants (Model 2 OR = 0.13, $p < .001$). These results remained robust when accounting for demographic (Model 3) and social factors (Model 4). However, the association between survey wave and psychological distress was no longer statistically significant when accounting for socioeconomic factors (Model 5 OR = 0.88, $p > .05$). The migrant advantage remained, however. Compared to non-migrants, migrants had 0.18 the odds of increased psychological distress ($p < .001$).

[Table 4.5.3 about here]

Differences in Psychological Distress Over Time by Migrant Status

Table 4.6.1 provides the results for a formal test of statistical interaction between survey follow-up time. Model 1 includes a statistical interaction between migrant status and survey wave. The interaction term between migrant status and survey wave was not statistically significant at the $\alpha = 0.05$ cutoff, indicating that average changes in psychological distress over time did not differ by migrant status. The individual lower-level terms of the interaction were statistically significant and followed the same trends as analyses evaluating independent effects. Increased survey wave was associated with decreased psychological distress. Migrants also had lower psychological distress relative to non-migrants. Thus, it appears that both survey wave and migrant status are independently associated with psychological distress. There was an attenuation in the association of both survey wave and migrant status with the inclusion of demographic factors (Model 2), social factors (Model 3) and socioeconomic factors (Model 4). However, only migrant status remained significantly associated with psychological distress in the fully adjusted model ($\beta = -1.34$, $p < .001$). Survey wave was only marginally associated with lower psychological distress score ($\beta = -0.14$, $p < .10$).

[Table 4.6.1 about here]

Figure 4.1.1 provides a visualization of the interaction between migrant status and survey wave, adjusting for demographic factors (Table 4.7.1, Model 2). Overall, there was a decrease in psychological distress between both migrants and non-migrants over time. However, the trend lines appear parallel between migrants and non-migrants, further corroborating the finding of a lack of statistical interaction. There is a steady decline in psychological distress for non-migrants across all survey waves. Finally, at each wave, migrants reported lower psychological distress when compared to non-migrants.

[Figure 4.1.1 about here]

Sensitivity Analyses. Tables 4.6.2 and 4.6.3 examine the robustness of the joint association of survey wave and migrant status on alternative operationalizations of psychological distress. In the dichotomous operationalization of psychological distress (Table 4.6.2), the interaction term between survey wave and migrant status was marginally significant in the unadjusted model (Model 1 OR = 1.32, $p < .10$), which is indicative of possible effect modification. The lower-level terms were statistically significant. In the fully adjusted model (Model 4), the interaction term between migrant status and survey wave remained marginally significant ($p < .10$). Figure 4.1.2 displays the visualization of the interaction of migrant status and survey wave on the probability of reporting moderate to severe psychological distress. Unlike the continuous operationalization of psychological distress, we see that increasing survey wave is associated with decreasing probability of psychological distress for the non-migrant group only. However, among migrants, the probability of psychological distress remains similar over time.

[Table 4.6.2 about here]

[Figure 4.1.2 about here]

Table 4.6.3 displays the results of the joint association of survey wave and migrant status on the ordinal operationalization (i.e., 4 categories) of psychological distress. In this operationalization, the interaction term between survey wave and migrant status was not statistically significant, indicating that there may not bet differences in the odds of increasing severity of psychological distress over time by migrant status. Figure 4.1.3 further corroborates this finding by displaying the probability of reporting different levels of psychological distress over time, stratified by migrant status. Overall, there are generally parallel and overlapping

trends among migrants and non-migrants for mild, moderate, and severe of psychological distress. However, increasing time appeared to be association with increasing probability of none-to-slight psychological distress for both migrants and non-migrants.

[Table 4.6.3 here]

[Figure 4.1.3 about here]

Changes in Sleep Disturbance Over Time

Table 4.7.1 displays the weighted mixed model regression of sleep disturbance on survey wave, migrant status, and associated covariates. The data were weighted to adjust for attrition using IPW. In the crude model (Model 1), increasing survey wave was associated with lower sleep disturbance score ($\beta = -0.27$, $p < .001$). In other words, sleep disturbance declined over time, on average. When migrant status is included (Model 2), the magnitude of survey wave increased ($\beta = -0.32$, $p < .001$). Migrants had lower sleep disturbance score on average than non-migrants, accounting for survey wave ($\beta = -2.30$, $p < .001$).

[Table 4.7.1 about here]

When demographic factors were included (Model 3), there was a slight attenuation in the association of survey wave with sleep disturbance. However, the association remained statistically significant. Migrants continued to have lower sleep disturbance levels on average compared to non-migrants. These trends remained when accounting for social factors (Model 4), socioeconomic factors (Model 5), and health factors (Model 6). In the fully adjusted model (Model 6), each year increase was associated with 0.26 lower sleep disturbance score on average ($p < .01$). Migrants had 1.45 lower sleep disturbance score in general, compared to non-migrants ($p < .001$) in the fully adjusted model.

Sensitivity Analyses. **Tables 4.7.2 and 4.7.3** present the sensitivity analyses of alternative operationalizations of sleep disturbance based on clinical cutoffs for the NIH PROMIS. The independent associations of survey wave and migrant status remain the same, and statistically significant when sleep disturbance is dichotomized as "none to mild sleep disturbance" versus "moderate to severe sleep disturbance" (Table 4.7.2). In the fully adjusted model, Model 6, a 1-unit increase in survey wave was associated with 23% lower odds of reporting moderate to severe sleep disturbance ($p < .001$). A migrant advantage in sleep disturbance was also present in the fully adjusted model. Migrants had 58% lower odds of reporting moderate to severe sleep disturbance ($p < .001$) compared to non-migrants.

[Table 4.7.2 about here]

Table 4.7.3 presents the results of the mixed model original logistic regression of increasing levels of sleep disturbance severity on survey wave, migrant status, and associated covariates. Results remained similar to continuous and dichotomous operationalizations of sleep disturbance. In the fully adjusted model (Model 6), a 1-unit increase in survey wave was associated with 25% lower odds of reporting a higher severity of sleep disturbance. For migrant status, migrants had 74% lower odds of reporting a higher severity of sleep disturbance compared to non-migrants.

[Table 4.7.3 about here]

Differences in Sleep Disturbance Over Time by Migrant Status

Table 4.8.1 presents the results of tests for a statistical interaction between survey wave and migrant status on sleep disturbance. This test examined if changes in sleep disturbance over time differed between migrants and non-migrants. Model 1 showed that changes in sleep disturbance over time did indeed differ by migrant status ($\beta = -0.30$, $p < .05$). Interpreted another

way, both migrants and non-migrants experienced a decline in sleep disturbance over time; however, the decline was more pronounced for migrants than for non-migrants. Moreover, it is important to note that migrants and non-migrants had differing baseline sleep disturbance, on average. At each survey wave follow-up, migrants had 2.67 lower sleep disturbance score, on average compared to non-migrants who had an average decrease of 0.19. The significant interaction effect of survey wave and migrant status remained robust but attenuated with inclusion of demographic factors (Model 3), social factors (Model 4), and socioeconomic factors (Model 5). However, when health factors were included (Model 6), the interaction term between survey wave and migrant status became marginally significant ($p < .10$). However, the magnitude of the association remained.

[Table 4.8.1 about here]

Figure 4.3.1 presents a visual interpretation of the interaction effect of survey wave and migrant status on sleep disturbance. The figure displays the trajectory of sleep disturbance across survey wave by migrant status, accounting for demographic factors (based on Table 4.9, Model 3). While there is a general decline in sleep disturbance for both migrants and non-migrants, the change for non-migrants in generally flat while the change for migrants is more pronounced. Moreover, it is important to note that at each wave of follow-up, migrants had less sleep disturbance when compared to non-migrants.

[Figure 4.2.1 about here]

Sensitivity Analyses. **Tables 4.8.2 and 4.8.3** examined if the interaction between survey wave and migrant status was present for the two alternative operationalizations of sleep disturbance, dichotomous and 4-category, respectively. Unlike the continuous operationalization of sleep disturbance, there did not appear to be a statistically significant interaction between

survey wave and migrant status for the odds of moderate to severe sleep disturbance (Table 4.9.2) nor increasing severity of sleep disturbance (Table 4.8.3). Figures 4.2.2 and 4.2.3 further corroborate these findings. Overall, the trends of sleep disturbance over time remained parallel between migrants and non-migrant. In Figure 4.2.2, we see that both migrants and non-migrants have a general decline in the probability of having moderate to severe sleep disturbance over time. However, migrants have a lower probability of moderate to severe sleep disturbance at all follow up points. In Figure 4.2.3, we see greater overlap between migrants and non-migrants depending on the severity of sleep disturbance. Both migrants and non-migrants seen an increase in the probability of having "None to Slight" sleep disturbance over time. However, the increase is more pronounced for migrants than non-migrants. Migrants and non-migrants remained similar in their probabilities of "Mild" sleep disturbance over time with a divergence in trends occurring at the 2nd follow up. At the 2nd follow up, migrants had significantly lower sleep disturbance compared to non-migrants. For "Moderate" sleep disturbance, trends remained parallel between the migrants and non-migrants, with migrants having a lower probability at all waves compared to non-migrants. Finally, for "Severe" sleep disturbance, both migrants and non-migrants experienced a general decrease over time, but differences by migrant status were not statistically significant.

[Table 4.9.2 here]

[Figure 4.2.2 here]

[Table 4.9.3 here]

[Figure 4.2.3 here]

AIM 1 DISCUSSION

The goal of Hypothesis 1 was to examine if there was a pre-migration health advantage for three distinct health outcomes: allostatic load, psychological distress, and sleep disturbance. The goal of Hypothesis 2 was to examine how two of the health outcomes, psychological distress and sleep disturbance, change over time and whether these trajectories differed by migrant status. Overall, there was a migrant health advantage for psychological distress and sleep disturbance that remained robust when accounting for demographic, social, economic, and health behaviors factors. On the other hand, migrants had similar levels of allostatic load compared to non-migrants after accounting for social, socioeconomic, and health behavior factors.

For the longitudinal analysis, both migrants and non-migrants had a general decline in psychological distress and sleep disturbance over time, with only sleep disturbance seeing a difference in trajectory by migrant status. Moreover, at each wave of follow-up, migrants were healthier on average compared to non-migrants.

Interpretation of Findings

Taken together, these results emphasize the heterogeneity in migrant health selection both before migration and after migration. What factors could account for the initial healthiness of migrants before migration?

First, the positive appraisal of migration could be one factor that contributes to the lower psychological distress and sleep disturbance among migrants at baseline. Migrants may believe that their life will be better post-migration, as migration often offers potential improvements in social and economic outcomes (Bacong and Menjívar 2021; Castañeda et al. 2015; Stark and Bloom 1985). Thus, migrants may be more included to respond favorably to questions regarding health given this anticipated improvement in life changes. Moreover, with the anticipation of immigration, migrants may also adopt healthier behaviors pre-migration leading to their

favorable health before migration or could learn of healthier behaviors from already established migrants (Gee et al. 2019). Goldman et al. (2014) speculated that the anticipated improved socioeconomic attainment could factor in generally positive appraisal of migrant health both before and after migration. Indeed, the longitudinal analyses somewhat corroborate with these hypotheses. As expected, more migrants were employed post-migration than pre-migration. Previous studies have noted the importance of gainful employment as a key factor contributing to immigration (Taylor 1999) and immigrant health (Disney 2021). Obtaining employment could allow immigrants to gain access to health insurance (Derose, Escarce and Lurie 2007; Derose et al. 2009) and greater income (Link and Phelan 1995; Phelan, Link and Tehranifar 2010), two socioeconomic social determinants that are often associated with better health.

Second, the anticipation and excitement surrounding immigration could motivate the favorable appraisal of lower psychological distress and sleep disturbance among migrants. HoPES migrants were surveyed just a few weeks to months before departure (de Castro et al. 2019; Gee et al. 2018). Thus, migrants may have experienced more excitement, rather than stress regarding their departure. This excitement could stem from improved economic prospects, as mentioned previously, but it could also be related to the allure of travel and a new destination.

Third, migration preparation could be another factor that influences this advantage in psychological distress and sleep disturbance. The ability to migrate is intricately tied with migrants' socioeconomic status (Cohen 2011; Feliciano 2005; Feliciano 2020; Ravenstein 1885; Stark and Bloom 1985; Taylor 1999) and ultimately influences health in the receiving country (Bacong and Sohn 2021; Sohn and Bacong 2021). Although this study accounted for some socioeconomic measures (e.g., education and employment), the effect of migrant status persisted, indicating that there may be other unmeasured socioeconomic factors that could contribute, such

as socioeconomic resources migrants utilized in their home country or migration preparation. Migration preparation (e.g. taking certification classes, learning English, and saving money) could be a method for migrants to deal with the anticipated stresses of the process. Using the HoPES dataset, Gee et al. (2019) found that migrants engaged in more preparation activities compared to non-migrants, an expected finding. However, what was interesting is that greater preparation was associated with higher body mass index (BMI), waist circumference, and waist-to-height ratio among migrants. While this may be concerning given the global obesity epidemic, it is worth noting that having greater weight has been traditionally seen as a sign of wealth and health in Filipino culture (Becker 2003; Lynn L. Farrales 1999). Thus, the idea of migrant preparation needs to be critiqued in light of the culture of the sending country. From the Western perspective, increased obesity may be a cause for concern. However, from the Filipino perspective, this increased obesity is correlated with greater wealth and perceived health. Although the present study did not examine preparation's effects on psychological distress and sleep disturbance, future work should see the effects of preparation as a possible confounding factor.

Finally, the lower levels of psychological distress and sleep disturbance could also arise from the anticipation of family reunification. A vast majority of Filipinos immigrating to the U.S. arrive as immediate relative (IR) or family (F) visa holders (Commission on Filipinos Overseas 2019). Filipino migrants, in general, comprise a large share of oversubscribed family reunification and employment visas (Commission on Filipinos Overseas 2019). Most HoPES migrants were IR or F visa holders, with a sizeable number of marriage migrants (Morey et al. 2020a). Filipino F-visa holders specifically, often wait multiple years to obtain approval for immigration (Morey et al. 2020a; Obinna 2014; Obinna 2020; United States Deparment of State

Bureau of Consular Affairs 2021). Migration represents an opportunity to reconnect with loved ones (Acevedo-Garcia et al. 2012; Castañeda et al. 2015; Morey et al. 2020a). Thus, the end of a wait to be reunited with loved ones and reestablish social ties could outweigh potential stresses that migrants experienced before departure. Migrants, therefore, would rate their psychological distress and sleep disturbance more favorably as they anticipate new opportunities and reunification with loved ones.

Unlike psychological distress and sleep disturbance, where selection was found, the results for allostatic load showed similar levels between migrants and non-migrants after adjustment of social, socioeconomic, and health behavior factors. This finding is counterintuitive to the large literature on migrant health selection. Many studies of migrant selection use self-report measures, even for chronic health conditions (Akresh and Frank 2008; Bostean 2013; Riosmena, Kuhn and Jochem 2017; Riosmena, Wong and Palloni 2013; Ro, Fleischer and Blebu 2016). However, the lack of selection on allostatic load aligns well with other studies that have examined physical health outcomes (Gee et al. 2019; Rubalcava et al. 2008b). For example, Rubalcava et al. (2008b) did not find health selection on height or blood pressure among Mexican migrants. Gee et al. (2019), who also examined HoPES data, found evidence of migrant health selection on only one index of obesity. Thus, it is possible that migrants may not be selected on all physical health outcomes. Moreover, my sensitivity analyses revealed that there was no health selection in the quartile-calculated and clinical-risk calculated versions of allostatic load, two alternative, but commonly used operationalizations. Thus, it is possible that the initial findings of health selection for decile-calculated allostatic load could be spurious. Finally, it is important to note that our sample was generally young and healthy, which could

partially explain the low levels of allostatic load among the population. Continuing to follow this cohort longitudinally should reveal the extent of allostatic load's increase over time by subgroup.

Unlike other studies examining the effects of acculturation over time, I found that migrants and non-migrants' health improved up to two years after baseline. For migrants specifically, this finding is counterintuitive to the popular acculturation hypothesis, which posits that international immigrants' health should decline over time upon arrival into a new host country (Ro 2014). Although I only examined migrants' health up to two years post-migration, what could be some possible reasons why psychological distress and sleep disturbance declined among this group?

One possibility could be due to improvements in economic outcomes among migrants relative to non-migrants. Although I only explored educational attainment (as a fixed effect) and employment (which varied over time), higher educational attainment was significantly associated with less psychological distress, but not sleep disturbance over time in the continuous operationalizations of each outcome. In Aim 3, I consider alternative socioeconomic outcomes, such as financial strain, as a possible immigration stressor that could contribute to changes in both health outcomes over time.

A second possibility could be related to social isolation. It is a reasonable hypothesis to assume that migrant would experience greater social isolation than non-migrants due to the breakage of social ties in their sending country. As a result, greater social isolation would be associated with greater psychological distress and sleep disturbance over time for migrants. However, these results show that social isolation does not fully explain differences in psychological distress and sleep disturbance over time by migrant status. In each model, the independent association of social isolation on psychological distress and sleep disturbance was

strong and statistically significant. However, the independent effects of survey wave and migrant status robust, but statistically significant, indicating that social isolation plays a minor role in explaining differences in health over time.

Third, environmental factors could also contribute to migrants' decreased psychological distress and sleep disturbance relative to non-migrants, over time. There is an abundance of evidence noting how light, noise, and air pollution all contribute to worse sleep and insufficient sleep (Kawada 2011; Liu et al. 2020; Xiao et al. 2020). Noise and air pollution have also been associated with greater psychological distress and poorer mental health outcomes (Klompmaker et al. 2019; Sass et al. 2017). Migrants may have experienced less psychological distress and sleep disturbance due to improvements in their physical and social environments relative to their pre-migration residences. Although these factors were not in the scope of what was measured for this dissertation, future work using HoPES and examining the migrant sample should consider how changes in migrants physical environment could contribute to declines in sleep disturbance.

Finally, the significant attrition of migrants could lead to a greater magnitude of effect; there were few non-migrants who were lost to follow-up. Migrants who remained in the sample were healthier compared to people who dropped out (see Appendix A). While the mixed linear models account for attrition (Twisk et al. 2013), these results should be taken as an overestimation of the overall effect of time on health by migrant status. Had those who experienced attrition remained in the sample, I would expect that the magnitude of difference between migrants and non-migrants to become smaller in effect. Alternatively, if those who dropped out of the study had higher prevalence of psychological distress or sleep disturbance, their potential inclusion would actually lead to an increase in the magnitude of the effect of migrant status. To mitigate these issues, I used IPW to reweight the data to account for the

attrition of the migrant sample, but results remained largely unchanged. Thus, it is plausible that the declines in psychological distress and sleep disturbance experienced over time, and the general health advantage among migrants, may not be an erroneous association.

Contributions to the Literature

These results make a significant contribution to the corpus of work on immigration health selection and bring future questions about the acculturation hypothesis. First, this study contributes to the paucity of research focused on pre-migration health (Akresh and Frank 2008; Bostean 2013; Diaz, Zeng and Martinez-Donate 2018; Gee et al. 2019; Hamilton and Hummer 2011; Morey et al. 2020a; Riosmena, Kuhn and Jochem 2017; Riosmena, Wong and Palloni 2013; Ro, Fleischer and Blebu 2016). Most studies examining pre-migration health use a limited set of health variables, typically self-rated health or other self-report measures (Akresh and Frank 2008; Bostean 2013; Morey et al. 2020a; Riosmena, Wong and Palloni 2013; Ro, Fleischer and Blebu 2016). Studies that have examined objective measures have typically used height and (Riosmena, Kuhn and Jochem 2017) or blood pressure and hemoglobin A1c as objective measures of health (Rubalcava et al. 2008b). One contribution of this study was its examination of allostatic load – as an indicator of physiological health – before migration, which made use of past measures (e.g., height and weight) in addition to biomarker measures (e.g., blood pressure, cholesterol). Examining allostatic load before migration is useful because it will allow future work to test for popular theories of weathering (Geronimus et al. 2006) and acculturation and their effect on the physiological wellbeing of immigrants. With collection of HoPES data still ongoing, future work should consider how allostatic load changes over time and factors that could contribute to these changes.

Second, this study also examined a new and understudied health outcome – sleep disturbance. While sleep has been studied as an important indicator of overall health (Luyster et al. 2012) and potential chronic conditions among a variety of groups (Duncan, Kawachi and Redline 2019), few studies have examined sleep and sleep disturbance among immigrants. Most studies on sleep and immigrants have been examined post-migration (Ertel, Berkman and Buxton 2011; Hale and Rivero-Fuentes 2011; Kim et al. 2021; Lee et al. 2021; Martinez-Miller et al. 2018; Park et al. 2020; Sano et al. 2019b; Seicean et al. 2011). These studies have similar limitations to post-migration studies of psychological distress (e.g., recall bias).

Third, conducting a longitudinal analysis with pre-migration data allows for a more comprehensive look at the migration process, rather than simply focusing on migrant's experiences after arrival. It also mitigates issues arising from recall bias by measuring migrant health just prior to departure. Moreover, measuring migrant health prior to departure allows us to capture health behaviors prior to the "acculturation" process.

Finally, a fourth contribution of this study was its use of a novel longitudinal dataset with pre-migration data (de Castro et al. 2019; Gee et al. 2018). Previous studies attempting to examine "pre-migration" health have made use of data harmonization and data fusion techniques to roughly estimate the effects of migrant health selection (Bostean 2013; Riosmena, Kuhn and Jochem 2017; Riosmena, Wong and Palloni 2013; Ro, Fleischer and Blebu 2016). While these studies are useful in providing robust estimates of potential selection effects, they are limited due to potential differences in sampling frame and nuances during the data harmonization process. Moreover, these datasets cannot accurately examine if return migration occurs. The Mexican Family Life Survey (MxFLS) was a novel dataset that potentially alleviated the issues of studying health selection via data fusion and harmonization and return migration (Arenas et al.

2015; Goldman et al. 2014; Rubalcava et al. 2008b). However, some have noted the uniqueness of migration from Mexico to the U.S. given the share land border and consideration for experiences of immigrants who are undocumented (Akresh and Frank 2008; Rubalcava et al. 2008b). The HoPES dataset provides a novel look at migration by examining emigration in a new context (i.e. the Philippines) where the vast majority of immigrants are documented (Gee et al. 2018; Morey et al. 2020a). Moreover, recruitment of HoPES migrant participants at baseline occurred either hours or months prior to migration to the U.S. (de Castro et al. 2019; Gee et al. 2018), avoiding potential biases due to return migration, which has often cited as a limitation in examining the relationship between immigration and health in cross sectional analyses (Arenas et al. 2015; Bostean 2013).

Overall, this analysis has revealed that health selection indeed occurs for Filipino migrants relative to a similar set of Filipino non-migrants. The persistence of a migrant advantage across time remains a particularly novel finding, especially given the literature noting immigrant declines in health with longer duration in the U.S. (Goldman et al. 2014; Ro 2014). However, this advantage invites opportunities to examine what factors explain these differences between migrants and non-migrants. Although I show that there is a general improvement in psychological distress and sleep disturbance within two years of follow-up, these results invite questions surrounding how long this advantage will persist and whether there will be a convergence in the health trajectories with greater follow-up time. (Bacong et al. Under Review) who also used HoPES data, found a migrant health advantage in self-rated health among migrants relative to non-migrants within the first year of migration. In contrast, Fuller-Thomson, Noack and George (2011) and Goldman et al. (2014) found a net decline in self-rated health within the first five years of migration for migrants to Canada and the U.S., respectively. While

all three studies examined the same health outcome, there is a clear question about when and where the threshold of the "negative effects" of immigration begin. Currently, HoPES only has data available for up to two years post migration. Thus, future work should explore if a "threshold" for the effects of immigrant integration and acculturation exists. Moreover, with closer follow up data (i.e., yearly), the HoPES dataset will allow for longitudinal exploration of even more health outcomes aside from self-rated health (e.g. continued exploration of psychological distress and sleep disturbance).

In conclusion, there is evidence to suggest that Philippine migrants to the U.S. experience a health advantage in psychological distress and sleep disturbance that persists for up to two years post-migration, relative to their non-migrant counterparts living in the Philippines. In the following chapters, I expand on possible explanatory mechanisms that could contribute to migrants' healthiness and potential decline in health longitudinally.

CHAPTER 5: AIM 2 RESULTS

Much of the literature on immigrant acculturation and integration focuses on the experiences of migrants post-migration (Riosmena et al. 2015; Riosmena, Wong and Palloni 2013; Ro 2014; Steinmann 2019). Specifically, there is work on how immigrants' income and social resources may be disrupted by integrating in a new country. Studies have also examined how immigrants may experience increased discrimination due to their immigrant status or racialized aspects of their identity influences their reception in their host country. What is unknown however, is what "baseline" levels exist for of finances, social resources, and discrimination prior to migrants' departure. Although there has been much discussion surrounding how migrants represent a socioeconomically selective group compared to their non-

migrant counterparts, few studies exist that examine this selectivity (Arenas 2008; Bostean 2013; Feliciano 2005; Feliciano 2020) or follow migrants and non-migrants longitudinally. Moreover, host country inhabitants may be an inappropriate counterfactual to immigrants because both groups were raised in distinct social contexts. Instead, non-migrants from the sending country may be a more appropriate counterfactual. Using non-migrants allows us to hypothetically see the trajectories for migrants had they never departed.

In Aim 1, I showed that there was evidence of a migrant advantage on psychological distress and sleep disturbance relative to non-migrants that persisted with two years of follow-up data. These advantages remained even when accounting for demographic, social, and some socioeconomic characteristics. The goal of Aim 2 is to delve further into potential explanatory mechanisms behind changes in the migrant cohort's health. In Aim 2, I first individually characterize changes in levels of financial strain, interpersonal discrimination, and social resources from baseline to 3-year follow-up; and then evaluate if these changes over time differed by migrant status.

I first compared levels of financial strain, social resources, and discrimination between non-migrants and migrants before migrants' departure (i.e., the baseline wave of HoPES) in Hypothesis 3. I hypothesized that non-migrants and migrants will have similar levels of financial strain, social resources, and interpersonal discrimination at baseline. Overall, I found that migrants were indeed advantaged in financial strain, social resources, and discrimination compared to non-migrants. Migrants had significantly lower levels of financial strain, greater social resources, and fewer experiences of discrimination when compared to non-migrants.

In Hypotheses 4 through 6, I used mixed models to examine how financial strain, social resources, and discrimination score changed over time and whether changes differed by migrant

status. For financial strain, I hypothesized that migrants would have lower levels of financial strain over time compared to non-migrants. For discrimination, I hypothesized that migrants would have higher levels of discrimination over time compared to non-migrants. Finally, for social resources, I hypothesized that migrants' social resources would follow a non-linear pattern, where migrants would experience an initial decline in social resources, followed by growth to reattain baseline levels.

Overall, migrants reported lower financial strain and discrimination relative to non-migrants before migration. Over time, both migrants and non-migrants reported less financial strain and discrimination. However, the decrease in financial strain and discrimination over time was more pronounced for migrants than non-migrants. For social resources, migrants initially had higher levels of social resources than non-migrants prior to migration. Over time, both migrants and non-migrants experienced significant increases in social resources. However, the increase in social resources for migrants became attenuated over time relative to non-migrants, indicating a possible plateau in social resources levels. Below, I provide the detailed results for this aim by hypothesis and outcome.

HYPOTHESIS 3

Sample Description

Table 5.1 displays the weighted univariate statistics for the sample and bivariate statistics by migrant status. A total of 1633 of the original 1637 participants had complete data on all of the variables of interest (99.8% complete). Given this completeness, a complete case analysis was appropriate instead of imputation techniques. The sample was about 37 years old on average, a majority female, and used Filipino languages over English during their interview. There were statistically significant differences in interview language such that more migrants

(12.9%) used English compared to non-migrants (4.5%, p-value < .001 for trend). For social factors, most participants were either married or never married and had low social isolation. There were statistically significant differences in marital status (p < .001) and social isolation (p < .001) by migrant status. The majority of migrants were never married while the majority of non-migrants were married. For social isolation, more non-migrants reported high social isolation (20.7%) compared to migrants (9.2%). For socioeconomic factors, most participants had at least a college degree and most were not currently employed. More migrants had a college degree and above (52.9%) compared to non-migrants (33.7%). Differences between migrants and non-migrants were statistically significant (p < .001). In contrast, more non-migrants were currently employed (60.8%) compared to migrants (22.9%, p-value for trend < .001).

[Table 5.1 about here]

Financial Strain

At baseline, 18.7% of participants had "very low" financial strain, followed by 51.3% of participants with "low" financial strain, 24.5% with "medium" financial strain", and 5.5% of participants with "high" financial strain (Table 5.1). There were statistically significant differences in financial strain by migrant status (p < .001). More non-migrants had high financial strain (10.0%) compared to migrants (1.1%). For those with low to very low financial strain, more migrants had low to very low financial strain (82.4%) compared to non-migrants (57.2%).

Table 5.2.1 presents the weighted multivariable ordinal logistic regression of financial strain (4-category version) on migrant status and associated covariates. Four models were tested. Model 1 examined the bivariate association of migrant status with financial strain. Migrants had lower odds of financial strain compared to non-migrants (OR = 0.28, p < .001). Migrants'

advantage in financial strain was still present even when accounting for demographic (Model 2), social (Model 3), and other socioeconomic variables (Model 4).

[Table 5.2.1 about here]

Sensitivity Analyses. **Table 5.2.2** examined the 3-category operationalization of financial strain. Results remained similar to the 4-category operationalization of financial strain. Migrants reported lower odds of financial strain at baseline when compared to non-migrants. These results remained robust even when accounting for demographic, social, and other socioeconomic factors.

[Table 5.2.1 about here]

Interpersonal Discrimination

At baseline (**Table 5.1**), migrants had significantly lower everyday discrimination score when compared to non-migrants. Migrants reported about 30 fewer instances of discrimination (M = 48.7) compared to non-migrants (M= 75.8). I also examined differences in the everyday discrimination score for frequency-summed and situation-based discrimination. In these two coding iterations, migrants reported less discrimination when compared to non-migrants (Table 5.1).

Finally, I examined the types of discrimination that participants reported. Of the seven types of discrimination reported, there were statistically significant differences in gender/sex discrimination, weight discrimination, socioeconomic discrimination, and race discrimination by migrant status. In each case, more non-migrants reported experiencing these types of discrimination compared to migrants. For example, over 50% of non-migrants reported that they experienced racial discrimination compared to about 43% of migrants.

Table 5.3.1 presents the weighted multivariable ordinary least squares regression results of the baseline chronicity-calculated Everyday Discrimination Score (EDS) on migrant status and associated covariates. As seen in the bivariate model (Model 1), migrants reported about 27 fewer incidents of discrimination when compared to non-migrants ($p < .001$). When accounting for demographic factors (Model 2), the magnitude of the difference increased for migrants relative to non-migrants and remained statistically significant ($\beta = -27.57$, $p < .001$).

[Table 5.3.1 about here]

Inclusion of social factors (Model 3) saw an attenuation of the effect of migrant status on discrimination. Migrants continued to have significantly lower discrimination compared to non-migrants ($\beta = -19.70$, $p < .001$). In the fully adjusted model (Model 4), which included educational attainment and current employment as socioeconomic factors that could explain differences in discrimination, migrants reported about 15 fewer incidents of discrimination when compared to non-migrants ($p < .05$).

Sensitivity Analyses for Interpersonal Discrimination. **Tables 5.3.2 and 5.3.3** present the ordinary least squares regression for the frequency summed and situation-based coding scoring of the EDS as sensitivity analyses. Results remained similar to chronicity-calculated coding. Migrants reported lower levels of discrimination compared to non-migrants. These differences between migrants and non-migrants remained robust, even when accounting for demographic, social, and socioeconomic factors.

[Table 5.3.2 about here]

[Table 5.3.3 about here]

Social Resources

For social resources at baseline (**Table 5.1**), participants had an average social resources score of 7.7 (SD = 2.4). There were statistically significant difference in social resources by migrant status ($p < .001$). Migrants had higher social resources (M = 8.0, SD = 2.4) compared to non-migrants (M = 7.3, SD = 2.5).

Table 5.4 presents the weighted multivariable ordinary least squares regression of baseline social resources on migrant status and associated covariates. In the bivariate model (Model 1), migrants had 0.73 higher social resources compared to non-migrants ($p < .001$). This advantage remained, even when accounting for demographic factors (Model 2), social factors (Model 3), and socioeconomic factors (Model 4) (Model 4 $\beta = 0.76$, $p < .001$)

[Table 5.4 about here]

HYPOTHESIS 4

The second goal of Aim 2 was to evaluate how financial strain, social resources, and interpersonal discrimination changes over time and whether these changes differ by migrant status. I present the results by factor, below.

Differences in Financial Strain Over Time and by Migrant Status

Table 5.5.1 displays the weighted mixed model ordinal logistic regression of 4-category financial strain on survey wave and migrant status. Models were weighted to account for attrition across each wave. In the unadjusted model (Model 1), increasing survey wave was associated with lower odds of higher levels of financial strain (OR = 0.61, $p < .001$). The negative association of survey wave with financial strain was attenuated with the inclusion of migrant status (Model 2). Increasing survey wave remained associated with lower odds of higher levels financial strain. Migrant status was also associated with lower odds of higher levels of financial

strain, accounting for survey wave (OR = 0.11, $p < .001$). These trends for both survey wave and migrant status remained robust even when accounting for demographic factors (Model 3), social factors (Model 4), and socioeconomic factors (Model 5). In the fully adjusted model (Model 5), both increased survey wave and migrant status were significantly associated with lower odds of higher levels of financial strain.

[Table 5.5.1 about here]

Sensitivity Analyses. **Table 5.5.2** also tests for the independent associations of survey wave and migrant status on financial strain using a 3-category operationalization of financial strain. Results of this sensitivity analysis were similar to the 4-category operationalization of financial strain. Increased survey wave remained associated with lower odds of financial strain and migrants had lower odds of financial strain compared to non-migrants.

[Table 5.5.2 about here]

Table 5.6.1 examines the interaction between survey wave and migrant status to test if changes in levels of financial strain (4-category version) over time are dependent on migrant status. Overall, inclusion of the interaction term was statistically significant (Model 1, OR = 0.41, $p < .001$), indicating that changes in financial strain over time were dependent on migrant status. This represents the differences in mean changes in financial strain between migrants and non-migrants. In this case, the OR indicates that with increasing time, the probability of having a higher level of financial strain generally decreases for both groups. However, the rate of decline in the probability of experiencing higher levels of financial strain for migrants is much greater when compared to non-migrants. Moreover, it is important to note that the migrant advantage in financial strain remained over time. Migrants continued to report lower odds of financial strain

when compared to non-migrants. This trend remained statistically significant even when accounting for demographic (Model 2), social (Model 3), and socioeconomic factors (Model 4).

[Table 5.6.1 about here]

Figure 5.1 provides a visual representation of the interaction of migrant status on survey wave on the predicted probability for each specific level of financial strain. This figure accounts for demographic factors at the person level (i.e., Level 2) (**Table 5.6.1, Model 2**). At baseline, non-migrants had a low probability of having the most extreme levels of financial strain (e.g., "very low" or "high" financial strain). Non-migrants had a 11.2% probability of having "very low" financial strain at baseline and an 10.0% probability of having "high" financial strain. Interestingly, the probabilities of having "very low" or "high" financial strain were relatively similar at baseline among non-migrants. The probability of having "low" financial strain (45.5%) or "medium" financial strain (33.3%) was highest among non-migrants at baseline.

[Figure 5.1 about here]

There was a divergence in the probability of having "very low" or "high" financial strain over time among non-migrants. The probability of having "very low" financial strain increased for non-migrants over time, while the probability or having "high" financial strain decreased over time. The predicted probability of having "low" financial strain saw a slight increase but remained stable over time for non-migrants while the probability of having "medium" financial strain saw a general decline over time.

For migrants at baseline, the predicted probability of having "low" financial strain was highest (50.4%) followed by the predicted probability of having "very low" financial strain (31.9%). The predicted probabilities of having "medium" financial strain (15.3%) and "high" financial strain" (2.5%) were generally low for migrants at baseline. Over time, the probability of

having “low” financial strain decreased among migrants. Instead, the probability of having “very low” financial strain increased. At 2-year follow-up, the predicted probability of having “very low” financial strain was 69.2%, while the probability of having “low” financial strain was 27.4%. The probability of having “medium” financial strain generally decreased over time among migrants (3.1% at 2-year follow up). Finally, the probability of having “high” financial strain among migrants remained stable over time.

Sensitivity Analyses. **Table 5.8.2** displays the results of the weighted ordinal mixed model logistic regression of the 3-category operationalization of financial strain on the joint association of survey wave and migrant status. Results remained similar to the 4-category operationalization of financial strain. In the unadjusted model (Model 1), the interaction term between survey wave and migrant status was statistically significant (OR = 0.41, $p < .001$), indicating that changes in financial strain over time differ by migrant status. This trend remained even when accounting for demographic (Model 2), social (Model 3), and socioeconomic factors (Model 4). **Figure 5.2** further supports the findings seen in the 4-category operationalization of financial strain. Here, we see that the probability of migrants with “low” financial strain drastically increases over time. Although the probability of “low” financial strain also increases for non-migrants over time, the increase is not as drastic when compared to non-migrants. When examining the final predicted probabilities at the 2-year mark, the predicted probability of “low” financial strain among migrants was 69.6% compared to 15.3% among non-migrants. For non-migrants, the probability of having “medium” financial strain was highest at 2-year follow up (49.4%).

[Table 5.6.2 about here]

[Figure 5.2 about here]

HYPOTHESIS 5

Differences in Interpersonal Discrimination Over Time and by Migrant Status

Table 5.7.1 displays the weighted mixed model regression of chronicity-calculated everyday discrimination score on survey wave and migrant status. Model 1 presents the unadjusted model, examining the change in discrimination over time. Overall, each increase in survey wave was associated with nearly 9 fewer instances in everyday discrimination per year ($p < .01$). Model 2 includes migrant status to test for the independent effects of both survey wave and migrant status on everyday discrimination over time. Migrants reported about 24 fewer instances of everyday discrimination per year compared to non-migrants ($p < .001$), accounting for survey wave. A 1-unit increase in survey wave was associated with almost 10 fewer instances in everyday discrimination, accounting for migrant status. These trends for survey wave and migrant status were robust even when accounting for demographic factors (Model 3), social factors (Model 4), and socioeconomic factors (Model 5). In the fully adjusted model, survey wave remained significantly associated with lower everyday discrimination ($\beta = -6.23$, $p < .05$) and migrants continued to report lower levels of everyday discrimination compared to non-migrants ($\beta = -19.32$, $p < .001$). Of the five models, Model 5, the fully adjusted model, provided the best model fit.

Sensitivity Analyses for the Independent Associations of Survey Wave and Migrant Status on Frequency-Summed and Situation-Based Discrimination. **Tables 5.7.2** and **5.7.3** examine the frequency summed and situation summed operationalizations of the everyday discrimination scale respectively. Similar to chronicity-calculated discrimination, increased survey wave was associated with decreased reports of everyday discrimination for both frequency-summed and situation-summed operationalizations. Migrants also reported less

discrimination relative to non-migrants in both versions of the EDS. These trends for both survey wave and migrant status remained robust even when accounting for demographic, social, and socioeconomic factors.

Table 5.8.1 tests for a potential interaction of migrant status and survey wave on chronicity-calculated everyday discrimination score. In the unadjusted model (Model 1), the interaction term itself indicates that migrants experience a decrease in everyday discrimination over time relative to non-migrants (Model 1: $\beta = -2.56$, $p > .05$). However, the lack of statistical significance of this interaction term indicates that there are no statistical differences between migrants and non-migrants regarding changes in everyday discrimination. Thus, both survey wave and migrant status are independently associated with differences in chronicity-calculated everyday discrimination (see Table 5.7.1). This trend remained when accounting for demographic factors (Model 2), social factors (Model 3), and socioeconomic factors (Model 4).

Figure 5.3 provides a visualization of the trajectories in chronicity-calculated everyday discrimination over time, adjusted for demographic factors at the person-level (based on Table 5.8.1, Model 2). At baseline, migrants reported fewer instances of discrimination (about 50) on average compared to non-migrants at baseline (about 75). Both groups experience a decline in reports of everyday discrimination over time. However, the decline in reports of discrimination between both groups appeared parallel.

[Figure 5.3 about here]

Sensitivity Analyses for the Joint Association of Survey Wave. **Tables 5.8.2** and **5.8.3** present a different story surrounding if changes in discrimination over time differ by migrant status. **Table 5.8.2**, which examines if changes in frequency-summed discrimination over time differ by migrant status, shows a statistically significant interact (Model 1 $\beta = -0.38$, $p < .05$).

Thus, migrants report a steeper decrease in everyday discrimination score over time compared to non-migrants. This trend remained even when accounting for demographic (Model 2), social (Model 3), and socioeconomic variables (Model 4).

Figure 5.4 provides a visualization of changes in frequency-summed discrimination over time and by migrant status. Like chronicity-calculated discrimination, migrants reported lower discrimination at baseline when compared to non-migrants. Furthermore, both migrants and non-migrants experienced a decline in reports of discrimination over time. However, the rate of decline for migrants was much steeper compared to non-migrants, further emphasizing a divergence in among both groups.

[Figure 5.4 about here]

Table 5.8.3, which used the situation-based operationalization of the everyday discrimination score, showed similar results. In the unadjusted model, the interaction term between survey wave and migrant status was also significant (Model 1 $\beta = -0.26$, $p < .001$), indicating differences in the change situation-based everyday discrimination score over time by migrant status. Like the frequency-summed operationalization, the interaction term between wave and migrant status remained significant even when accounting for demographic, social, and socioeconomic variables.

Figure 5.5 visualizes how situation-based discrimination changes over time by migrant status. Like frequency-summed discrimination, migrants not only began with fewer reports of discrimination relative to non-migrants, but they also experienced a sharper decline in discrimination over time.

[Figure 5.5 about here]

HYPOTHESIS 6

Differences in Social Resources Over Time and by Migrant Status

Table 5.9 presents the weighted mixed model regression of social resources on survey wave and migrant status. Model 1, the unadjusted model, shows that each increase in survey wave was significantly associated with a 0.37 increase in social resources score ($p < .001$). When migrant status was included (Model 2), the magnitude of the association for survey wave slightly increased ($\beta = 0.38$, $p < .001$). Migrants also had higher social resources relative to non-migrants, accounting for survey wave ($\beta = 0.22$, $p < .05$).

[Table 5.9 about here]

Inclusion of demographic factors (Model 3) saw an increase in the magnitude for both survey wave and migrant status. Increased survey wave remained significantly associated with greater social resources ($\beta = 0.41$, $p < .001$) and migrants continued to have higher social resources compared to non-migrants ($\beta = 0.34$, $p < .01$). These trends remained robust, but attenuated when accounting for social factors (Model 4) and socioeconomic factors (Model 5). In the fully adjusted model, increased survey wave was associated with greater social resources ($\beta = 0.38$, $p < .001$) and migrants continued to have higher social resources compared to non-migrants ($\beta = 0.34$, $p < .01$). The fully adjusted model (Model 5) was identified as the best model given its lower AIC relative to other models. However, Model 4 had the lowest BIC of all of the models. Given these discrepancies in AIC and BIC between models, Model 5 was chosen as the best final model, given the theoretical relevance of including socioeconomic factors in analyses of social resources and social resources.

Table 5.10 examines a potential interaction between survey wave and migrant status on social resources. Model 1 provides the formal test of the interaction between survey wave and migrant status. The interaction between survey wave and migrant status was statistically

significant ($\beta = -0.33$, $p < .01$), indicating that changes in social resources over time did differ by migrant status. The negative coefficient of the interaction term indicates that for migrants, the increase in social resources over time attenuates relative to non-migrants. Non-migrants continued to experience increased social resources over time, although their overall social resources remained lower relative to migrants.

[Table 5.10 about here]

The associations of survey wave, migrant status, and their interaction remained statistically significant even when accounting for demographic factors (Model 2), social factors (Model 3), and socioeconomic factors (Model 4). In this final adjusted model, increased survey wave remained significantly associated with higher social resources ($\beta = 0.52$, $p < .001$). Moreover, migrants had higher social resources compared to non-migrants ($\beta = 0.62$, $p < .001$). However, when examining changes in social resources over time by migrant status, migrants continued to experience an attenuation in their increase in social resources, on average ($\beta = -0.37$, $p < .001$).

Figure 5.6 provides a visualization of changes in social resources over time, by migrant status, adjusted for demographic factors. At baseline, migrants had more social resources on average compared to non-migrants. Both migrants and non-migrants experienced an increase in social resources over time. However, differences in social resources by migrant status largely disappeared after the first year. Moreover, the increase in social resources among non-migrants is more pronounced compared to migrants. By 2-year follow up, both migrants and non-migrants had similar levels of social resources.

[Figure 5.6 about here]

AIM 2 DISCUSSION

The overall goal of Aim 2 was to examine the distribution of three potential social factors that could account for migrants' healthiness relative to non-migrants pre-migration and over time. In Hypothesis 3, I examined differences in baseline financial strain, interpersonal discrimination, and social resources by migrant status. In Hypotheses 4, 5, and 6, I explored how these three social factors changed over time, and whether these changes differed between migrants and non-migrants.

Baseline cross-sectional analyses revealed that migrants had lower financial strain, experienced less discrimination, and had higher social resources compared to non-migrants. These differences persisted even when adjusting for demographic, social, and economic factors. Over time, however, both migrants and non-migrants saw improvement in each factor, even when accounting for potential alternative explanations such as demographic differences, social factors, and socioeconomic differences within the sample. Both migrants and non-migrants had lower levels of financial strain and discrimination over time. Both groups also had increases in social resources over time. However, not all trends differed by migrant status over time. There were significant interaction effects for survey wave and migrant status for financial strain and social resources, but not for interpersonal discrimination.

Interpretation of Results

These findings provide nuance to discussions of migrant socioeconomic selection, migrant acculturation, and migrant integration.

Financial Strain. The finding that migrants had lower financial strain compared to non-migrants prior to migration follows well-established literature on migrant socioeconomic selection. (Feliciano 2020). Similar advantages were also seen with other socioeconomic correlates such as education and later employment. The HoPES migrant sample had a greater

proportion of college educated persons compared to non-migrants, a finding corroborated in previous studies using HoPES (Gee et al. 2019; Maglalang et al. 2020; Morey et al. 2020a). Similar educational selection has been found in multi-national studies (Feliciano 2005; Feliciano 2020; Gelatt 2020; Orrenius and Zavodny 2020). As expected, fewer migrants were employed compared to non-migrants prior to migration, as migrants often quit their jobs prior to leaving their home country. However, accounting for educational attainment and employment at baseline did not fully account for differences in financial strain between migrants and non-migrants pre-migration. Thus, other factors may account for the differences in financial strain by migrant status.

For example, the lack of financial strain among migrants at baseline could also be reflective of the higher socioeconomic status migrants had at baseline. Nearly 53% of migrants had a college degree or above. While having higher education is not a perfect proxy of income, it is indicative of migrants potentially having higher socioeconomic resources in general. Furthermore, increased socioeconomic investments that migrants obtain from their families for their transition (Stark and Bloom 1985; Taylor 1999). Traditionally, these socioeconomic investments are expected to come from family of their home country (Stark and Bloom 1985). However, it is possible that these investments may come from family already settled in the U.S. It is important to note that the HoPES sample is comprised of migrants who intend to become lawful permanent residents (LPR) in the U.S. (de Castro et al. 2019; Gee et al. 2018; Morey et al. 2020a). Becoming a LPR involves a lengthy visa application process that requires a petition by a U.S. citizen, a LPR already living in the U.S., or a company (for employment migrants) in addition to a $220 fee (Obinna 2014; Obinna 2020; United States Deparment of State Bureau of Consular Affairs 2022). In the visa application, petitioners must show that they are financially

stable and are able to support the prospective migrant upon arrival. As prospective migrants await the decision for their petition, family members in the U.S. may continue to support them financially through remittances (Cohen 2011; Eckstein 2010; Guitierrez 2018a), ultimately increasing their wealth prior to migration and creating the foundation for potential financial stability upon arrival.

Alternatively, the better socioeconomic outcomes among migrants could be the result of engagement in preparatory activities in anticipation for integrating with the U.S. job market (Gee et al. 2019). Wait times for LPR visas in the Philippines can take upwards of 20 years to process (Morey et al. 2020a; United States Deparment of State Bureau of Consular Affairs 2021) with the wait times becoming longer over time (Obinna 2014; Obinna 2020). Thus, migrants may be compelled to obtain higher education, learn English, or create savings in order to achieve financial stability prior to migration. Although a previous study using HoPES examined the association between visa wait times and health (Morey et al. 2020a), future work can examine if longer visa wait times are associated with greater socioeconomic outcomes prior to migration.

Over time, both migrants and non-migrants experienced decreases in financial strain. For migrants, the decrease in financial strain aligns well with discussions of immigrant socioeconomic acculturation (Alba and Nee 1997) and integration (Costa 2020; Gelatt 2020; Orrenius and Zavodny 2020). However, unlike popular acculturation theories, which emphasize a potential stagnation in non-migrant social and financial resources relative to migrants (Stark and Bloom 1985), we saw an improvement in financial strain and social resources among the non-migrant cohort. Why might there be improvement in non-migrant financial strain and social resources? One possibility for the decrease in non-migrants' financial strain over time could be due to receipt of remittances from migrant family members or friends (Cohen 2011; Eckstein

2010). Monetary remittances remain a growing source of income for the Philippines, especially in impoverished areas (Semyonov and Gorodzeisky 2008; Yang and Martinez 2006). Remittances are one of the top contributors to the Gross Domestic Product (GDP) in the Philippines (Bayangos and Jansen 2011; The World Bank 2022) and a significant source of income for many Filipino families (Guitierrez 2018; Gutierrez 2018). In 2020, remittances made up nearly 10% of the Philippines GDP. These remittances can serve as disposable income for non-migrants or an additional source money for investment. Future work using HoPES should examine the role of remittances on financial strain among the migrant and non-migrant cohort. Alternatively, the significant decline of financial strain among non-migrants may be the result of general secular economics effects.

There are some limitations to this study of financial strain over time. This study examined financial strain, rather than gross income as an indicator for economic outcomes over time. This was done because of differences in exchange rates between the Philippine peso and U.S. dollar. Furthermore, converting annual incomes among migrants and non-migrants to be similar (e.g., pesos to dollars) would inflate migrant earnings, leading to an artificial conclusion that migrants are doing "better off" compared to their non-migrant counterparts. From a gross income perspective, migrants would be better off financially over time due to the greater economic value placed on the U.S. dollar than the Philippine peso. However, examining financial strain rather than income allows us to examine "relative" wealth differences between migrant and non-migrant groups. Although the financial strain question asks if participants have enough money to meet their experiences, what is unknown however, is if migrant participants also compare their wealth to (1) themselves prior to migration, (2) non-migrants, or (3) to people who live in the U.S. during follow up. The results show that migrants are experiencing less

financial strain to cover their expenses over time which could suggest that migrants are experiencing improved economic wellbeing from migration.

Interpersonal Discrimination. For discrimination, migrants reported fewer incidents of discrimination compared to non-migrants at baseline, even when accounting for demographic, social, and socioeconomic factors. Over time, reports of discrimination decreased for both migrants and non-migrants over time. Results were more pronounced among migrants in frequency-summed and situation-based operationalizations, such that migrants reported significantly less discrimination compared to non-migrants for each consecutive wave. These trends remained when accounting for demographic, social, and socioeconomic factors

What could be some possible reasons why discrimination would be lower among migrants relative to non-migrants prior to migration. Furthermore, what factors could account for the decrease in discrimination among both groups over time? Migrants' greater educational attainment could be one factor that accounts for the lower levels of discrimination relative to non-migrants. Education, as a proxy for socioeconomic class, could reduce migrants' encounters with potential incidents of discrimination. However, accounting for educational attainment and employment did not alter the significance of the association between migrant status and reports of discrimination. Unfortunately, this analysis was unable to incorporate other measures of class, such as previous employment type, which could further explain this association. Future work should consider incorporating other measures of class and socioeconomic attainment.

Alternatively, the lower levels of discrimination at baseline for migrants could be due to sociopolitical factors related to migration in the Philippines. Migrants are often celebrated in the Philippines (Rodriguez 2002; Sabado-Liwag et al. 2022), due to their contributions to the Philippine GDP through remittances (Bayangos and Jansen 2011). The Philippine government

hails Filipino migrants, specifically Overseas Filipino Workers (OFWs) and migrants on employment visas, as "New National Heroes", a calling point for pride and nationalism (Rodriguez 2002; Rodriguez 2010). Migration to the U.S. is especially celebrated among Filipinos given the allure of improved economic opportunities stemming from decades of American colonialism (Sabado-Liwag et al. 2022). Thus, migrants hold a privileged status in the Philippines and may perceive less discrimination if this status is revealed to others.

Finally, the low reports of discrimination among migrants could be related to cultural factors. The Filipino concept of *hiya*, or "sense of shame" in Tagalog, may influence Filipinos' judgments of discrimination. In this case, Filipino migrants may display *hiya* when asked questions about potential discrimination or mistreatment to assuage any concerns of difficulties living in the U.S. *Kapwa*, or togetherness in Tagalog, could be another cultural value influencing reports of discrimination. In this case, it may be more socially desirable for Filipinos to report less discrimination in fears of expressing discord among their friends and family. At the time of this study, HoPES had not collected information examining different types of Filipino cultural values, such as *hiya* or *kapwa*. HoPES included one question on potential social desirability. However, it was not included in this analysis as it was only measured at baseline. Future studies should consider examining how Filipino cultural factors could influence reports of discrimination.

Interestingly, the decline in reports of discrimination over time is contrary to literature noting how discrimination increases among immigrants in their new host country (Steinmann 2019). The aforementioned cultural factors (e.g., *hiya*, *kapwa*) could further explain the decline in reports of discrimination for both migrants and non-migrants over time. However, it is important to consider other factors that may account for the decline in discrimination among

migrants. For example, migrant Filipinos may not be experiencing as much discrimination by virtue of living amongst kin, or in large Filipino or immigrant ethnic enclaves. Living amongst people who share similar experiences or immigration histories may reduce Filipino migrants' exposure to potential experiences of discrimination. While HoPES collected geocoded data on migrants' places of settlement, this was not the main focus of this analysis and should be examined in future studies.

Social Resources. For social resources, we saw a general increase over time for both migrant and non-migrant groups. However, for the increase in social resources over time for migrants was slower compared to non-migrants. What could possibly account for this attenuation in social resources for non-migrants over time. One possibility could be that while transnational relationships of migrants to their kin in the Philippines may still be possible, the potential loss of social ties or reduced frequency in using social ties in the Philippines resultant from migration are not fully recuperated when establishing new social ties in the U.S. Furthermore, the composition of social ties may have an effect on their usefulness. Although the Resource Generator Scale asks about whether participants have someone to support them for certain activities and the ease of access, it is difficult to determine if the sources of migrants' social resources may stem from contacts in the U.S. or continued reliance from family members and friends in the Philippines. When examining Cuban migration, Eckstein (2010) suggests that examining transnational ties between immigrants and those who remain behind is important to understanding how social resources is built up over time, especially with respect to economic outcomes.

Finally, it is possible that other factors may be affecting the generally slower increase in social resources over time for migrants. Migrants' experiences with social isolation may be one

factor that could account for the attenuation of social resources over time. Experiencing social isolation would theoretically reduce an individual's social resources levels. In the multivariable models, we see that high social isolation was associated with lower social resources in the fully adjusted model. However, this on its own did not fully explain the association between survey wave and migrant status on social resources.

There may also be some unmeasured factors that could further account for the attenuation of migrants' social resources over time. For example, migrants' social environment could have a severe impact on their source resources. Migrants who live in anti-immigrant environment (Morey et al. 2018) or outside of an ethnic/immigrant enclave may not have access to as many resources as other migrants.

Contribution to the Literature

These findings provide new evidence that corroborates with previous work examining migrant socioeconomic selection (Feliciano 2005; Feliciano 2020) and improvement in migrant earnings over time (Gelatt 2020). As expected, migrants had lower financial strain and higher social resources when compared to their non-migrant counterparts.

What this study adds, however, is additional nuance to theories of immigrant integration and acculturation (National Academies of Sciences, Medicine and Population 2016). Specifically, this study expands upon the concept of "immigrant integration" by comparing migrants with those who do not migrate (i.e., non-migrants from the sending country). Many U.S.-based studies that examine immigrant integration and acculturation have centered comparisons of migrants with U.S.-born individuals (Diaz, Zeng and Martinez-Donate 2018; Goldman et al. 2014; Rubalcava et al. 2008b). While there are some studies that have examined only migrants (Akresh 2008; Akresh and Frank 2008; Jasso 2011), these studies have surveyed

immigrants years after they have arrived in the U.S. Thus, these immigrants may have been already exposed to acculturative factors that could confound examination of the effects of migration. The time gap between migrants' arrival and participant in these surveys may miss potentially impactful moments of the post-immigration process (e.g., applying for work for the first time in the U.S.). It may also miss other moments of the integration process, such as the acquisition of the English-speaking skills. Therefore, instead of focusing on migrants become similar to their host country counterparts (National Academies of Sciences, Medicine and Population 2016), this study focused on how immigrants become different from their sending country counterparts. What was found, however, was not a divergence in trends among migrants and non-migrants, but a widening gap from the pre-migration differences between both groups, albeit in financial strain and discrimination.

This study also invites additional exploration for the improvements in social outcomes for those who remain in their home country. Previous work has noted the positive role of migrant remittances and transnational connections have on economic improvement within a country (Bayangos and Jansen 2011; Cohen 2011; Eckstein 2010; Guitierrez 2018a; Gutierrez 2018b; Semyonov and Gorodzeisky 2008; Taylor 1999; Yang and Martinez 2006). However, are the improvements in financial strain, discrimination, and social resources due to secular effects alone? Or are there other unmeasured factors that could explain these trends?

Finally, this study shares many of the same strengths as my previous exploration examining health selection (see Aim 1). The combination of pre-migration and post-migration data allows us to have a comprehensive look at how social and socioeconomic factors change over time. Moreover, the use of pre-migration data also allows us to measure a baseline level of social and socioeconomic factors before processes of integration and acculturation occur.

In conclusion, this analysis provides novel evidence of a migrant advantage in financial strain, discrimination, and social resources prior to migration. Moreover, these analyses show improvements in these factors for both migrants and non-migrants, a novel finding to further motivate studies of immigrant integration and acculturation. Given these persistent migrant advantages in financial strain, discrimination, and social resources both before and after migration, in Aim 3, I examine if these factors explain changes in the health of migrants and non-migrants over time.

CHAPTER 6: AIM 3 RESULTS

In the previous two chapters, I examined whether there was a migrant advantage in health, social, and socioeconomic outcomes both before migration and up to two years after migration. My initial results found that migrants indeed experienced both pre- and post-migration advantages in health and social outcomes. While these advantages persisted even when accounting for demographic, social, and other socioeconomic outcomes, the goal of this aim (Aim 3) was to (1) evaluate the individual effects of financial strain, discrimination, and social resources – as factors related to immigrant integration – on allostatic load at baseline and psychological distress and sleep disturbance over time; and (2) examine if the association between these integration factors and health differ by migrant status.

To complete this aim, I conducted two sets of analyses: a baseline analysis focused for allostatic load, and a longitudinal analysis for psychological distress and sleep disturbance. For allostatic load, I used zero-inflated negative binomial regression (ZINB) to examine the association between each integrative factors and decile-calculated allostatic load. I then examined the interaction between each integrative factor and allostatic load. Multivariable analyses for psychological distress and sleep disturbance used mixed linear regression, like Aim

1 and Aim 2. All analyses were weighted to account for attrition and to allow for the sample to be comparable to recent Filipino migrants in the U.S. Below, I present detailed results of the analyses for Aim 3 by hypothesis for each outcome.

HYPOTHESIS 7

In this sub-aim, I hypothesized that greater financial strain and interpersonal discrimination would be associated with higher allostatic load at baseline, while greater social resources would be associated with lower allostatic load at baseline. Below, I present the results for this analysis for each exposure.

The Role of Financial Strain on Allostatic Load at Baseline

Table 6.1.1 displays the results of the weighted multivariable ZINB regression of decile-calculated allostatic load on financial strain and migrant status. Overall, financial strain was not significantly associated with allostatic load in each model. The overall magnitude of the association was relatively small in each model. In contrast, migrants had lower allostatic load compared to non-migrants in all models. For example, in the demographically controlled model (Model 2), migrants had 0.16 lower allostatic load compared to migrants. This advantage for migrants remained, albeit marginally significant even when accounting for social factors (Model 3), socioeconomic factors (Model 4), and health behavior factors (Model 5).

Sensitivity Analyses. **Table 6.1.2** and **6.1.3** display the results of the multivariable Poisson regression of quartile-calculated and clinical-risk calculated allostatic load on financial strain and migrant status. Overall, increased financial strain was not significantly associated with higher allostatic load in both operationalizations. Furthermore, migrants did not have a statistically significant advantage in allostatic load compared to non-migrants.

The Role of Everyday Discrimination on Allostatic Load at Baseline

Table 6.2.1 displays the weighted results of the multivariable ZINB regression of baseline decile-allostatic load on chronicity-weighted everyday discrimination. In the unadjusted model, a 1-unit increased in chronicity-calculated EDS was associated with a -0.01 decrease in allostatic load. However, this association was not statistically significant. Results remained similar when accounting for demographic, social, socioeconomic, and health factors.

***Sensitivity Analyses*. Table 6.2.2** displays the fully adjusted results of the sensitivity analyses of chronicity-calculated EDS and quartile-calculated and clinical-risk calculated allostatic load. A 1-unit increase in chronicity-calculated EDS was associated with a 0.0001 unit decrease in allostatic load score, albeit not statistically significant. Migrants also had lower allostatic load compared to non-migrants. However, differences were not statistically significant.

Table 6.2.3 displays the results of the ZINB regression of decile-calculated allostatic load on frequency-summed discrimination while **Table 6.2.4** displays the fully adjusted results of the frequency-summed EDS on quartile and risk-calculated allostatic load. Overall, the results remained similar to the fully adjusted chronicity-calculated version. EDS was not significantly associated with allostatic load. Migrants had a lower allostatic load compared to non-migrants. However, differences were not statistically significant.

Table 6.2.5 and **Table 6.2.6** display the fully adjusted results of situation based operationalizations of the EDS on decile-calculated allostatic load (Table 6.2.5) and quartile and risk-calculated operationalizations of allostatic load (Table 6.2.6), respectively.

The Role of Social Resources on Allostatic Load at Baseline

Tables 6.3.1, 6.4.2 and **6.4.3** displays the results of social resources on decile-calculated, quartile-calculated and clinical risk-calculated allostatic load, respectively. Social resources were

not significantly associated with allostatic load for all operationalizations of allostatic load both in unadjusted and fully adjusted models.

HYPOTHESIS 8

The goal of this sub-aim was to test the independent effects of financial strain and interpersonal discrimination on psychological distress and sleep disturbance over time. I present the results of this analysis, by outcome, below.

Psychological Distress

The Role of Financial Strain on Psychological Distress Over Time

Table 6.4.1 displays the results of the mixed model regression of psychological distress on financial strain over time. Results were weighted to account for the attrition of the sample over time. The analysis includes 1,635 of the original 1,637 HoPES participants. However, due to attrition, I had a total of 3,958 observations (Level-1 unites) for these 1,635 participants (Level-2 units) across the three waves of data I examined. Model 1 examined the independent effects of survey wave and financial strain on psychological distress. Time (e.g. survey wave) was significantly associated with decreased psychological distress ($\beta = -0.16$, $p < .05$), following previous findings in Aim 1. There were significant differences between those who reported having "medium" and "high" financial strain relative to those who reported having "very low" financial strain. Those with "medium" financial strain had 0.94 higher psychological distress score ($p < .001$) compared to those with "very low" financial strain. Those with "high" financial strain had 1.00 higher psychological distress score relatively to those with "very low" financial strain ($p < .05$).

Model 2 tested for a statistical interaction between survey wave and categorical financial strain. The interaction term was statistically significant for those with "medium" financial strain

($p < .001$), indicating the possibility that changes in psychological distress over time differs depending on level of financial strain. In this case, every increase in survey wave is associated with greater psychological distress for those with "medium" financial strain ($\beta = 0.60$, $p < .001$). A similar trend was seen with those with "low" financial strain, albeit not statistically significant ($\beta = 0.16$, $p > .05$). The magnitude of the interaction for those with "high" financial strain was negative ($\beta = -0.67$, $p > .05$), which would suggest that the increasing rate in psychological distress over time would eventually level out. However, this trend was not statistically significant.

When examining the lower-level terms, which indicate the independent effect of financial strain accounting for survey wave, those with "medium" ($\beta = 0.43$, $p < .10$) and "high" financial strain ($\beta = 1.61$, $p < .01$) had higher psychological distress score relative to those with "very low" financial strain. Finally, the independent effect of survey wave increased in magnitude ($\beta = -0.33$, $p < .001$).

Accounting for migrant status and demographic factors (Model 3) attenuated the interaction between survey wave and "medium" financial strain ($\beta = 0.58$, $p < .01$), although the interaction remained statistically significant. Of the lower-level terms, only having "high" financial strain remained significantly associated with higher psychological distress ($\beta = 1.36$, $p < .01$). Increased survey wave remained significantly associated with lower psychological distress score ($\beta = -0.35$, $p < .001$). Finally, migrants continued to have lower psychological distress score relative to non-migrants ($\beta = -1.48$, $p < .001$) when accounting for all variables.

The interaction between survey wave and "medium" financial strain remained when accounting for social factors (Model 4) and socioeconomic factors (Model 5). In the fully adjusted model (Model 5), the interaction term between survey wave and "medium" financial

strain remained statistically significant ($\beta = 0.46$, $p < .01$) while the interaction term between survey wave and "high" financial strain became marginally significant ($\beta = -0.64$, $p < .10$).

[Table 6.4.1 about here]

Figure 6.1 displays the differences in psychological distress over time by level of financial strain, adjusting for demographic factors. Interestingly, there appears to be different trajectories for each level of financial strain. Beginning at baseline (Survey Wave = 0), psychological distress is highest among those with "high" financial strain, followed by those with "medium" financial strain. Those with "low" and "very low" financial strain had similar levels of psychological distress at baseline.

Over time, there were steady decreases in the level of psychological distress for those with "high" financial strain. However, participants with "medium" financial strain saw an increase in psychological distress over time such that their levels became similar to those with "high" financial strain. Participants with "low" and "very low" financial strain saw a divergence in psychological distress over time. Although both sets of participants saw a decrease in psychological distress over time, the decrease in psychological distress for those "very low" financial strain was sharper compared to those with "low" financial strain. At the end of 2-year follow-up, differences in psychological distress between "low" and "very low" financial strain were statistically significant.

[Figure 6.1 about here]

Sensitivity Analyses. **Table 6.4.2** and **Table 6.4.3** examine alternative coding schemes of psychological distress as dichotomous "Moderate/Severe psychological distress vs. none" and 4-category psychological distress "None to Slight, Mild, Moderate, and Severe". Interestingly, there were no statistically significant interaction terms between survey wave and financial strain

in the dichotomous coding of psychological distress. Instead, those with "medium" and "high" financial strain had higher odds of moderate or severe psychological distress compared to those with "low" financial strain. The 4-category coding of psychological distress had similar results to that of the continuous version. The interaction between survey wave and "medium" financial strain was the only one that remained statistically significant in the fully adjusted model (Model 5 OR = 1.57, $p < .05$).

[Table 6.4.2 about here]

[Table 6.4.3 about here]

The Role of Interpersonal Discrimination on Psychological Distress Over Time

Table 6.5.1 displays the weighted results of the regression of chronicity weighted everyday discrimination score on psychological distress over time. Model 1 examined the independent associations of time and everyday discrimination on psychological distress. Increased survey wave was associated with lower psychological distress score ($\beta = -0.1805$, $p < .01$). In contrast, more incidents of discrimination were associated with higher psychological distress score ($\beta = 0.0027$, $p < .001$). Although the magnitude was small, this is representative of a one-unit increase in everyday discrimination. In other words, a one-unit increase in everyday discrimination in the chronicity weighted score is representative of one additional incident of discrimination. For example, if a participant experienced 100 additional incidents of discrimination, their psychological distress core would be 0.27 units higher compared to someone who experienced zero incidents of discrimination.

Model 2 examined if changes in psychological distress over time differed by level of everyday discrimination. The interaction term between survey wave and everyday discrimination was not statistically significant, indicating that changes in psychological distress over time did

not differ by level of discrimination. The lower-level terms remained statistically significant, however. Increased survey wave was associated with lower psychological distress score while increased discrimination remained associated with higher psychological distress score. These trends in survey wave, discrimination, and their interaction remained consistent even when accounting for migrant status and demographic factors (Model 3), social factors (Model 4), and socioeconomic factors (Model 5). In the fully adjusted model, increased survey wave was marginally associated with lower psychological distress score ($\beta = -0.1072$, $p < .10$) while increased discrimination remained significantly associated with higher psychological distress score ($\beta = 0.0020$, $p < .05$).

[Table 6.5.1 about here]

Figure 6.2 displays differences in psychological distress by levels of chronicity-calculated everyday discrimination over time based on the demographic adjusted model of Table 6.5.1. Given that the original interaction between everyday discrimination and survey wave was a continuous variable by another continuous variable, I categorized three levels of everyday discrimination based on the grand mean (M = 54.3 instances of discrimination per year) and one standard deviation away from this mean. Thus, participants with "low" discrimination indicate those with 1 standard deviation below the grand mean. Participants with "medium" discrimination indicate those with the grand mean level of discrimination. Finally, participants with "high" discrimination indicate those with 1 standard deviation above the grand mean. At baseline, the relationship between psychological distress and level of discrimination follows the expected trend. Those with the highest levels of discrimination had the highest levels of psychological distress while those with the lowest levels of discrimination had the lowest levels of psychological distress. However, differences between each group were not statistically

significant. Over time, all three groups experienced a decline in psychological distress score. At 2-year follow-up, those with high discrimination continued to have higher psychological score than those with medium discrimination. Those with medium discrimination had a higher psychological distress score than those with low discrimination. Differences between all three groups were not statistically significant.

[Figure 6.2 about here]

Chronicity-Weighted Interpersonal Discrimination Sensitivity Analyses

Table 6.5.2 display the results the mixed model binary logistic regression of moderate/severe psychological distress on survey wave, chronicity-calculated everyday discrimination, and their interaction. **Table 6.5.3** displays the results for the mixed model ordinal logistic regression of psychological distress category. Results of these regression remained similar to the continuous operationalization of psychological distress. Increased survey wave was associated with lower odds of moderate/severe psychological distress or increased psychological distress level. Increased discrimination was associated with higher odds of moderate/severe psychological distress or increased severity of psychological distress.

[Table 6.5.2 about here]

[Table 6.6.3 about here]

Frequency-Summed Interpersonal Discrimination

Table 6.5.4 displays the results of the frequency-summed version of the everyday discrimination scale and survey wave on psychological distress score over time. Results of this analysis were similar to the chronicity-weighted version of the everyday discrimination score with some exceptions. First, in the model examining the independent association between survey wave and discrimination (Model 1), increased survey wave was only marginally associated with

psychological distress score (Model 1 $\beta = -0.10$, $p < .10$). Increased discrimination remained significantly associated with greater psychological distress score (Model 1 $\beta = 0.12$, $p < .001$). The interaction between survey wave and discrimination was not statistically significant (Model 2 $\beta = -0.07$, $p > .05$). These trends with survey wave, discrimination, and their interaction remained in the fully adjusted model, with survey wave becoming no longer marginally significant with inclusion of all covariates.

[Table 6.5.4 about here]

Table 6.5.5 and **6.5.6** display the results for the mixed model binary logistic and mixed model ordinal logistic regression of psychological distress on survey wave, frequency-summed discrimination and their interaction. Results remained similar to the continuous operationalization of psychological distress. Increased survey wave was associated with lower odds of moderate/severe psychological distress (Table 6.5.5) and lower odds of increased psychological distress severity (Table 6.5.6).

[Table 6.5.5 about here]

[Table 6.5.6 about here]

Situation-Based Interpersonal Discrimination

Sensitivity analyses using situation-based discrimination were also similar to chronicity-calculated and frequency-summed discrimination. Increased survey wave was associated with lower psychological distress score (**Table 6.5.7**), lower odds of moderate/severe psychological distress (**Table 6.5.8**), and lower odds of increased psychological distress severity (**Table 6.5.9**). However, this association was not statistically significant. Increased situation-based discrimination was significantly associated with greater psychological distress in all three operationalization, even after adjustment for migrant status, demographic, social, and

socioeconomic covariates. The interaction between survey wave and discrimination was not statistically significant in all three operationalizations of psychological distress.

[Table 6.5.7 about here]

[Table 6.5.8 about here]

[Table 6.5.9 about here]

The Role of Social Resources on Psychological Distress Over Time

Table 6.6.1 displays the results of the weighted mixed model regression of continuous psychological distress on social resources over time. Like Aim 1, each successive wave was significantly associated with a decrease in psychological distress over time in the unadjusted model (Model 1 $\beta = -0.19$, $p < .01$). Increased social resources was associated with lower psychological distress score, albeit small in magnitude and not statistically significant (Model 1 $\beta = -0.04$, $p > .05$). The interaction term between survey wave and social resources and survey wave was not statistically significant in the crude model (Model 2 $\beta = 0.04$, $p > .05$), indicating that change in psychological distress score over time do not depend on levels of social resources. The interaction term between survey wave and social resources was not statistically significant even when accounting for migrant status and demographic factors (Model 3), social factors (Model 4), and socioeconomic factors (Model 5).

[Table 6.6.1 about here]

Figure 6.3 provides a visualization of the interaction of survey wave and social resources on psychological distress score. There is a gradient of psychological distress by the level of social resources at baseline. Those with low social resources had the highest psychological distress score, followed by those with medium social resources, and then high social resources. However, differences in psychological distress by social resources were not statistically

significant. Psychological distress score declined over time, irrespective of level of social resources. At 2-year follow-up, the mean psychological distress score was the same among all three levels of social resources.

[Figure 6.3 about here]

Sensitivity Analyses. **Table 6.6.2** and **Table 6.6.3** examine alternative categorical operationalizations (i.e., dichotomous and 4-category) of psychological distress. Unlike the continuous operationalization, the interaction between wave and social resources was marginally significant in the crude interaction model (Model 2) for both dichotomous ($\beta = 1.06$, $p < .10$) and 4-category ($\beta = 1.06$, $p < .10$) versions of psychological distress. Although this would indicate that the change in psychological distress over time depends on level of social resources, the statistical significance of the interaction term disappeared when accounting for migrant status and demographic factors (Model 3), social factors (Model 4), and socioeconomic factors (Model 5).

[Table 6.6.2 about here]

[Table 6.6.3 about here]

Sleep Disturbance

The Role of Financial Strain on Sleep Disturbance Over Time

Table 6.7.1 presents the results of the weighted mixed model regression of sleep disturbance on financial strain over time. In Model 1, which examined the independent associations of survey wave and financial strain on sleep disturbance, increasing survey wave was associated with lower sleep disturbance ($\beta = -0.19$, $p < .01$) while each increased level of financial strain was associated with higher sleep disturbance relative to "very low" financial strain. Model 2 examined the crude joint association of survey wave and financial strain on sleep

disturbance. We see that there were statistically significant interaction effects between survey wave and financial strain for "low" ($\beta = 0.46$, $p < .05$) and "medium" ($\beta = 0.64$, $p < .01$) levels. These significant interaction effects suggest that changes in sleep disturbance over time differs by level of financial strain. In contrast, there was not a significant interaction effect for "high" financial strain ($\beta = -0.25$, $p > .05$).

The interaction effects between survey wave and "low" or "medium" financial strain remained statistically significant when accounting for migrant status and demographic factors (Model 3). However, when accounting for social factors (Model 4), the interaction between survey wave and "low" financial strain becomes marginally significant ($\beta = 0.36$, $p < .10$). The interaction between survey wave and "medium" financial strain remained statistically significant ($\beta = 0.59$, $p < .05$). These results remained robust when accounting for socioeconomic factors (Model 5). Finally, in the fully adjusted model which included hours of sleep and general health, the interaction between survey wave and "low" financial strain was no longer statistically significant while the interaction for "medium" financial strain became marginally significant ($\beta = 0.37$, $p < .10$).

[Table 6.7.1 about here]

Figure 6.4 provides a visualization of the joint association between survey wave and financial strain on sleep disturbance (Based on Table 6.7.1). At baseline, those who had "high" financial strain had higher levels of sleep disturbance compared to those with "medium" to "very low" financial strain. Although those with "very low" financial strain had the lowest sleep disturbance on average, they were not statistically different from those with "low" or "medium" financial strain.

Over time, however, we see distinct trajectories for each level of financial strain. There was a general decline in sleep disturbance (i.e., improving sleep) over time for those with "high", "low", and "very low" financial strain. However, those with "medium" financial strain had an increase in sleep disturbance such that they had similar levels of sleep disturbance like those with "high" financial strain. At the 2-year follow-up, differences in sleep disturbance by level of financial strain were not significant different.

[Figure 6.4 about here]

Sensitivity Analyses. **Table 6.7.2** and **Table 6.7.3** examine alternative coding schemes of sleep disturbance as dichotomous (Moderate/Severe vs. none) and sleep disturbance severity (None to Slight, Mild, Moderate, and Severe). These alternative coding schemes of sleep disturbance revealed a different story with respect to if an interaction effect was present. In the dichotomous coding of sleep disturbance (**Table 6.7.2**), the interaction between survey wave and financial strain was only significant for "high" financial strain, which was different than the continuous operationalization discussed above. This trend was robust even when accounting for migrant status and demographic factors (Model 3), social factors (Model 4), socioeconomic factors (Model 5), and health factors (Model 6).

[Table 6.7.2 about here]

In the four-category operationalization of sleep disturbance (**Table 6.7.3**), the interaction between survey wave and financial strain was significant for "high" financial strain, albeit marginal (Model 2 OR = 0.54, $p < .10$). This interaction remained marginally significant when accounting for migrant status and demographic factors (Model 3), social factors (Model 4), and (socioeconomic factors). Interesting, the interaction between survey wave and "high" financial

strain became statistically significant with the inclusion of health factors (Model 6 OR = 0.49, $p < .05$).

[Table 6.7.3 about here]

The Role of Interpersonal Discrimination on Sleep Disturbance Over Time

Table 6.8.1 displays the results of the weighted mixed model regression of sleep disturbance on chronicity-weighted everyday discrimination score (EDS) over time. In Model 1, increased survey wave was associated with lower levels of sleep disturbance, accounting for EDS score ($\beta = -0.2341$, $p < .001$). Chronicity-weighted EDS was associated with higher sleep disturbance, albeit small in magnitude ($\beta = .0034$, $p < .001$). Interpreted another way, a 100-unit increase in the number of discrimination instances experienced was associated with a 0.34 unit increase in sleep disturbance.

Model 2, which examines the joint association of survey wave and EDS, shows a marginally significant interaction effect ($\beta = -.0012$, $p < .10$). The negative coefficient of the interaction term indicates that the decrease in sleep disturbance due to survey wave over time attenuates. The lower-level term for the independent effect of survey wave attenuated with the inclusion of the interaction term, but still remained statistically significant ($\beta = -0.1773$, $p < .01$). In comparison, EDS increased in magnitude ($\beta = 0.0044$, $p < .001$).

The magnitude of the interaction term remained robust with the inclusion of migrant status and demographic factors (Model 3), social factors (Model 4), socioeconomic factors (Model 5), and health factors (Model 6). In the fully adjusted model (Model 6), the interaction between survey wave and chronicity-weighted EDS was statistically significant and increased in magnitude relative to previous models ($\beta = -0.0016$, $p < .05$), thus indicating that changes in sleep disturbance over time are dependent on levels of discrimination. The independent effects

for survey wave and EDS remained statistically significant. Increased survey wave remained associated with lower sleep disturbance ($\beta = -0.1677$, $p < .05$) while increased EDS remained associated with higher sleep disturbance ($\beta = 0.0039$, $p < .001$).

[Table 6.8.1 about here]

Figure 6.5 displays differences in sleep disturbance by levels of everyday discrimination over time (based on Table 6.8.1). Similar to the analysis of psychological distress, levels of everyday discrimination were determined by establishing the grand mean discrimination level as "medium" discrimination while "low" and "high" discrimination are 1 standard deviation away from the grand mean in the respective directions.

The association between level of discrimination and sleep disturbance follows the expected trend at baseline, such that higher levels of discrimination were associated with greater sleep disturbance. Differences between the three groups were statistically significant. Over time, each of the three groups experience a decline in sleep disturbance (i.e., improving sleep) such that the differences between the three groups are no longer statistically significant at 2-year follow-up.

[Figure 6.5 about here]

Interpersonal Discrimination Sensitivity Analyses

Table 6.8.2 and **Table 6.8.3** display the mixed model regression results of the dichotomous and 4-category operationalizations of sleep disturbance on chronicity-calculated everyday discrimination score. Results for both operationalizations were slightly different compared to the continuous operationalization of sleep disturbance. For the mixed binary logistic model (Table 6.8.2), increased survey wave was associated with lower odds of moderate/severe sleep disturbance in all models. Increased discrimination was associated with higher odds of

sleep disturbance in all models. These findings of the independent effects of survey wave and discrimination were similar to the continuous operationalization of sleep disturbance. However, unlike the continuous operationalization of sleep disturbance, the interaction between survey wave and everyday discrimination score was not statistically significant in all models.

[Table 6.8.2 about here]

Similar trends were seen in with the four-category operationalization of sleep disturbance severity (Table 6.8.3). Both independent effects of survey wave and sleep disturbance were significantly associated with sleep disturbance severity. However, the joint effect of survey wave and discrimination were not significantly associated with sleep disturbance category.

[Table 6.8.3 about here]

Similar results were also seen in the alternative coding of the EDS. In the frequency-summed version of EDS, increased survey wave was marginally associated with lower sleep disturbance (**Table 6.8.4**), lower odds of moderate/severe sleep disturbance (**Table 6.8.5**), and lower odds of sleep disturbance severity (**Table 6.8.6**). In contrast, increased discrimination was associated with greater sleep disturbance in all operationalizations. The joint association of survey wave and frequency-summed EDS on sleep disturbance was not statistically nor marginally significant in all the models, except one. The interaction was marginally significant n the fully adjusted model of the continuous operationalization of sleep disturbance (Table 6.8.4, Model 6: $\beta = -0.03$, $p < .10$). The direction of the interaction term was similar to the results in Table 6.8.1, showing some consistency in the interaction effect.

[Table 6.8.4 about here]

[Table 6.8.5 about here]

[Table 6.8.6 about here]

In the situation-based coding of the EDS, increased survey wave was associated with lower sleep disturbance (**Table 6.8.7**), lower odds of moderate/severe sleep disturbance (**Table 6.8.8**), and lower odds of sleep disturbance severity (**Table 6.8.9**). Increased EDS was associated with higher sleep disturbance, higher odds of moderate/severe sleep disturbance, and higher odds of sleep disturbance severity. Furthermore, the interaction term between survey wave and sleep disturbance was not statistically significant in all models across all operationalizations of the outcome.

[Table 6.8.7 about here]

[Table 6.8.8 about here]

[Table 6.8.9 about here]

The Role of Social Resources on Sleep Disturbance Over Time

Table 6.9.1 displays the results of the weighted mixed model regression of sleep disturbance on social resources over time. In the unadjusted model (Model 1), sleep disturbance experienced a decline over time ($\beta = -0.24$, $p < .001$) while increasing social resources were also associated with decreased sleep disturbance, albeit small in magnitude ($\beta = -0.07$, $p < .01$). The interaction between survey wave and social resources on sleep was not statistically significant (Model 2 $\beta = 0.03$, $p > .05$). However, the trends for survey wave and social resources remained consistent, although marginally significant for survey wave. When migrant status and demographic factors were included (Model 3), the interaction between survey wave and social resources was not statistically significant. Increased social resources remained associated with decreased sleep disturbance ($\beta = -0.08$, $p < .05$). Increased survey wave was associated with decreased sleep disturbance. However, the association was not statistically significant. These trends remained when accounting for social factors (Model 4) and socioeconomic factors (Model

5). In the final model, Model 6, which included hours of sleep and general health as health factors, increased social resources was associated with lower sleep disturbance. However, this was not statistically significant ($\beta = -0.05$, $p > .05$). Interestingly, increased survey wave was marginally associated with lower sleep disturbance ($\beta = -0.44$, $p < .10$). The interaction between survey wave and social resources was not statistically significant.

[Table 6.9.1 about here]

Figure 6.6 provides a demographically adjusted visual representation of changes in sleep disturbance over time by level of social resources. At baseline, those with low social resources had the highest sleep disturbance score, followed by those with medium social resources, and then high social resources. However, differences in sleep disturbance score by social resources were not statistically significant. Sleep disturbance declines over time for all three groups. However, differences between groups over time were not statistically significant.

[Figure 6.6 about here]

Sensitivity Analyses. **Table 6.9.2** and **Table 6.9.3** provide the results for dichotomous and four-category versions of sleep disturbance. In both versions, the interaction between survey wave and social resources were not statistically significant, indicating that changes in sleep disturbance over time did not differ by level of social resources. Furthermore, the lower-level terms for survey wave and social resources were not statistically significant in the fully adjusted model (Model 6).

[Table 6.9.2 about here]

[Table 6.9.3 about here]

HYPOTHESIS 9

This sub-aim tested for moderation of migrant status on the association of financial strain and interpersonal discrimination on allostatic load at baseline, and psychological distress and sleep disturbance over time. Below, I present the results by exposure and outcome.

The Moderation of Migrant Status on the Association of Financial Strain with Allostatic Load

Table 6.10.1 presents the fully adjusted results of the moderation of migrant status on the association of financial strain and decile-calculated allostatic load. The interaction terms between levels of financial strain and migrant status were not statistically significant. The lower-level terms for financial strain were not statistically significant in the fully adjusted model. Similar results were seen with quartile-calculated and clinical-risk calculated allostatic load (**Table 6.10.2**).

[Table 6.10.1 about here]

[Table 6.10.2 about here]

The Moderation of Migrant Status on the Association of Interpersonal Discrimination with Allostatic Load

Table 6.11.1 presents the fully weighted results of the interaction of chronicity-calculated EDS and migrant status on decile-calculated allostatic load. The interaction was not statistically significant, indicating that the association of discrimination and allostatic load did not differ between migrants and non-migrants. Furthermore, the lower-level terms were not statistically significant, indicating that there may not be an association between decile-calculated allostatic load and chronicity-calculated EDS. **Table 6.11.2**, which provides the results of the interaction between chronicity-calculated EDS and migrant status for quartile-calculated and clinical-risk

calculated EDS, show similar results. The interaction between discrimination and migrant status was not statistically significant.

[Table 6.11.1 about here]

[Table 6.11.2 about here]

Similar results were seen when alternative coding schemes were used. For frequency-summed coding (**Table 6.11.3** and **6.11.4**), the interaction between discrimination and migrant status was not significant in all coding styles of allostatic load. Situation-based coding of discrimination (**Table 6.11.5** and **6.11.6**) also had similar conclusions.

[Table 6.11.3 about here]

[Table 6.11.4 about here]

[Table 6.11.5 about here]

[Table 6.11.6 about here]

The Moderation of Migrant Status on the Association of Financial Strain with Psychological Distress Over Time

Table 6.12.1 presents the results of the mixed model regression of psychological score on the joint association of survey wave, financial strain, and migrant status. In the unadjusted model (Model 1), the three-way interaction between survey wave, financial strain, and migrant status was not statistically significant in each iteration. Of the lower-level terms, survey wave ($\beta = -0.55$, $p < .05$) and migrant status ($\beta = -1.42$, $p < .001$) alone were significantly associated with lower psychological distress. Having "high" financial strain, relative to "very low" financial strain, was associated with higher psychological distress ($\beta = 1.31$, $p < .05$). Furthermore, there was a statistically significant interaction between survey wave and medium financial strain ($\beta = 0.72$, $p < .01$).

In the fully adjusted model (Table 6.12.1, Model 2), the three-way interaction between survey wave, financial strain, and migrant status was not statistically significant, indicating that changes in psychological distress over time did not differ by levels of financial strain and between migrants and non-migrants.

[Table 6.12.1 about here]

Figure 6.7 provides a demographically adjusted visualization of changes in psychological distress over time by level of financial strain and migrant status. At baseline, we see clustering of psychological distress score by migrant status. In general, migrants had lower psychological distress scores compared to non-migrants. However, differences in psychological distress by financial strain within each group were not significant. Over time, most groups experience a decline in psychological distress with one exception. Both migrants and non-migrants with medium financial strain experienced an increase in psychological distress over time. However, differences by level of financial strain and migrant status were not statistically significant.

[Figure 6.7 about here]

Table 6.12.2 and **Table 6.12.3** examine the three-way interaction between survey wave, financial strain, and migrant status for moderate/severe psychological distress and psychological distress severity, respectively. The results remained similar to the continuous operationalization. The three-way interaction was not statistically significant for all levels of financial strain.

[Table 6.12.2 about here]

[Table 6.12.3 about here]

The Moderation of Migrant Status on the Association of Interpersonal Discrimination with Psychological Distress Over Time

Table 6.13.1 displays the results of the three-way interaction of survey wave, chronicity-weighted Everyday Discrimination Score, and migrant status on psychological distress. In the unadjusted model (Model 1), the three-way interaction was not statistically significant (β = -0.0011, $p > .05$), indicating that changes in psychological distress over time may not differ by level of discrimination and migrant status. Of the lower-level terms, only the independent effects of survey wave (β = -0.2521 $p < .05$) and migrant status (β = -1.7311, $p < .001$) were significant. Results remained similar in the fully adjusted model (Model 2). The three-way interaction between survey wave, discrimination, and migrant status on psychological distress was not statistically significant. Of the lower-level terms, only migrant status remained significantly associated with lower psychological distress score (β = -1.3034, $p < .001$).

[Table 6.13.1 about here]

Figure 6.8 provides a demographically adjusted visual representation of psychological distress over time by level of chronicity-calculated discrimination and migrant status. Overall, there is a distinct difference in psychological distress by migrant status. Non-migrants, regardless of level of discrimination, had significantly psychological distress scores compared to migrants at all levels of discrimination. Among non-migrants, differences in psychological distress by level of discrimination were not statistically significant. Among migrants, those with low levels of discrimination had significantly lower levels of psychological distress compared to those with medium or high discrimination.

Over time, both migrants and non-migrants experienced a general decline in psychological distress. Levels of psychological distress among non-migrants remained similar by level of discrimination over time. For migrants, there was a convergence in the level of psychological distress such that differences by level of discrimination were indistinguishable.

[Figure 6.8 about here]

Tables 6.13.2 and **6.13.3** examine the three-way interaction between survey wave, discrimination, and migrant status on moderate/severe psychological distress and the severity of psychological distress respectively. Like the continuous operationalization of psychological distress, the three-way interaction between survey wave, chronicity-weighted discrimination, and migrant status was not statistically significant in both dichotomous and 4-category versions. The independent effects of survey wave, discrimination, and migrant status were statistically significant in the crude models, however.

[Table 6.13.2 about here]

[Table 6.13.3 about here]

Results were also similar with the frequency-summed (**Tables 6.13.4 – 6.13.6**) and situation-based (**Tables 6.13.7-6.13.9**). The three-way interaction between survey wave, discrimination, and migrant status was not statistically significant in both the crude and fully adjusted models.

[Table 6.13.4 about here]

[Table 6.13.5 about here]

[Table 6.13.6 about here]

[Table 6.13.7 about here]

[Table 6.13.8 about here]

[Table 6.13.9 about here]

The Moderation of Migrant Status on the Association of Financial Strain with Sleep Disturbance Over Time

Table 6.14.1 displays the weighted results of the mixed model regression of sleep disturbance on the joint association of survey wave, financial strain, and migrant status. The three-way interaction of survey wave, financial strain, and migrant status was not statistically significant for all levels of financial strain in the unadjusted model (Model 1). Results remained similar after accounting for demographic, social, socioeconomic, and health factors (Model 2).

[Table 6.14.1 about here]

Figure 6.9 provides a demographically adjusted visual representation of the change in sleep disturbance over time by level of financial strain and migrant status. At baseline, non-migrants had generally higher sleep disturbance scores compared to migrants. Migrants had generally the same level of financial strain, regardless of level of financial strain. Over time, there is a general decrease in sleep disturbance for all of the non-migrant groups. However, non-migrants continued to have higher sleep disturbance scores relative to migrants at 2-year follow up.

The decrease in sleep disturbance among migrants was not as steep compared to non-migrant groups. However, there was an increase in sleep disturbance for migrants with medium financial strain. However, differences in sleep disturbance by level of financial strain among migrants was not significant at 2-year follow-up.

[Figure 6.9 about here]

Similar results were found in the dichotomous (**Table 6.14.2**) and 4-category coding (**Table 6.14.3**) of sleep disturbance. The interaction between survey wave, financial strain, and migrant status on sleep disturbance was not statistically significant in both unadjusted and fully adjusted models.

[Table 6.14.2 about here]

[Table 6.14.3 about here]

The Moderation of Migrant Status on the Association of Interpersonal Discrimination with Sleep Disturbance Over Time

Table 6.15.1 presents the weighted results of the association of sleep disturbance score on the joint association of survey wave, chronicity-weighted Everyday Discrimination Score, and migrant status. The three-way interaction between survey wave, discrimination, and migrant status was not statistically significant in the crude model (Model 1 $\beta = -0.008$, $p > .05$). However, there were some marginally significant two-way interaction effects for survey wave and migrant status (Model 1 $\beta = -0.2476$, $p < .10$) and migrant status and discrimination (Model 1 $\beta = 0.0028$, $p < .10$). Although changes in sleep disturbance over time may not differ on the joint contribution of discrimination and migrant status, two possible conclusions could be made. First, changes in sleep disturbance over time may differ by migrant status alone. Second, the association of discrimination on sleep disturbance may differ by migrant status, irrespective of time. In the fully adjusted model (Model 2), none of the interactions were statistically significant. However, the independent effects of discrimination ($\beta = 0.0032$, $p < .001$) and migrant status were significant ($\beta = -1.3351$, $p < .001$).

[Table 6.15.1 about here]

Table 6.15.2 and **6.15.3**, which examined the odds of moderate/severe sleep disturbance and the severity of sleep disturbance, respectively, show that the three-way interaction of survey wave, discrimination, and migrant status was not statistically significant. Furthermore, in each iteration, only the lower-level independent effects were statistically significant.

[Table 6.15.2 about here]

[Table 6.15.3 about here]

Figure 6.10 provides a visualization of changes in sleep disturbance over time by level of chronicity-calculated discrimination and migrant status. The estimates in this figure are adjusted for demographic factors. At baseline, non-migrants had significantly higher levels of sleep disturbance compared to migrants. Furthermore, non-migrants who experienced high levels of discrimination had higher levels of sleep disturbance compared to non-migrants with lower levels of discrimination. However, differences among non-migrants by levels of discrimination were not significantly different among non-migrants.

Among migrants at baseline, there is a clear gradient levels of sleep disturbance by level of discrimination. Migrants who experienced high levels of discrimination had higher levels of sleep disturbance compared to migrants with medium and low levels of discrimination. Differences in sleep disturbance by level of discrimination among migrants were statistically significant.

Over time, we see a general decline in sleep disturbance for both migrants and non-migrants with the decline being steeper for migrants than non-migrants. There were no differences in sleep disturbance by level of discrimination within each group among both migrants and non-migrants. In general, at both waves of follow-up, migrants continued to have lower levels of sleep disturbance compared to non-migrants.

[Figure 6.10 about here]

Results remained similar with the frequency-summed (**Tables 6.15.4, 6.15.5, 6.16.6**) and situation-based (**Tables 6.15.7, 6.15.8, 6.15.9**). The three-way interaction between survey wave, discrimination, and migrant status was not statistically significant in all models.

[Table 6.16.4 about here]

[Table 6.16.5 about here]

[Table 6.16.6 about here]

[Table 6.16.7 about here]

[Table 6.16.8 about here]

[Table 6.16.9 about here]

HYPOTHESIS 10

The final sub-aim tested for moderation of migrant status on the association of social resources with allostatic load at baseline; and psychological distress and sleep disturbance over time.

The Moderation of Migrant Status on the Association of Social Resources with Allostatic Load

Table 6.16.1 presents the results of interaction of migrant status and social resources on decile-calculated allostatic load. Overall, the interaction between migrant status and social resources was not statistically significant ($\beta = -0.02$, $p > .05$). The lower-level terms also did not have a statistically significant association on decile-calculated allostatic load. Increased social resources were associated with higher decile allostatic load ($\beta = 0.01$, $p > .05$) while migrants had lower allostatic load compared to non-migrants ($\beta = -0.03$, $p > .05$). Results were similar for both quartile-calculated allostatic load and risk-calculated allostatic load (**Table 6.16.2**). Neither the interaction nor the lower-level terms were significantly associated with allostatic load.

[Table 6.16.1 about here]

[Table 6.16.2 about here]

The Moderation of Migrant Status on the Association of Social Resources with Psychological Distress Over Time

Table 6.17.1 examines the joint association of survey wave, social resources, and migrant status on psychological distress score. In the crude, unadjusted model (Model 1), the three-way interaction was marginally significant ($\beta = -0.10$, $p < .10$). Thus, changes in psychological distress over time may depend on level of social resources and one's migrant status. However, this interaction effect was attenuated when accounting for demographic, social, and socioeconomic covariates (Model 2 $\beta = -0.05$, $p > .10$).

[Table 6.17.1 about here]

Figure 6.11 provides a demographically adjusted visual representation of the three-way interaction between survey wave, level of social resources, and migrant status. At baseline, there is a clear difference in psychological distress score by migrant status. Non-migrants had higher psychological distress scores compared to migrants at baseline and both waves of follow-up.

What is more interesting, however, is examining the trajectories of psychological distress over time by level of social resources. Beginning with non-migrants, there is an interesting trajectory for non-migrants with low social resources. Although all non-migrants experienced a decline in psychological distress over time, the greatest change occurred for non-migrants with low social resources. At 2-year follow up, non-migrants with low social resources had the lowest psychological distress score, followed by migrants with medium social resources, and finally migrants with high social resources. However, differences between the three social resource groups among non-migrants was not statistically significant.

Among migrants, although the gradient of psychological distress by level of social resources remains the same, we a divergence and widening of the level of psychological distress over time by level of social resources. However, at 2-year follow-up, differences in

psychological distress by level of social resources among migrants were not statistically significant

[Figure 6.11 about here]

Table 6.17.2 and **6.17.3** examine the three-way interaction of survey wave, social resources, and migrant status on moderate/severe psychological distress and psychological distress severity, respectively. In both operationalizations, the three-way interaction term between survey wave, social resources, and migrant status was statistically significant (Table 6.17.2 Model 1 OR = 0.87, $p < .05$; Table 6.17.3 Model 1 OR = 0.86, $p < .05$). After accounting for demographic, social, and socioeconomic factors, the three-way interaction was marginally significant in both operationalizations (Table 6.17.2 Model 2 OR = 0.88, $p < .10$; Table 6.17.3 Model 2 OR = 0.90, $p < .10$).

[Table 6.17.2 about here]

[Table 6.17.3 about here]

The Moderation of Migrant Status on the Association of Social Resources with Sleep Disturbance Over Time

Table 6.18.1 displays the weighted results of the mixed model regression of sleep disturbance and the joint association of survey wave, social resources, and migrant status. In the unadjusted model (Model 1), the three-way interaction was not statistically significant ($\beta = -0.08$, $p > .05$), thereby indicating that changes in sleep disturbance over time may not differ by level of social resources and migrant status. Results remained similar in the fully adjusted model (Model 2 $\beta = -0.04$, $p > .05$).

[Table 6.18.1 about here]

Figure 6.12 presents a demographically adjusted visualization of changes in sleep disturbance score over time by level of social resources and migrant status. In general, migrants had lower sleep disturbance compared to non-migrants. However, levels of sleep disturbance within both migrants and non-migrants did not differ by level of social resources. Over time, both migrants and non-migrants experienced a decline in sleep disturbance. However, within group differences based on level of social resources did not differ.

[Figure 6.12 about here]

Similar results were seen with moderate/severe sleep disturbance (**Table 6.18.2**) and sleep disturbance severity (**Table 6.18.3**). The joint association of survey wave, social resources, and migrant status were not statistically significant.

[Table 6.18.2 about here]

[Table 6.18.3 about here]

DISCUSSION

The goal of this aim was two-fold. First, I examined the role of financial strain, interpersonal discrimination, and social resources on 1) allostatic load at baseline and 2) psychological distress and sleep disturbance over time. Second, I examined if the association of financial strain, interpersonal discrimination, and social resources on allostatic load at baseline and psychological distress and sleep disturbance over time differed by migrant status.

Overall, there were null independent associations with financial strain, discrimination, and social resources on allostatic load. Furthermore, there was little evidence of a difference in allostatic load by migrant status.

For psychological distress, there was evidence that changes in financial strain over time were dependent on level of financial strain and social resources. However, there was little evidence to suggest that changes in psychological distress over time may differ by level of discrimination. However, increased discrimination was associated with greater psychological distress, independent of time. The three-way interaction between each social factor, time, and migrant status was not statistically significant. This suggests that changes in psychological distress over time and by each social factor do not also differ by migrant status.

Finally, changes in sleep disturbance over time were dependent on level of financial strain and level of discrimination, but not social resources. However, these interactions were not statistically significant in three-way interaction models involving migrant status.

Interpretation of Findings

These findings provide some new evidence regarding the association of migration with health and the role of immigrant integration on health over time. Below, I provide a discussion for the role of each integrative factor (i.e., financial strain, interpersonal discrimination, and social resources) on health.

Financial Strain. For financial strain, I found that greater financial strain was associated with greater psychological distress and sleep disturbance. Furthermore, changes in psychological distress and sleep disturbance over time differed by level of financial strain. These results emphasize the importance of financial strain as a social stressor that contributes to poorer psychological distress and sleep quality. These results were consistent with previous literature. In general, financial strain can serve as a persistent stressor across the life course (Kahn and Pearlin 2006). Previous studies have also noted how financial strain can serve as a major stressor for immigrants (Aranda and Lincoln 2011; Arega et al. 2022; Simich, Hamilton and Baya 2006).

Recently, Arega et al. (2022) found that non-U.S.-born residents had greater financial worry regarding retirement, healthcare, and general standard of living. Thus, the worry caused by financial strain and meeting one's standards of living in a new country can be a source of mental distress and poor sleep.

Interestingly, changes in psychological distress and sleep disturbance over time did not differ by both financial strain and migrant status. The decline in psychological distress and sleep disturbance over time experienced by both migrants and non-migrants was similar regardless of level of financial strain. Migrants also maintained lower psychological distress and sleep disturbance relative to non-migrants.

There are some possible explanations for this. First, the lack of difference in psychological distress and sleep disturbance over time by level of financial strain and migrant status may be due small sample sizes within each stratification category. There may not be a large enough sample size to detect a difference between groups. Furthermore, it is possible that the effect of financial strain on psychological distress and sleep disturbance over time may indeed be the same for both migrants and non-migrants. Originally, I had hypothesized that only migrants would experience a decline in financial strain over time. However, both migrants and non-migrants experienced a general decrease in financial strain, rather than an increased advantage for migrants. Given this general improvement in financial strain over time for both groups, it may be difficult to determine if the joint association of time and financial strain on psychological distress and sleep disturbance also differed by migrant status. Finally, there may be other unmeasured social factors that count account for the lack of difference between migrants and non-migrants. For example, migrants may obtain greater financial stability upon migration that offsets any potential psychological distress due to financial strain.

Finally, I did not find a significant association between financial strain on allostatic load. The lack of differences in allostatic load by level of financial strain may be due to the general healthiness of the sample. Overall, the sample was relatively young (about 37 years old) and the level of allostatic load, regardless of version, was low. Previous work in Aim 1 showed that allostatic load was generally similar between migrants and non-migrants. Although there were differences in financial strain by migrant status, these differences did not warrant an association with allostatic load.

Interpersonal Discrimination. I found that greater interpersonal discrimination was associated with greater psychological distress and sleep disturbance. Changes in psychological distress over time did not significantly differ by level of discrimination. In contrast, changes in sleep disturbance over time did differ by level of discrimination.

In general, these results follow previous studies examining the role of discrimination on psychological distress and sleep (Kim et al. 2021; Morey et al. 2020d; Sangalang et al. 2019; Singh et al. 2017; Slopen, Lewis and Williams 2016; Vang and Chang 2019). However, the lack of association of level of discrimination on changes in psychological distress over time was an unexpected finding. Like financial strain, it is possible that the lack of association may be due to small sample sizes and lack of statistical power. Furthermore, there may be other social factors that explain the lack of difference in psychological distress over time by level of discrimination. For example, migrants may immigrate to an ethnic enclave that offsets the negative effects of discrimination.

In contrast, there was a clear difference in the change of sleep disturbance over time by level of discrimination. There was clear difference in sleep disturbance by level of discrimination. However, over time the trajectories of all three groups converged such that there

was no difference in sleep disturbance by level of discrimination. This convergence could be due to general secular effects leading to improvements in sleep over time. However, there may be other social factors that contribute to improved sleep disturbance over time, regardless of the effects of discrimination. For example, the decline in financial strain over time and improvements in social resources may offset the negative effects of discrimination over time.

Like financial strain, changes in sleep disturbance and sleep disturbance over time did not differ by both financial strain and migrant status. This lack of difference by migrant status could be due to the fact that both migrants and non-migrants experienced similar declines in discrimination over time, a result seen in Aim 2.

Similar to financial strain, discrimination was not significantly associated with allostatic load, which was contrary to other studies (Allen et al. 2019; Miller et al. 2021). The lack of association could be due to the nature of the sample. The sample was generally young and had low levels of allostatic low overall. Even when accounting for the abundance of participants who scored "0" in allostatic load calculations, there was still few differences among the full sample.

Social Resources. Finally, I found that social resources were not significantly associated with allostatic load. However, social resources, on their own, can have a protective effect on psychological distress and sleep disturbance. These results mirror much of the literature emphasizing the importance of social ties on health (Cheong et al. 2007; Riosmena, Kuhn and Jochem 2017). Interesting, there was not a significant interaction effect between time and social resources, despite social resources increasing over time (see Aim 2). This may be due to the general decline in psychological distress and sleep disturbance over time. In this case, social resources may not have as large or as detectable an effect due to the general improvement in psychological distress and sleep disturbance.

Interestingly, changes in psychological distress over time marginally differed by level of social resources and migrant status. In this case, having more social resources can be better for migrants than having low social resources. This divergence in psychological distress among migrants may be due to high socially resources migrants having access to more resources than migrants with fewer social resources. Although not statistically significant, future work should see if this divergence in trends continues over time.

Furthermore, we see an interesting change for non-migrants, such that non-migrants with low social resources have the lowest psychological distress among all non-migrant groups. It is possible that this may be statistical noise. However, it also invites future research to discuss what may be the cause for this shift among non-migrants.

Contributions to the Literature

Overall, these results provide new novel evidence of the effects of financial strain, discrimination, and social resources on changes in psychological distress and sleep disturbance over time. Although dependent on the outcome and social factor, I found that evidence of differential effects on psychological distress and sleep disturbance, which invites future research to examine if these trends stay persistent (or arise in the case of non-significant interactions) over time.

These results are balanced by some limitations. First, it would be ideal to examine the common markers of immigrant acculturation (e.g., English language proficiency) or use an acculturation scale. HoPES measured English language proficiency at baseline only and did not include an acculturation scale, given its focus on comparing migrants and non-migrants. However, using financial strain, discrimination, and social resources as markers of immigrant integration, rather than a marker of acculturation provides a more theoretically relevant construct

to understand how migrants change over time compared to their non-migrants counterparts. Moreover, traditional measures of acculturation, such as English language proficiency, may not apply in the Philippines context, where English is commonly spoken and is the national language other than Tagalog. Furthermore, there has been a shift away from discussions of acculturation due to the ongoing discussion of the effects of globalization on health (Ferguson et al. 2017; Ferguson and Bornstein 2012; Gee et al. 2019). Using financial strain, discrimination, and social resources as markers of immigrant integration allow us to explore changes in factors that are experienced both in the country of origin and the country of destination.

Second, although the results indicated that changes in psychological distress and sleep disturbance over time may not depend on the level of each integration factor and by migrant status, these analyses may be limited by small sample sizes for the three-way interaction. There was a total of 3,958 Level-1 units (i.e., baseline and follow-up observations) which is representative of 1,635 Level-2 units (i.e., participants). Had every HoPES participant completed both baseline and follow-up measurements, the total number of Level-1 units would be 6,540, greatly increasing both the sample size and power to determine a statistical difference. Furthermore, much of the missingness came from the migrant sample. I used IPW to address issues this issue of attrition and missingness, however, future longitudinal work should aim to maintain strong retention of the sample.

However, this study is also balanced by two key strengths. First, this study provides a key theoretical and methodological contribution by examining financial strain, discrimination, and social resources as markers of immigrant integration. Examining immigrant integration allows us to better understand how migrants change in relation to their non-migrant counterparts.

Moreover, the migrant-non-migrant comparison of HoPES also allows us to have consistent measures to better evaluate the effect of migration,

Second, these results add novel information on the role of financial strain, discrimination, and social resources over time. Most studies that examine the role of discrimination on psychological distress and sleep focus have utilized cross-sectional studies. This study provides new evidence of how both health outcomes and each factor change in relation to each other. Future work should examine if these changes occur in a longer term and along other social factors.

In summary, although financial strain, discrimination, and social resources may have independent associations with psychological distress and sleep disturbance over time, they may not differ between migrants and non-migrants. This suggests that changes in health over time may not be due to acculturative factors, but it could also be related to general secular trends.

CHAPTER 7: FINAL DISCUSSION AND CONCLUSIONS

This dissertation had three goals. First, I examined if there was a migrant advantage on health and social factors both before and after migration. Second, this study examined how three social factors – financial strain, interpersonal discrimination, and social resources – accounted for changes in health over time. Finally, I examined if the changes in health over time due to these social factors also differed between migrants and non-migrants.

Overall, migrants had lower allostatic load, less psychological distress, and less sleep disturbance compared to non-migrants both before and after migration. Over time, both migrants and non-migrants experienced less in psychological distress and less sleep disturbance, with migrants maintaining an advantage in health compared to non-migrants. Both migrants and non-migrants experienced decreased financial strain and discrimination, as well as increased social

resources over time. While changes in financial strain, discrimination, and social resources somewhat contributed to changes in psychological distress and sleep disturbance over time, associations of these factors with health over time was not further moderated by migrant status.

These findings provide four conclusions about migrant health selection and changes in migrant health longitudinally. First, migrant health selection may not be universal for all health outcomes. There was clear evidence or migrant health advantages for psychological distress and sleep disturbance, but not allostatic load, except decile allostatic load. This finding is somewhat consistent with past literature. For example, a previous study using HoPES data found that migrants had lower Waist-to-Height Ratio compared to non-migrants (Gee et al. 2019). However, they did not differ from non-migrants for BMI, waist circumference, nor Waist-to-Hip Ratio. Additionally, Rubalcava et al. (2008b) found little differences hemoglobin and blood pressure levels between rural and urban Mexican migrants who came to the U.S. However, they did find differences in BMI. Thus, although allostatic load can be considered a composite measure of physiological dysfunction, it like other biomarker measures may not actually differ between migrants and non-migrants. We can conclude in this case, that the health advantages seen pre-migration may mainly be with self-reported outcomes, rather than more objective, biomarker measures of health.

Second, the finding that migrants' health improved over time greatly contrasts with much of the immigrant health literature that shows evidence of health decline (Goldman et al. 2014; León-Pérez 2019). Goldman et al. (2014), who examined changes in self-rated health in the first five years of migration found evidence of a health decline. León-Pérez (2019) also examined self-rated health among migrants traveling within Mexico and found that indigenous migrants experienced poorer health over time compared to non-indigenous migrants. In contrast, using

psychological distress and sleep disturbance as outcomes, I found evidence of health improvements. While these health outcomes differ, this study found that even health changes longitudinally may depend on health outcomes. Self-rated health may be useful because it represents a global measure of health. However, when I examined two specific health outcomes, different results were seen. It is possible that improvements in one aspect of health (e.g., psychological distress and sleep) may be counterbalanced by declines in other aspects of health (e.g., chronic pain and chronic conditions) which could lead to more negative assessments of health over time. However, future work using HoPES should also examine changes in self-rated health longitudinally.

Furthermore, it is possible that the improving health over time could be the result of a "regression to the mean" effect after a period of high stress. It is worth noting that the baseline sample of HoPES was collected in 2017, a year of political unrest and potential stress both in the Philippines and the U.S. In the Philippines, Rodrigo Duterte was starting his term as president while in the U.S., Donald Trump was beginning his term. The Trump presidency was a period marked with high stress for certain groups, specifically Muslim, Latinx, and immigrant groups. Morey et al. (2021a) note that mental health worsened for English-speaking Latinx people in states that voted for Trump after the 2016 election. Callaghan et al. (2019) also note how accessing healthcare became more difficult for immigrants as a result of Trump's anti-immigrant rhetoric. Thus, the election of both leaders could have represented a high spike or period of stress in 2016 and what is seen in the data is a stabilization of levels of psychological distress and sleep disturbance as migrants and non-migrants adapt to life under each respective presidential administration.

Third, it was somewhat surprising to see declines in financial strain and discrimination among both migrants and non-migrants over time in addition to increases in social resources. Originally, I had expected a divergence in trends, such that non-migrants experienced little change, while migrants may experience increased discrimination, but decreased financial strain and social resources. It is possible that migrants may have moved specifically to Filipino immigrant ethnic enclaves which are more receptive to immigrants. Previous work has highlighted the importance of anti-immigrant environments as a contributor of poor health (Morey et al. 2018; Morey et al. 2020d). However, moving to an ethnic enclave comes with some potential limitations as evidenced by Morey et al. (2020d), who found that living in an ethnic enclave reduced stress for recent immigrants only. Furthermore, I was unable to evaluate the effect of transnational interactions between migrants and non-migrants. The improvements in financial strain and social resources among migrants may be due to increased social support among new social connections among the migrant cohort. For non-migrants, the improvements in financial strain and social resources could be due to remittance practices from migrant kin.

Finally, the finding that health improved similarly for migrants and non-migrants, despite accounting for the simultaneous roles of financial strain, interpersonal discrimination, and social resources over time, provides evidence in contrast to acculturative theories. Traditional acculturative theories posit that immigrant health should decline over time due to the stressors of acculturation (Lee et al. 2021; Li and Anderson 2016; Ro 2014; Sangalang et al. 2019). While financial strain, discrimination, and social resources may act independently on changes in psychological distress and sleep disturbance over time, trends were similar between migrants and non-migrants. This finding emphasizes a potential universality of these trends which may be due more to secular effects rather than acculturation. This comparison between migrants and non-

migrants is especially useful in examining the effects of migration. If migrants were examined alone like in the New Immigrant Survey (Akresh and Frank 2008), it would be difficult to disentangle whether changes over time were due to acculturation or if they were general secular trends related to improvements in quality of life and socioeconomic attainment amongst the entire population. Conducting this comparison with a non-migrant sample provides a better counterfactual to evaluate change. We can both examine changes within each group in addition to compare how changes differ by group. In this case, the parallel trends seen in this dissertation provides an ideal comparison and basis to evaluate migrant health moving forward.

LIMITATIONS

These findings are balanced by a few key limitations. First, like many longitudinal studies, attrition led to a steep reduction in number of migrants participating at 1-year and 2-year follow-up interviews. In comparison, non-migrant retention was near 90% during all waves of follow-up. Attrition functions as a form of selection bias that leads to potentially overestimated (or underestimated) results if observations of those with complete data are used (Hernán, Hernández-Díaz and Robins 2004). The high rates of attrition, especially among the migrant sample, could be due to the different modes of communication used during follow up. In this case, non-migrants were interviewed "in-person" during each follow up while migrants were interviewed via telephone or online video chat. Furthermore, remaining in their home residence for the next three years was part of the inclusion criteria for non-migrants (Gee et al. 2018). Migrants were asked to provide a telephone or email to maintain contact but could have changed physical addresses between each wave of follow-up. Thus, these differing modes of communication at follow-up, coupled with the expectation that migrants may continue to relocate even upon initial migration, could contributed to the attrition among the migrant cohort.

Although mixed model regression can account for issues of attrition by incorporating all available data, there still may be reduced statistical power. As a result, this analysis may not have detected possible differences in health by migrant status and potential moderation of social factors and time on health. Appendix A shows that the migrants how experienced attrition reported worse self-rated health compared to those who did not experience attrition. Thus, it is possible that had the migrants who had experienced attrition been included in the sample, then we may have seen an attenuation in the results. In other words, the trajectory for migrants over time may have been closer to their non-migrant counterparts. Alternatively, it is possible that migrants could have experienced a disadvantage compared to their migrant counterparts over time. To mitigate some of these issues, I used IPW to further account for attrition and missingness within the sample by using baseline covariates to predict attrition (Cole and Hernán 2008; Seaman and White 2013). However, more advanced iterations of IPW, such as marginal structural models (Cole and Hernán 2008; Hernán, Brumback and Robins 2000; Wodtke, Harding and Elwert 2011), or IPW that account for time varying covariates (Hernán, Hernández-Díaz and Robins 2004; Wodtke, Harding and Elwert 2011) can lead to more unbiased estimates. Furthermore, future work using HoPES or studies examining immigrants longitudinally should identify interventions needed to maintain a robust migrant sample.

Second, this study only examined up to two years' worth of follow up. Thus, although this study shows that health improves within the first two years of migration, it is unwise to conclude that these improvements will persist over time. Compared to HoPES, other studies have had longer durations between follow-up waves. For example, the New Immigrant Survey (NIS) had about six years between their initial baseline interview and first follow-up (Jasso 2011). In comparison, the Mexican Family Life Survey (MxFLS) had about three years between their

baseline and each of their two-follow-up interviews (Arenas et al. 2015; Diaz, Zeng and Martinez-Donate 2018; Goldman et al. 2014; León-Pérez 2019; Rubalcava et al. 2008b). The longer follow-up times in both the NIS and MxFLS may allow them to examine more long-term changes in health. However, there are two disadvantages to having longer durations between follow-up. First, longer follow-up periods invite potential attrition into the sample, further reducing the ability to examine the effect of migration on health. Second, having longer follow-up periods may not allow for a more detailed examination of minute changes in health. HoPES yearly follow-up strategy allows for more accurate tracking of changes in health over time. Although this analysis of HoPES data examined the first two years of follow up, a 4th year follow up is currently being completed at the time of this study's writing. Furthermore, a 5th year of follow up data among the migrant sample has begun. Thus, future analyses of HoPES data will allow for us to examine if these improvements in health truly persist or if a threshold time point exists where health declines.

Third, this study examined time as a linear term, when it is possible that changes in health and wellbeing over time may be non-linear, as indicated in Figure 1.1. This was done as only two follow-up periods were included. However, future work should consider examining if changes over time function non-linearly with inclusion of quadratic or cubic terms or using other generalized linear models.

Fourth, it is important to consider the generalizability of these comparisons between migrants and non-migrants to other immigrant groups or other countries. The Mexican Family Life Survey, for example, compared its migrant group with the general population of non-migrants who remained in Mexico. Thus, their study was intended to be a population level comparison of health selection over time. In contrast, the HoPES non-migrant sample was

recruited such that they could represent the ideal counterfactual group of migrants, had they never migrated. Future work with HoPES should consider comparisons of the HoPES migrant and non-migrant samples to the general Philippines population.

Furthermore, HoPES migrants are not representative of the totality of migrants to the U.S. Instead, they are only representative of migrants coming with LPR visas. Those leaving with temporary visas, undocumented migrants, or migrants traveling to other countries outside of the U.S. were not included. To provide a more comprehensive look at all immigrants, future studies should consider examining other sending countries like China and India. Additionally, examining the experiences of Diversity Visa applicants, who obtain their visas through a lottery (U.S. Department of State - Bureau of Consular Affairs 2022), could provide another interesting angle at studying migrant health selection. In this case, the randomness in choosing Diversity Visa applicants ignores some conditions of migrant selection (e.g., familial relationships or work) thus providing a close approximation to treating migration as an experiment.

Finally, while this study provided a new examination of immigrant integration by comparing migrants to non-migrants to remained in their sending country, it would have been ideal to have a U.S.-born comparison group. Comparing migrants to non-migrants only allows for us to conclude whether migrants changed compared to non-migrants. What it does not allow us to conclude, unfortunately, is if migrants became more like their U.S.-born counterparts. Having a U.S.-born comparison group in addition to a non-migrant group could allow for a more comprehensive examination of immigrant integration and the effect of migration on health.

STRENGTHS

Despite these limitations, this study is balanced by four key strengths. First, the HoPES study is one of two known U.S.-based studies that has comprehensive pre-migration data. The

MxFLS is the other study that contains pre-migration data. The lack of baseline/pre-migration data represents a serious flaw in studies examining the role of migration, acculturation, and immigrant integration on health. While studies like the NIS "recent" immigrants to the U.S., these surveys often occur years after immigrants have arrived. Thus, without accurate "baseline" data, one cannot determine the effect that acculturation and integration have already had on health. Studies like HoPES and the MxFLS can provide us with a starting point to begin measuring the effects of migration. HoPES also has one major advantage over the MxFLS in that migrants were surveyed close to their time of departure (Gee et al. 2018).

Second, HoPES provided timely follow-up data by examining both migrants and non-migrants on a yearly basis. Other studies have had longer time between follow-up waves. The shorter follow-up points for HoPES allows for better tracking of short-term changes in health.

Third, this study examined migrant selection for three new health outcomes: allostatic load, psychological distress, and sleep disturbance. Examining allostatic load is important given the lack of pre-migration biomarker data available in studies. To my knowledge, the MxFLS also had a limited set of biomarker data (Rubalcava et al. 2008b). However, HoPES had a more expansive collection of biomarker data, including a triglyceride and cholesterol panel and inflammatory biomarkers. Examining psychological distress is important because of the growing focus examining the effects of immigration stress on health. Finally, examining sleep disturbance is important given the growing focus on sleep as a key behavioral determinant of cardiovascular health and the growing literature examining sleep differences between migrants and non-migrants.

Finally, this study provided a new examination of immigrant integration by considering how migrants change compared to non-migrants of their sending country, thereby more

accurately examining the effect of migration on health and wellbeing. The inappropriateness of using a host-country born sample remains a major limitation of studies of the effects of migration on health. Host-country born people often differ from migrants because they may be raised in different sociocultural and economic environments. Comparing migrants with their non-migrant counterparts provides a more appropriate comparison because both groups theoretically grew up and lived in similar sociocultural and economic circumstances. HoPES' non-migrants were frequency matched to migrants on age, sex, education, and urbanicity, further reducing potential confounding on these demographic and socioeconomic characteristics and serving as the ideal counterfactual group to examine the effects of migration on health and wellbeing. Finally, previous baseline analyses revealed that the HoPES migrant sample were similar to the distribution of recent Filipino immigrants to the U.S. (Gee et al. 2018). Thus, analyses of baseline data allow us to make conclusions about the health of recent Filipino immigrants before processes of acculturation and integration occur.

FUTURE DIRECTIONS

Moving forward, it will be important to continue tracking how the health of migrants and non-migrants change over longer periods time. Although this study found evidence of health improvements, it begs the question to whether if and when the negative effects of acculturation and integration will occur. It is possible that migrants may experience either a stabilization in their levels of psychological distress and sleep quality over time relative to the non-migrant cohort. Alternatively, migrants may begin to experience the expected decline in health posited by acculturation hypotheses.

Future work should also consider examining other health outcomes, including allostatic load and other biomarkers, longitudinally. At the time of writing of this dissertation, biomarker

data were only obtained at baseline with 3-year collection ongoing. However, future work should utilize these longitudinal data to examine how immigrant health changes over time.

Additional immigration stressors should also be considered. For example, previous work using HoPES examined the role of visas and visa wait times on the number of health outcomes (Morey et al. 2020a). Visa wait times, as a pre-migration stressor, could have a profound effect on longitudinal health among migrants. Furthermore, it would also be interesting to see if the health advantages among migrants longitudinally also differ by migrants' visa type. Previous work showed evidence of health a health advantage among marriage migrants, but not family reunification nor employment migrants (Morey et al. 2020a).

Moreover, it would also be interesting to conduct comparative analyses between the HoPES cohorts and other longitudinal studies that include migrants and non-migrants, such as the MxFLS. It is interesting that the results of the longitudinal analysis of HoPES run contrary to the well-established research on Mexican immigrant health in MxFLS. Are the experiences of Philippine immigrants representative of other migrant groups, such as Chinese, Asian Indian, Korean, Guatemalan, and Salvadoran immigrants? Or are Philippine immigrants, like Mexican immigrants, another exception to the established literature on migration and health?

Furthermore, future analyses should consider comparing HoPES cohort participants to U.S-born Filipino Americans. This dissertation can only conclude how migrants change relative to non-migrants. Although this analysis tests a corollary to immigrant integration, a future study should test the traditional view of immigrant integration by examining how immigrants and U.S.-born people become more like one another.

In addition, it will be interesting to examine how the COVID-19 pandemic impacted both migrants and non-migrants. The COVID-19 pandemic has had negative impacts on social,

economic, mental, and physical health outcomes. Filipino people have also been disproportionately affected by COVID-19 because many Filipinos work in essential industries like healthcare (Sabado-Liwag et al. 2022). Future work using HoPES should examine both the short-term and long-term effects of the COVID-19 pandemic on the health of migrants and non-migrants.

Finally, although this study focused on the individual experiences of migrants and non-migrants over time, future work should focus on examine how historical and structural factors that may underlie immigrant health. The literature on immigration and health has moved towards understanding immigration as a structure and system that facilitates or hinders health (Gee and Ford 2011; Viruell-Fuentes, Miranda and Abdulrahim 2012). The Philippines represents a special, but key case in understanding the immigration system because of its long history as a subject of colonialism and U.S. imperialism (Sabado-Liwag et al. 2022). It is insufficient to examine the effects of migration on health without considering the historical circumstances that facilitate or encourage migration. For the Philippines, centuries of colonialism and imperialism have created the economic conditions that facilitate the migration industry and have ultimately led to the seemingly paradoxical findings of health among Filipinos relative to other groups (Sabado-Liwag et al. 2022). Such work can look towards examining visa records, policy, or archival work to evaluate these trends in the past and their implications for health today.

CONCLUSION AND IMPLICATIONS FOR PUBLIC HEALTH

Using the Philippines as an example, this dissertation provided evidence of a migrant health advantage in psychological distress and sleep disturbance relative to non-migrants who remained in their sending country. Furthermore, this study provided novel evidence of short-term health improvements for both migrant and non-migrant groups. These health improvements

persisted despite the independent effects of financial strain and interpersonal discrimination. Social resources, on the other hand, were associated with better health independent of general changes over time.

Although public health has had an increased focus on the role of immigration on health among undocumented and refugee populations, it is equally important to consider documented immigrants or lawful permanent residents (LPR). Documented immigrants and LPR make up the large majority of all immigration to the U.S. (Budiman 2020). This study shows that permanent immigrants to the U.S. experience a health advantage relative to non-migrants that increases short term. Future work should consider how to maintain the improving health that migrants experience upon arrival to the U.S. From these analyses, addressing issues related to migrants' experiences with financial strain and interpersonal discrimination represent one area of improvement for immigrants' integration. Increasing access to social and economic opportunities for immigrants upon arrival could work to reduce issues of financial strain and increase migrants' social resources. Furthermore, environmental interventions could work to support immigrants living in ethnic enclaves or create social environments that facilitate immigrant integration. In addition, U.S. immigration policy must consider the lengthening wait times for LPR visas to the U.S. Although it was not the primary focus of the current study, lengthening visa ques represent a growing area of policy concern, especially coupled with the debates surrounding legalization for undocumented immigrants.

Finally, it is important to consider the social and economic conditions that beget migration. While this study focused on the experiences of the migrant cohort, the health, social, and economic conditions of the non-migrant cohort are also worthy of consideration. Non-migrants may have the same aspirations to migrate for better social and economic circumstances.

However, they may choose to remain in their country due to family ties, limited social and economic resources to support migration, or overwhelming burden by the bureaucracy of international immigration systems and policies. Thus, regardless of whatever reasons non-migrants choose to remain in their home country, policies in non-migrants' home country are needed to ensure that they also maintain healthy and fulfilling lives.

In conclusion, migrants may possess health advantages in some health outcomes (i.e., psychological distress and sleep disturbance) over non-migrants of their sending country. Furthermore, both migrants and non-migrants may experience health improvements, rather than health declines longitudinally. Although financial strain, discrimination, and social resources may explain part of the changes in psychological distress and sleep disturbance over time, these changes over time may not differ between migrants and non-migrants. Thus, this dissertation provides novel evidence that it may be secular effects, rather than acculturation, that account for changes in migrant health over time relative to their non-migrant counterparts.

This dissertation builds upon the limited work examining immigrant health, acculturation, and integration longitudinally. Furthermore, it provides a new theoretical contribution to examine immigrant integration by comparing how migrants change relative to their non-migrant counterparts. As the number of immigrants in the U.S. increases, it is important to consider their health both before and after migration. Finally, it is important to identify factors that contribute to declines in health as well as potential improvements.

TABLES AND FIGURES

The following tables and figures are organized by chapter. Tables are presented first, followed by figures. In this naming scheme, the first character refers to the chapter number. The second character refers to the outcome under discussion (e.g., psychological distress). Finally, the third character (if present) refers to the sensitivity analysis iteration (e.g., continuous psychological distress, moderate or severe psychological distress). For example, Table 4.4.2 refers to Chapter 4, 4th outcome (e.g., sleep disturbance), 2nd iteration (i.e., ordinal logistic regression).

In the Appendix, the first character refers to the Appendix section (e.g., Appendix A) while the second character refers to the table number in order of the text (e.g., A.1 = Appendix A, 1st table).

Figure 1.1 Hypothesized Health Trajectories of Filipino Migrants to the United States Compared to Filipino Non-migrants who Remain in the Philippines

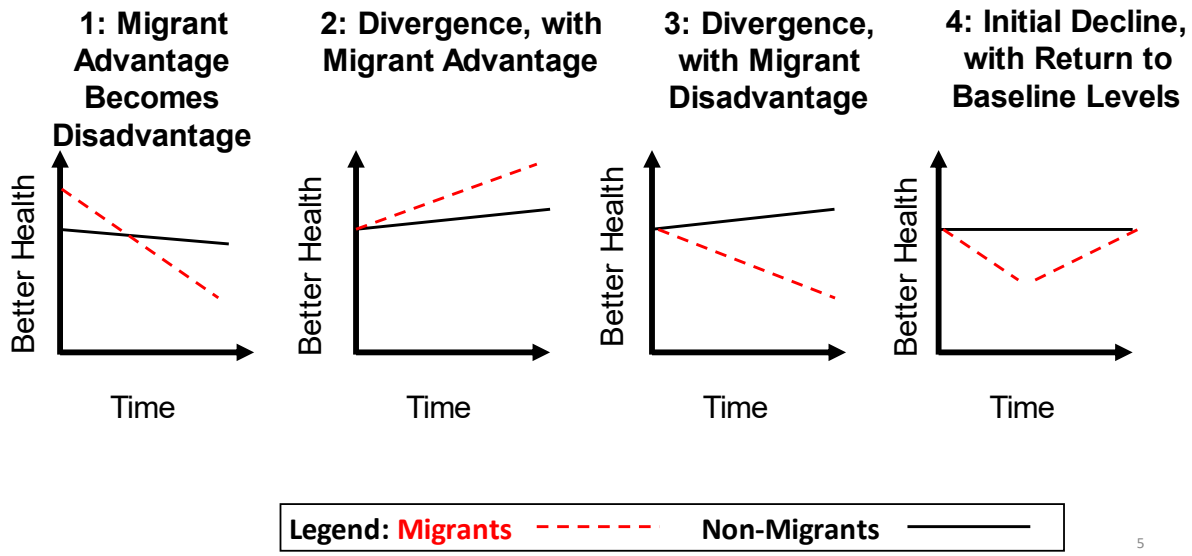


Figure 1.2 Comprehensive Conceptual Model of Migration Selection, Integration, and Health

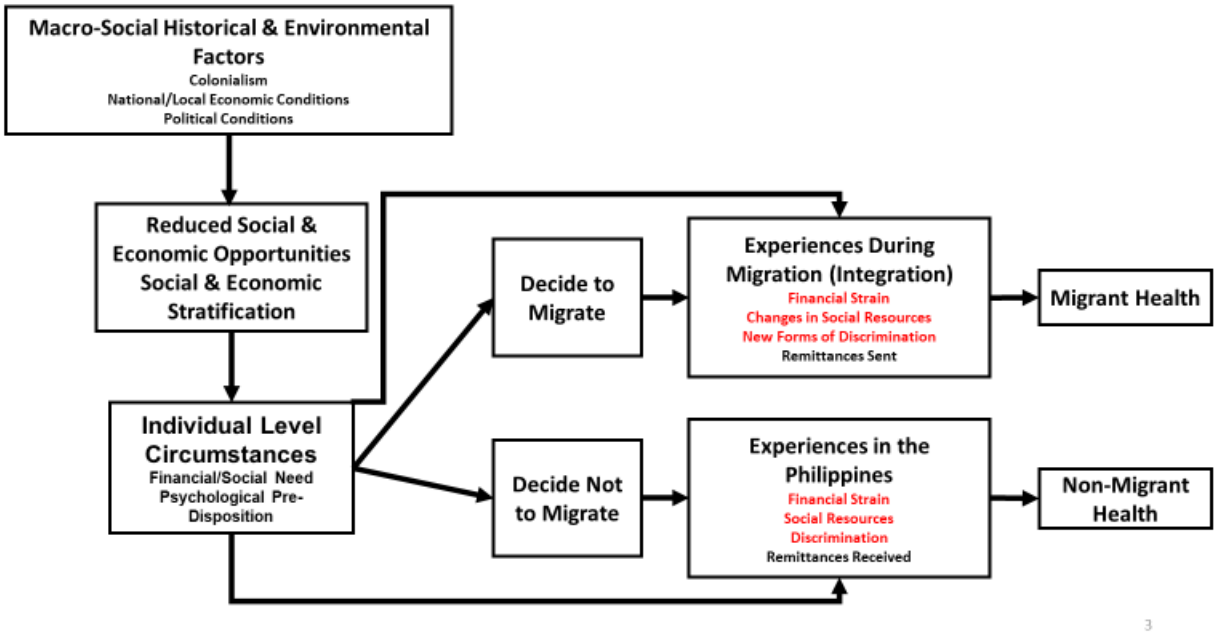


Table 2.1 Health of Philippine Emigrants Study (HoPES) Response Rates by Wave and Migrant Status

	Baseline		1-Year		2-Year	
	Non-Migrants	Migrants	Non-Migrants	Migrants	Non-Migrants	Migrants
Number Approached	1173	2279	805	808	805	808
Number Completed Survey	805	832	758	442	762	371
Response Rate	68.6%	36.5%	94.2%	54.7%	94.7%	45.9%

Table 2.2 Constructs and Measures

Construct	Measure	Baseline	1-Year	2-Year
Outcomes				
Psychological Distress	NIH PROMIS Depression, Anger, and Anxiety	X	X	X
Allostatic Load	Systolic and Diastolic Blood Pressure	X		
	Height (cm)	X		
	Weight (kg)	X		
	Waist and Hip Circumference (cm)	X		
	Total Cholesterol, Triglycerides, HDL, LDL	X		
	Apolipoprotein-B	X		
	C-Reactive Protein	X		
Sleep Disturbance	NIH PROMIS Sleep Quality	X	X	X
Independent Variables				
Financial Strain	Financial Strain Scale	X	X	X
Interpersonal Discrimination	Williams Everyday Discrimination Scale	X	X	X
Social Resources	Resource Generator Scale	X	X	X
Covariates				
Demographic	Age	X	X	X
	Gender	X		
	Interview Language	X	X	X
	Island Region	X		
Migrant Status	Migrant or Non-Migrant	X		
Social Isolation	NIH PROMIS Social Isolation	X	X	X
Social Desirability	Truthfulness to Avoid Embarrassment in Past 7 Days	X		
Socioeconomic	Current Employment Status	X	X	X
	Educational Attainment	X		
Health Behavior	Current Smoking Status	X	X	
	Drinking Status	X		
Health Conditions	General Health	X	X	X
	Hours of Sleep	X	X	X
	General Sleep Quality	X	X	X

Table 2.3 Allostatic Load Components and Clinical Risk Cutoffs

Biomarker	Cut Point for Clinical Risk	Source
Systolic Blood Pressure	>130 mmHg	Whelton et al. (2018)
Diastolic Blood Pressure	>80 mmHg	Whelton et al. (2018)
Body Mass Index	>27.5 kg/m^2	World Health Organization (2000)
Waist Circumference	Men: >= 102 cm Women: >= 88 cm	World Health Organization (2008)
Waist-to-Hip Ratio	Men: >=.90 cm Women: >= .85cm	World Health Organization (2008)
Total Cholesterol	>=240 mg/dL	Ma and Shieh (2006)
Low Density Lipoprotein	>= 160 mg/dL	Ma and Shieh (2006)
High Density Lipoprotein	Men: < 40mg/dL Women: < 50 mg/dL	Ma and Shieh (2006)
Triglycerides	>= 200 mg/dL	Ma and Shieh (2006)
C-Reactive Protein	>10 mg/L	Nehring et al. (2020)
Apolipoprotein-B	>120 mg/dL	Cao et al. (2018)

Table 3.1 Unweighted Characteristics of Study Participants by Survey Wave, Health of Philippine Emigrants Study

	Baseline			1-Year			2-Year		
	Full Sample (n=1,637)	Non-Migrant (n=805)	Migrant (n=832)	Full Sample (n=1,200)	Non-Migrant (n=758)	Migrant (n=442)	Full Sample (n=1,133)	Non-Migrant (n=762)	Migrant (n=371)
Variables	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %
Panel A: Health Outcomes									
Allostatic Load (Range: 0 -11)									
Decile Calculated	1.1 (1.4)	1.1 (1.6)	1.0 (1.4)	N/A	N/A	N/A	N/A	N/A	N/A
Quartile Calculated	2.7 (2.4)	2.8 (2.4)	2.6 (2.3)	N/A	N/A	N/A	N/A	N/A	N/A
Clinical Risk Calculated	2.9 (1.9)	3.0 (2.0)	2.8 (1.8)	N/A	N/A	N/A	N/A	N/A	N/A
Psychological Distress Score (Range: 4 – 20)	6.1 (2.9)	7.0 (3.2)	5.3 (2.3)	6.3 (2.9)	6.7 (3.0)	5.4 (2.5)	6.0 (2.9)	6.6 (3.0)	4.9 (2.4)
Psychological Distress Severity									
None-to-slight psychological distress	73.8	62.1	85.1	71.3	65.3	81.7	73.9	65.8	90.6
Mild psychological distress	15.6	21.4	10.1	18.3	21.8	12.2	16.4	21.7	5.7
Moderate psychological distress	10.2	15.8	4.8	10.0	12.4	5.9	9.1	12.2	2.7
Severe psychological distress	.4	.8	0	.4	.5	.2	.6	.4	1.1
Sleep Disturbance (Range: 4 – 20)	9.3 (3.1)	10.3 (2.8)	8.4 (3.0)	9.3 (3.1)	10.2 (2.5)	7.6 (3.2)	9.2 (3.0)	10.0 (2.6)	7.5 (3.2)
Sleep Disturbance Severity									
None-to-slight sleep disturbance	42.6	27.2	57.6	41.1	26.1	66.7	44.1	30.8	71.4
Mild sleep disturbance	21.8	24.1	19.5	22.5	27.7	14.6	23.8	29.3	12.7
Moderate sleep disturbance	34.1	46.7	21.9	35.5	45.1	19.0	30.5	38.6	13.5
Severe sleep disturbance	1.5	2.0	1.1	.9	1.1	.7	1.5	1.1	2.4
Panel B: Integration Factors									
Everyday Discrimination									
Chronicity Calculated	63.1 (121.4)	76.1 (133.4)	50.5 (107.1)	57.4 (115.0)	69.7 (127.7)	36.2 (85.3)	38.4 (96.9)	42.6 (92.5)	29.8 (105.1)
Frequency Calculated	4.3 (4.3)	4.8 (4.5)	3.9 (4.0)	4.0 (4.2)	4.7 (4.4)	2.7 (3.5)	2.7 (3.7)	3.1 (3.8)	1.9 (3.5)
Situation Calculated									
Type of Discrimination									
Age	21.7	22.7	20.8	24.0	24.1	23.5	17.2	16.1	23.4
Gender or Sex	23.2	25.2	21.3	25.2	26.9	19.8	13.8	12.7	19.9
Height	15.1	16.0	14.2	17.6	16.4	21.4	10.5	10.1	12.9
Weight	15.7	18.0	13.5	16.7	17.8	13.0	11.3	11.6	10.0
Socioeconomic Status	35.5	41.7	29.4	43.0	43.9	39.9	31.4	31.0	33.6
Race	46.2	50.3	42.1	61.4	54.6	82.8	41.9	36.1	73.2

Religion	8.6	7.8	9.2	8.7	7.8	11.8	6.1	5.4	10.0
Financial Strain									
Very Low	18.7	10.1	27.0	31.6	12.8	63.8	30.8	13.9	65.5
Low	51.3	47.0	55.5	41.5	48.6	29.4	42.5	49.1	29.1
Medium	24.3	32.5	16.4	18.7	26.4	5.4	21.4	29.3	5.1
High	5.7	10.5	1.1	8.3	12.3	1.4	5.3	7.7	.3
Social Capital	7.6 (2.4)	7.3 (2.5)	8.0 (2.4)	8.3 (2.7)	8.5 (2.6)	7.9 (2.7)	8.2 (2.7)	8.2 (2.8)	8.3 (2.5)
Panel C: Covariates									
Age in Years	36.5 (11.5)	37.1 (11.5)	36.0 (11.6)	37.2 (11.3)	38.1 (11.5)	35.7 (10.6)	38.5 (11.2)	39.3 (11.5)	36.8 (10.6)
Male Sex	33.1	32.0	34.1	31.4	32.0	30.3	30.7	31.7	28.6
Used English During Interview	8.9	4.5	13.2	27.0	2.2	69.6	15.3	3.9	38.4
Social Factors									
Marital Status									
Married	40.0	44.6	35.5	55.8	48.2	68.8	53.5	46.3	68.2
Living-In	14.7	19.5	10.1	10.8	16.9	.2	13.4	19.6	.8
Widowed, Separated, and Divorced	7.0	7.1	7.0	7.1	8.4	4.8	8.8	10.6	5.1
Never Married	38.3	28.8	47.5	26.4	26.5	26.2	24.3	23.5	25.9
Social Isolation									
Social Isolation Score (Range: 1 – 5)	1.4 (.8)	1.6 (.9)	1.3 (.7)	1.5 (.9)	1.5 (.9)	1.4 (.8)	1.4 (.8)	1.5 (.8)	1.3 (.9)
High Social Isolation	15.0	20.8	9.5	16.6	17.3	15.4	14.7	15.9	12.4
Socioeconomic Factors									
Educational Attainment									
Less than high school	11.4	15.2	7.8	11.4	15.4	4.5	11.4	15.2	3.5
High school graduate	19.2	17.8	20.6	17.7	17.9	17.2	17.7	18.1	17.0
Some college	26.9	35.3	18.8	28.9	35.6	17.4	29.7	35.6	17.5
College degree and above	42.5	31.8	52.9	42.0	31.0	60.9	41.2	31.1	62.0
Currently Employed	41.2	60.4	22.7	69.7	70.3	68.6	71.6	70.6	73.7
Health and Health Behaviors									
General Poor Health Score	3.2 (1.0)	3.6 (.9)	2.8 (1.0)	3.2 (1.1)	3.7 (.8)	2.5 (1.2)	3.3 (1.0)	3.6 (.8)	2.6 (1.1)
Fair/Poor Health	45.5	65.0	26.7	52.0	68.7	23.3	52.6	65.9	25.1
Hours of Sleep	7.8 (1.7)	7.7 (1.8)	8.0 (1.6)	7.5 (1.6)	7.7 (1.7)	7.3 (1.6)	7.4 (1.6)	7.4 (1.7)	7.2 (1.3)
Currently Drinks	43.2	43.7	42.7	N/A	N/A	N/A	N/A	N/A	N/A
Current Smoking Status									
Never Smoked	58.8	59.5	58.1	68.6	60.3	85.5	N/A	N/A	N/A
Former Smoker	28.3	23.7	32.8	18.8	23.4	9.7	N/A	N/A	N/A
Current Smoker	12.9	16.8	9.1	12.6	16.4	4.8	N/A	N/A	N/A

Note. Numbers may not add to total due to missing data. N/A = Data were not collected at given wave

Table 3.2 Unweighted Correlation Matrix of Key Outcome Variables, Migrant Status, Financial Strain, Discrimination, and Social Resources, Health of Philippine Emigrants Study (HoPES) Baseline Wave (n = 1,637)

	AL Decile	AL Quartile	AL Risk	PD	PD Sev.	Sleep Dist.	Sleep Dist. Sev.	Migrant	Fin. Strain	Chron. EDS	Freq. EDS.	Sit. EDS	Soc. Res.
Al Decile	1												
Al Quartile	0.78 [d]	1											
AL Risk	0.69 [d]	0.82 [d]	1										
PD	0.01	-0.04	-0.03	1									
PD Sev.	0.02	-0.03	-0.03	0.94 [d]	1								
Sleep Dist.	0.00	-0.01	-0.01	0.41 [d]	0.38 [d]	1							
Sleep Dist. Sev.	-0.02	-0.03	-0.02	0.38 [d]	0.34 [d]	0.91 [d]	1						
Migrant	-0.05[a]	-0.03	-0.06 [b]	-0.29 [d]	-0.26 [d]	-0.32 [d]	-0.31 [d]	1					
Fin. Strain	0.07 [c]	0.06 [b]	0.08 [c]	0.21 [d]	0.21 [d]	0.17 [d]	0.17 [d]	-0.33 [d]	1				
Chron EDS.	-0.04	-0.06[b]	-0.07[c]	0.29 [d]	0.26 [d]	0.21 [d]	0.19 [d]	-0.11 [d]	0.10 [d]	1			
Freq. EDS	-0.06 [b]	-0.09[d]	-0.09[d]	0.35 [d]	0.31 [d]	0.28 [d]	0.26 [d]	-0.11 [d]	0.07 [c]	0.80 [d]	1		
Sit. EDS.	-0.07 [c]	-0.09[d]	-0.08[d]	0.28 [d]	0.25 [d]	0.27 [d]	0.25 [d]	-0.07 [d]	0.03	0.47 [d]	0.86 [d]	1	
Soc. Res.	0.00	0.00	0.01	-0.04 [a]	-0.06 [b]	-0.05 [b]	-0.05 [b]	0.15 [d]	-0.10 [d]	-0.03	0.01	0.07 [c]	1

Note. [a] $p < .10$; [b] $p < .05$; [c] $p < .01$; [d] $p < .001$. AL = Allostatic Load; PD = Psychological Distress; PD Cat = Psychological Distress Severity (None to Slight, Mild, Moderate, Severe); Sleep Dist. = Sleep Disturbance; Sleep Dist. Sev. = Sleep Disturbance Severity (None to Slight, Mild, Moderate, Severe); Fin Strain = Financial Strain; EDS = Everyday Discrimination Scale; Chon = Chronicity-Calculate; Freq. = Frequency-Calculated; Sit = Situation-Based; Soc. Res. = Social Resources Scale.

Table 3.3 Unweighted Distribution of HoPES Migrant and Non-Migrant Sample by Collection Wave Compared to 2010 Philippines Census and 2010 American Community Survey

Strata			General Population Surveys		Baseline HoPES (2017) (n=1635)		1-Year HoPES (2018) (n=1199)		2-Year HoPES (2019) (n=1132)	
Age	Gender	Any College Education	Weighted 2010 Philippines Census (n = 45,296,787)	2010 ACS (n = 58,287)	Migrants (n = 832)	Non-Migrants (n = 803)	Migrants (n=442)	Non-Migrants (n=757)	Migrants (n=371)	Non-Migrants (n=761)
20-34	Female	No	.14	.08	.07	.07	.09	.07	.09	.07
20-34	Female	Yes	.10	.25	.30	.22	.36	.21	.35	.21
20-34	Male	No	.16	.04	.04	.03	.02	.03	.02	.03
20-34	Male	Yes	.09	.11	.11	.15	.13	.15	.13	.14
35-59	Female	No	.17	.11	.10	.18	.07	.19	.07	.18
35-59	Female	Yes	.08	.23	.19	.21	.18	.21	.20	.22
35-59	Male	No	.18	.06	.06	.05	.04	.05	.02	.05
35-59	Male	Yes	.08	.13	.12	.09	.12	.09	.12	.09

Note. Philippine census data are weighted and based on the 2010 Philippine Census. In 2010, about 4,626,229 people completed the 2010 Philippine Census Survey

Table 4.1 Weighted Baseline Sample Characteristics by Migrant Status, Health of Philippine Emigrants Study (HoPES), n = 1634

	Total (n = 1634)	Non-Migrant (n = 802)	Migrant (n = 832)	p-value
	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	
Panel A: Health Outcomes				
Decile Allostatic Load	1.1 (1.5)	1.1 (1.6)	1.0 (1.4)	.183
Quartile Allostatic Load	2.7 (2.4)	2.7 (2.4)	2.7 (2.4)	.614
Allostatic Load Clinical Cutoff Calculated [a]	2.9 (1.9)	3.0 (2.0)	2.9 (1.8)	.182
"High" Allostatic Load (AL ≥ 3)				
Decile Calculated	16.2%	17.3%	15.2%	.271
Quartile Calculated	46.0%	45.9%	46.1%	.949
Clinical Risk Calculated	52.1%	53.4%	50.9%	.329
Allostatic Load Component Above Clinical Cutoff [a]				
Systolic Blood Pressure	27.2%	25.5%	28.8%	.146
Diastolic Blood Pressure	46.7%	44.0%	49.4%	.035
Body Mass Index	22.4%	24.3%	20.6%	.075
Waist Circumference	29.5%	30.8%	28.2%	.251
Waist-Hip-Ratio	71.4%	74.2%	68.8%	.017
Total Cholesterol	7.0%	6.0%	7.9%	.173
High Density Lipoprotein	55.4%	60.0%	51.1%	< .001

Low Density Lipoprotein	5.8%	5.3%	6.3%	.435
Triglycerides	25.9%	27.1%	24.8%	.317
C-Reactive Protein	2.4%	2.2%	2.6%	.641
Psychological Distress (Range: 4-20)	6.1 (2.9)	6.9 (3.2)	5.3 (2.3)	< .001
Psychological Distress Clinical Classification				< .001
None to Slight	74.2%	62.6%	85.3%	
Mild	15.3%	20.9%	10.0%	
Moderate	10.2%	15.9%	4.7%	
Severe	0.3%	0.7%	0.0%	
Moderate to Severe Psychological Distress	10.5%	16.6%	4.7%	< .001
Sleep Disturbance (Range: 4-20)	9.3 (3.1)	10.4 (2.8)	8.4 (3.0)	< .001
Sleep Disturbance Clinical Classification				< .001
None to Slight	42.6%	26.9%	57.7%	
Mild	21.9%	24.4%	19.5%	
Moderate	34.1%	46.7%	21.8%	
Severe	1.5%	2.0%	1.0%	
Moderate to Severe Sleep Disturbance	35.6%	48.7%	22.9%	< .001
Hours of Sleep Per Night	7.8 (1.7)	7.7 (1.8)	8.0 (1.6)	< .001
General Sleep Quality				< .001
Very Good	11.8%	5.2%	18.3%	
Good	29.6%	18.5%	40.5%	
Fair	45.7%	56.4%	35.4%	
Poor	12.8%	20.0%	5.9%	

Panel B: Covariates				
Demographic Factors				
Mean Age in Years	36.9 (11.5)	37.0 (11.4)	36.9 (11.6)	.851
Male Gender	33.6%	33.6%	33.6%	.984
Any English Language Used During Interview	8.8%	4.5%	12.9%	< .001
Social Factors				
Marital Status				< .001
Married	40.6%	44.7%	36.5%	
Living-In	15.5%	20.6%	10.6%	
Widowed, Separated, Divorced/Annulled	7.3%	6.9%	7.7%	
Never Married	36.6%	27.8%	45.1%	
High Social Isolation	14.8%	20.7%	9.2%	< .001
Socioeconomic Factors				
Educational Attainment				< .001
Less than high school	10.3%	12.7%	8.0%	
High School Graduate	18.6%	16.2%	20.9%	
Some College	27.6%	37.3%	18.2%	
College Degree and Above	43.5%	33.8%	52.9%	
Currently Employed	41.4%	60.6%	22.9%	< .001
Health Conditions and Health Behaviors				
Self-Rated Fair/Poor Health	45.4%	64.4%	27.0%	< .001
Drank 1+ Alcoholic drink in past 30 days	43.1%	44.7%	41.4%	.185
Current Smoking Status				< .001
Never Smoked	57.8%	57.6%	58.0%	
Former Smoker	28.8%	24.4%	33.0%	
Current Smoker	13.4%	18.0%	9.0%	

Note. [a] Apolipoprotein-B was included in the calculation of clinical cutoff allostatic load prior to multiple imputation. However, it was not included in multiple imputation model because there was no variation in clinical cutoffs. All participants with complete data had apolipoprotein-b levels below the clinical cutoff. Thus, multiple imputation models were unable to properly impute values.

Table 4.2.1 Weighted Zero-Inflated Negative Binomial Regression of Allostatic Load (Decile Calculated) on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n =1634

	Model 1		Model 2		Model 3		Model 4		Model 5	
Panel A: Negative Binomial	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**
Migrant Status (non-migrant ref.)	-0.15*	-0.29, -0.004	-0.16*	-0.30, -0.02	-0.13+	-0.28, 0.01	-0.16+	-0.32, 0.01	-0.16+	-0.33, 0.10
Demographic Factors										
Age in Years			0.02***	0.02, 0.03	0.02***	0.01, 0.03	0.02***	0.01, 0.03	0.02***	0.01, 0.03
Male Gender (Female ref.)			0.18**	0.05, 0.31	0.20**	0.06, 0.33	0.22**	0.09, 0.35	0.11	-0.06, 0.27
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.10	-0.31, 0.11	-0.10	-0.31, 0.11	-0.11	-0.32, 0.10
Widowed, Separated, Divorced/Annulled					-0.06	-0.30, 0.17	-0.08	-0.32, 0.15	-0.09	-0.33, 0.16
Never Married					-0.17+	-0.34, 0.003	-0.16+	-0.34, 0.01	-0.14	-0.32, 0.03
High Social Isolation (Low ref.)					0.11	-0.06, 0.28	0.11	-0.06, 0.27	0.11	-0.06, 0.28
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.18+	-0.38, 0.02	-0.17+	-0.37, 0.02
Some College							-0.13	-0.32, 0.06	-0.15	-0.34, 0.04
College Degree and Above							-0.22*	-0.41, -0.04	-0.23*	-0.42, -0.04
Currently Employed (Not Currently Employed Ref.)							-0.13+	-0.27, 0.02	-0.12+	-0.27, 0.02

Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.14+	-0.01, 0.28
Current Smoking Status (Never smoked ref.)										
Former Smoker									0.14+	-0.02, 0.29
Current Smoker									0.09	-0.12, 0.30
Constant	0.57***	0.46, 0.69	-0.44**	-0.77, -0.11	-0.32+	-0.69, 0.05	-0.08	-0.50, 0.34	-0.18	-0.62, 0.25
Panel B: Zero Inflation	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Migrant Status (non-migrant ref.)	-0.20	-0.57, 0.16	-0.26	-0.66, 0.13	-0.29	-0.70, 0.12	-0.28	-0.70, 0.12	-0.28	-0.70, 0.13
Age in Years	-0.08***	-0.10, -0.06	-0.05***	-0.07, -0.03	-0.05***	-0.07, -0.03	-0.05***	-0.07, -0.03	-0.05***	-0.08, -0.03
Constant	2.27***	1.69, 2.85	1.16**	0.44, 1.89	1.15**	0.39, 1.91	1.16**	0.40, 1.93	1.22**	0.43, 2.00

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.2.2 Weighted Poisson Regression of Quartile-Calculated Allostatic Load on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n =1634

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**
Migrant Status (non-migrant ref.)	-0.02	-0.11, 0.07	-0.02	-0.10, 0.06	-0.00	-0.08, 0.08	-0.01	-0.10, 0.08	-0.02	-0.11, 0.07
Demographic Factors										
Age in Years			0.03***	0.03, 0.03	0.03***	0.02, 0.03	0.03***	0.02, 0.03	0.03***	0.02, 0.03
Male Sex (Female ref.)			0.22***	0.14, 0.30	0.23***	0.15, 0.31	0.24***	0.16, 0.32	0.20***	0.10, 0.30
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.06	-0.18, 0.07	-0.06	-0.18, 0.07	-0.06	-0.19, 0.06
Widowed, Separated, Divorced/Annulled					-0.07	-0.21, 0.08	-0.08	-0.23, 0.07	-0.08	-0.23, 0.08
Never Married					-0.17**	-0.28, -0.05	-0.17**	-0.29, -0.05	-0.17**	-0.28, -0.05
High Social Isolation (Low ref.)					-0.00	-0.12, 0.11	-0.01	-0.12, 0.11	-0.01	-0.13, 0.10
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.10	-0.25, 0.05	-0.10	-0.25, 0.04
Some College							-0.04	-0.19, 0.10	-0.05	-0.19, 0.09
College Degree and Above							-0.12+	-0.25, 0.02	-0.12+	-0.26, 0.01
Currently Employed (Not Currently Employed Ref.)							-0.08+	-0.17, 0.00	-0.09+	-0.18, 0.00
Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.02	-0.07, 0.11
Current Smoking Status (Never smoked ref.)										
Former Smoker									0.10+	-0.00, 0.20
Current Smoker									0.04	-0.11, 0.18

Constant	1.01***	0.95, 1.07	-0.24**	-0.40, -0.09	-0.08	-0.27, 0.12	0.05	-0.20, 0.30	0.03	-0.23, 0.28

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.2.3 Weighted Poisson Regression of Clinical Risk-Calculated Allostatic Load on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n =1634

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**
Migrant Status (non-migrant ref.)	-0.04	-0.11, 0.02	-0.04	-0.10, 0.02	-0.03	-0.09, 0.03	-0.05	-0.11, 0.02	-0.05	-0.12, 0.02
Demographic Factors										
Age in Years			0.02**		0.02**		0.02**		0.02**	0.02 -
			*	0.02, 0.03	*	0.02, 0.03	*	0.02 - 0.03	*	0.03
Male Sex (Female ref.)			0.02	-0.04, 0.09	0.02	-0.04, 0.09	0.03	-0.03, 0.09	-0.04	-0.11, 0.04
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.05	-0.14, 0.04	-0.05	-0.14, 0.03	-0.06	-0.15, 0.02
Widowed, Separated, Divorced/Annulled					-0.17**	-0.28, -0.06	-0.17**	-0.28, -0.06	-0.18**	-0.29, -0.06
Never Married					-0.12**	-0.20, -0.04	-0.12**	-0.21, -0.04	-0.12**	-0.20, -0.03
High Social Isolation (Low ref.)					-0.00	-0.09, 0.08	-0.01	-0.09, 0.08	-0.02	-0.11, 0.07
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.06	-0.16, 0.04	-0.06	-0.16, 0.05
Some College							-0.08	-0.18, 0.02	-0.09+	-0.19, 0.01
College Degree and Above							-0.08	-0.17, 0.02	-0.08	-0.17, 0.02
Currently Employed (Not Currently Employed Ref.)							-0.06+	-0.12, 0.01	-0.06+	-0.12, 0.01
Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.04	-0.03, 0.10

Current Smoking Status (Never smoked ref.)										
Former Smoker									0.10**	0.03, 0.17
Current Smoker									0.11*	0.01, 0.21
Constant	1.08***	1.04, 1.13	0.12*	0.01, 0.24	0.24**	0.09, 0.38	0.34***	0.16, 0.52	0.30**	0.12, 0.49

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.3.1 Ordinary Least Squares Regression of Psychological Distress on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n = 1634

	Model 1		Model 2		Model 3		Model 4	
Variables	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**
Migrant Status (Non-migrant ref.)	-1.65***	-1.93 - -1.38	-1.20***	-1.45 - -0.96	-1.26***	-1.55 - -0.97	-1.29***	-1.57 - -1.00
Demographic Factors								
Age in Years	-0.03***	-0.04 - -0.02	-0.03***	-0.04 - -0.01	-0.03***	-0.04 - -0.02	-0.03***	-0.04 - -0.02
Male Gender (Female ref.)	-0.06	-0.34 - 0.23	0.01	-0.24 - 0.27	0.03	-0.22 - 0.29	-0.16	-0.45 - 0.14
English Used During Interview (No English ref.)	-0.09	-0.55 - 0.37	-0.07	-0.48 - 0.33	0.11	-0.29 - 0.52	0.11	-0.29 - 0.52
Social Factors								
Marital Status (Married ref.)			0.00	0.00 - 0.00	0.00	0.00 - 0.00	0.00	0.00 - 0.00
Living-In			0.45*	0.08 - 0.83	0.44*	0.06 - 0.81	0.39*	0.02 - 0.77
Widowed, Separated, Divorced/Annulled			0.62*	0.09 - 1.16	0.59*	0.05 - 1.12	0.58*	0.05 - 1.12
Never Married			0.05	-0.26 - 0.35	0.05	-0.25 - 0.36	0.07	-0.23 - 0.37
High Social Isolation (Low ref.)			3.65***	3.21 - 4.08	3.58***	3.15 - 4.02	3.57***	3.13 - 4.01
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate					-0.66*	-1.17 - -0.14	-0.65*	-1.16 - -0.13
Some College					-0.66***	-1.15 - -0.16	-0.67***	-1.17 - -0.18
College Degree and Above					-1.00***	-1.48 - -0.52	-0.98***	-1.46 - -0.50

Currently Employed (Not Currently Employed Ref.)					-0.34*	-0.62 - 0.06	-0.35*	-0.63 - 0.07
Health Behaviors							0.00	0.00 - 0.00
Drank at least 1 Alcoholic Drink in the Past 30 days (No Drink ref.)							-0.09	-0.35 - 0.18
Current Smoking Status (Never Smoker ref.)							0.00	0.00 - 0.00
Former Smoker							0.50**	0.21 - 0.79
Current Smoker							0.47*	0.00 - 0.93
Constant	8.11**	7.58 - 8.65	7.02**	6.43 - 7.61	7.98**	7.21 - 8.75	7.93**	7.15 - 8.71
R-squared	0.10		0.30		0.32		0.32	

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.3.2 Ordinal Logistic Regression of Psychological Distress Category on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n = 1634

	Model 1		Model 2		Model 3		Model 4	
Variables	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Migrant Status (Non-migrant ref.)	0.28**	0.22 - 0.36	0.32**	0.25 - 0.42	0.30**	0.22 - 0.41	0.29**	0.21 - 0.39
Demographic Factors								
Age in Years	0.98**	0.97 - 0.99	0.98**	0.97 - 0.99	0.98**	0.97 - 0.99	0.98**	0.96 - 0.99
Male Gender (Female ref.)	1.03	0.80 - 1.32	1.11	0.84 - 1.45	1.12	0.85 - 1.47	0.90	0.65 - 1.25
English Used During Interview (No English ref.)	0.83	0.53 - 1.30	0.90	0.56 - 1.44	1.04	0.64 - 1.68	1.02	0.63 - 1.63
Social Factors								
Marital Status (Married ref.)								
Living-In			1.32	0.91 - 1.90	1.29	0.88 - 1.89	1.22	0.83 - 1.78
Widowed, Separated, Divorced/Annulled			1.54	0.90 - 2.63	1.50	0.87 - 2.59	1.49	0.86 - 2.58
Never Married			1.08	0.76 - 1.53	1.11	0.78 - 1.58	1.11	0.78 - 1.59
High Social Isolation (Low ref.)			9.56**	7.12 - 12.84	9.33**	6.91 - 12.59	9.46**	6.98 - 12.83
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate					0.59*	0.37 - 0.94	0.59*	0.37 - 0.96
Some College					0.62*	0.40 - 0.96	0.62*	0.40 - 0.95
College Degree and Above					0.43**	0.28 - 0.67	0.45**	0.28 - 0.70
Currently Employed (Not Currently Employed Ref.)					0.72*	0.54 - 0.96	0.71*	0.54 - 0.95
Health Behaviors								

Drank at least 1 Alcoholic Drink in the Past 30 days (No Drink ref.)	0.91	0.69 - 1.21
Current Smoking Status (Never Smoker ref.)		
Former Smoker	1.80***	1.32 - 2.44
Current Smoker	1.61*	1.05 - 2.48

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.3.3 Binary Logistic Regression of Moderate to Severe Psychological Distress on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n = 1634

	Model 1		Model 2		Model 3		Model 4	
VARIABLES	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Migrant Status (Non-migrant ref.)	0.25***	0.17 - 0.36	0.30***	0.20 - 0.46	0.27***	0.17 - 0.44	0.27***	0.17 - 0.43
Demographic Factors								
Age in Years	0.97***	0.96 - 0.99	0.97***	0.95 - 0.99	0.97*	0.95 - 0.99	0.97*	0.95 - 0.99
Male Gender (Female ref.)	0.90	0.63 - 1.30	0.97	0.64 - 1.45	0.98	0.65 - 1.49	0.77	0.48 - 1.25
English Used During Interview (No English ref.)	0.88	0.43 - 1.79	0.98	0.48 - 2.00	1.17	0.56 - 2.42	1.11	0.53 - 2.30
Social Factors								
Marital Status (Married ref.)			1.00	1.00 - 1.00	1.00	1.00 - 1.00	1.00	1.00 - 1.00
Living-In			1.81*	1.07 - 3.06	1.72+	0.99 - 2.98	1.62+	0.94 - 2.81
Widowed, Separated, Divorced/Annulled			3.34***	1.72 - 6.49	3.05***	1.55 - 6.00	3.01***	1.53 - 5.94
Never Married			1.29	0.78 - 2.13	1.32	0.79 - 2.19	1.31	0.79 - 2.17
High Social Isolation (Low ref.)			8.01***	5.52 - 11.63	7.81***	5.33 - 11.44	7.77***	5.28 - 11.42
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)					1.00	1.00 - 1.00	1.00	1.00 - 1.00
High School Graduate					0.50*	0.26 - 0.99	0.50+	0.25 - 1.00
Some College					0.63	0.35 - 1.15	0.64	0.35 - 1.16
College Degree and Above					0.38***	0.20 - 0.71	0.40***	0.21 - 0.75
Currently Employed (Not Currently Employed Ref.)					0.61*	0.40 - 0.94	0.61*	0.40 - 0.93

Health Behaviors							1.00	1.00 - 1.00
Drank at least 1 Alcoholic Drink in the Past 30 days (No Drink ref.)							1.02	0.67 - 1.53
Current Smoking Status (Never Smoker ref.)							1.00	1.00 - 1.00
Former Smoker							1.65*	1.05 - 2.58
Current Smoker							1.57	0.85 - 2.91
Constant	0.54+	0.29 - 1.01	0.20***	0.08 - 0.47	0.45	0.15 - 1.32	0.41	0.14 - 1.23

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 4.4.1 Ordinary Least Squares Regression of Sleep Disturbance on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n = 1634

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**	**β**	**95% CI**
Migrant Status (Non-migrant ref.)	-2.00**	-2.28 - -1.71	-1.68**	-1.97 - -1.39	-1.70**	-2.01 - -1.38	-1.73**	-2.05 - -1.41	-1.32**	-1.64 - -1.00
Demographic Factors										
Age in Years	-0.02*	-0.03 - 0.00	-0.01+	-0.03 - 0.00	-0.01+	-0.03 - 0.00	-0.02*	-0.03 - 0.00	-0.03**	-0.04 - 0.02
Male Gender (Female ref.)	-0.10	-0.40 - 0.19	-0.09	-0.38 - 0.20	-0.08	-0.37 - 0.21	0.31+	-0.67 - 0.05	-0.30+	-0.65 - 0.05
English Used During Interview (No English ref.)	0.25	-0.32 - 0.81	0.24	-0.31 - 0.78	0.28	-0.27 - 0.83	0.28	-0.27 - 0.82	0.29	-0.25 - 0.82
Social Factors										
Marital Status (Married ref.)										
Living-In			0.77**	0.35 - 1.19	0.76**	0.35 - 1.18	0.72**	0.29 - 1.14	0.63*	0.23 - 1.03
Widowed, Separated, Divorced/Annulled			0.30	-0.28 - 0.88	0.29	-0.29 - 0.87	0.29	-0.30 - 0.88	0.39	-0.17 - 0.95
Never Married			-0.07	-0.44 - 0.30	-0.07	-0.44 - 0.30	-0.05	-0.42 - 0.33	-0.01	-0.38 - 0.35
High Social Isolation (Low ref.)			2.03**	1.64 - 2.42	2.02**	1.62 - 2.41	1.99**	1.60 - 2.38	1.72**	1.34 - 2.10
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate					-0.19	-0.72 - 0.33	-0.18	-0.70 - 0.34	-0.25	-0.74 - 0.25
Some College					-0.18	-0.69 - 0.32	-0.21	-0.72 - 0.30	-0.21	-0.69 - 0.27
College Degree and Above					-0.26	-0.76 - 0.23	-0.25	-0.74 - 0.25	-0.34	-0.81 - 0.13

Currently Employed (Not Currently Employed Ref.)					-0.10	-0.40 - 0.21	-0.10	-0.41 - 0.20	- 0.29+	-0.58 - 0.01
Health Behaviors										
Current Smoking Status (Never Smoker ref.)										
Former Smoker							0.58**	0.23 - 0.94	0.53**	0.20 - 0.87
Current Smoker							0.42	-0.08 - 0.92	0.56*	0.07 - 1.05
Drank at least 1 Alcoholic Drink in the Past 30 days (No Drink ref.)							-0.02	-0.34 - 0.31	0.02	-0.29 - 0.34
Health Status									0.00	0.00 - 0.00
Fair/Poor Health (Excellent/Very Good/ Good ref.)									0.96***	0.67 - 1.24
Hours of Sleep									-0.41***	-0.49 - -0.33
Constant	10.94***	10.44 - 11.45	10.31***	9.68 - 10.94	10.57***	9.73 - 11.42	10.49***	9.63 - 11.35	13.72***	12.62 - 14.83
R-squared	0.11		0.17		0.17		0.18		0.25	

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 4.4.2 Ordinal Logistic Regression of Sleep Disturbance Category on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n = 1634

	Model 1		Model 2		Model 3		Model 4		Model 5	
VARIABLES	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Migrant Status (Non-migrant ref.)	0.29**	0.24 - 0.35	0.33**	0.27 - 0.41	0.32**	0.25 - 0.40	0.31**	0.25 - 0.39	0.37**	0.29 - 0.47
Demographic Factors										
Age in Years	0.99*	0.98 - 1.00	0.99*	0.98 - 1.00	0.99*	0.98 - 1.00	0.99*	0.98 - 1.00	0.98**	0.97 - 0.99
Male Gender (Female ref.)	0.84+	0.68 - 1.03	0.84	0.68 - 1.04	0.84	0.69 - 1.04	0.75*	0.58 - 0.96	0.73*	0.56 - 0.95
English Used During Interview (No English ref.)	1.11	0.78 - 1.60	1.11	0.78 - 1.59	1.13	0.78 - 1.63	1.13	0.78 - 1.63	1.17	0.80 - 1.71
Social Factors										
Marital Status (Married ref.)										
Living-In			1.53*	1.15 - 2.03	1.53*	1.15 - 2.04	1.49*	1.12 - 1.99	1.46*	1.09 - 1.96
Widowed, Separated, Divorced/Annulled			1.12	0.74 - 1.68	1.15	0.76 - 1.73	1.13	0.75 - 1.71	1.23	0.82 - 1.86
Never Married			0.98	0.75 - 1.28	0.99	0.76 - 1.29	1.00	0.77 - 1.31	1.05	0.79 - 1.38
High Social Isolation (Low ref.)			3.43**	2.56 - 4.57	3.40**	2.54 - 4.54	3.37**	2.52 - 4.50	2.99**	2.24 - 3.98
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate					1.14	0.78 - 1.65	1.14	0.78 - 1.66	1.07	0.73 - 1.57
Some College					0.97	0.68 - 1.40	0.96	0.67 - 1.39	0.93	0.64 - 1.35
College Degree and Above					1.05	0.74 - 1.50	1.06	0.74 - 1.51	0.97	0.67 - 1.40
Currently Employed (Not Currently Employed Ref.)					0.94	0.76 - 1.16	0.94	0.76 - 1.16	0.82+	0.66 - 1.02

Health Behaviors				
Current Smoking Status (Never Smoker ref.)				
Former Smoker	1.35*	1.06 - 1.73	1.36*	1.06 - 1.75
Current Smoker	1.26	0.88 - 1.79	1.43+	0.99 - 2.06
Drank at least 1 Alcoholic Drink in the Past 30 days (No Drink ref.)	1.00	0.80 - 1.25	1.03	0.82 - 1.31
Health Status				
Fair/Poor Health (Excellent/Very Good/ Good ref.)			1.77***	1.43 - 2.20
Hours of Sleep			0.75***	0.71 - 0.80

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 4.4.3 Binary Logistic Regression of Moderate to Severe Sleep Disturbance on Migrant Status and Associated Covariates, Baseline Health of Philippine Emigrants Study (HoPES), n = 1634

	Model 1		Model 2		Model 3		Model 4		Model 5	
VARIABLES	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**
Migrant Status (Non-migrant ref.)	0.30**	0.24 - 0.38	0.34**	0.27 - 0.43	0.34**	0.26 - 0.43	0.33**	0.25 - 0.42	0.39**	0.29 - 0.51
Demographic Factors										
Age in Years	0.98**	0.97 - 0.99	0.98*	0.97 - 0.99	0.98*	0.97 - 1.00	0.98*	0.97 - 0.99	0.97**	0.96 - 0.98
Male Gender (Female ref.)	0.81+	0.64 - 1.03	0.83	0.65 - 1.05	0.83	0.65 - 1.05	0.73*	0.55 - 0.98	0.72*	0.53 - 0.97
English Used During Interview (No English ref.)	1.17	0.79 - 1.74	1.18	0.80 - 1.75	1.19	0.80 - 1.79	1.19	0.80 - 1.78	1.19	0.78 - 1.83
Social Factors										
Marital Status (Married ref.)			1.00	1.00 - 1.00	1.00	1.00 - 1.00	1.00	1.00 - 1.00	1.00	1.00 - 1.00
Living-In			1.30	0.92 - 1.83	1.29	0.92 - 1.82	1.26	0.89 - 1.77	1.21	0.85 - 1.73
Widowed, Separated, Divorced/Annulled			1.27	0.83 - 1.95	1.29	0.84 - 1.98	1.29	0.84 - 1.99	1.41	0.91 - 2.19
Never Married			0.97	0.71 - 1.31	0.97	0.71 - 1.32	0.98	0.72 - 1.34	0.99	0.72 - 1.36
High Social Isolation (Low ref.)			3.16**	2.29 - 4.34	3.14**	2.27 - 4.32	3.12**	2.26 - 4.30	2.81**	2.02 - 3.91
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)					1.00	1.00 - 1.00	1.00	1.00 - 1.00	1.00	1.00 - 1.00
High School Graduate					0.99	0.64 - 1.51	0.99	0.64 - 1.53	0.96	0.62 - 1.48
Some College					0.90	0.60 - 1.36	0.89	0.59 - 1.34	0.87	0.57 - 1.32
College Degree and Above					0.95	0.64 - 1.41	0.96	0.64 - 1.43	0.86	0.57 - 1.29

Currently Employed (Not Currently Employed Ref.)					0.98	0.76 - 1.25	0.97	0.76 - 1.25	0.82	0.63 - 1.06
Health Behaviors										
Current Smoking Status (Never Smoker ref.)							1.00	1.00 - 1.00	1.00	1.00 - 1.00
Former Smoker							1.44**	1.09 - 1.91	1.45*	1.09 - 1.93
Current Smoker							1.30	0.87 - 1.94	1.50+	0.99 - 2.28
Drank at least 1 Alcoholic Drink in the Past 30 days (No Drink ref.)							0.94	0.73 - 1.22	0.97	0.74 - 1.27
Health Status									1.00	1.00 - 1.00
Fair/Poor Health (Excellent/Very Good/ Good ref.)									1.66**	1.29 - 2.13
Hours of Sleep									0.72**	0.67 - 0.78
Constant	1.87**	1.27 - 2.76	1.40	0.82 - 2.37	1.52	0.76 - 3.03	1.48	0.73 - 3.00	22.50***	8.53 - 59.35

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 4.5.1 Weighted Mixed Model Regression of Psychological Distress on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-0.21	0.06	**	-0.24	0.06	***	-0.23	0.06	***	-0.17	0.05	**	-0.14	0.06	*
Migrant status (non-migrant ref.)				-1.64	0.12	***	-1.72	0.12	***	-1.41	0.11	***	-1.34	0.12	***
Demographic Factors															
Age in Years							-0.02	0.01	**	-0.02	0.01	**	-0.02	0.01	***
Male Gender (Female ref.)							-0.23	0.12	+	-0.15	0.11		-0.11	0.11	
Any English Usage (No English Usage)							0.22	0.13	+	-0.08	0.13		-0.03	0.13	
Social Factors															
Marital Status (Married ref.)															
Living-In										0.12	0.20		0.09	0.20	
Widowed, Separated, Divorced/Annulled, Other										0.18	0.33		0.16	0.33	
Never Married										-0.05	0.15		-0.05	0.15	
High Isolation (Low ref.)										2.84	0.19	***	2.83	0.19	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-0.75	0.21	***

Some College													-0.80	0.20	***
College Degree and Above													-1.12	0.19	***
Currently Employed (Not Employed ref.)													-0.20	0.13	
Constant	6.18	0.08	***	7.03	0.11	***	7.79	0.23	***	7.08	0.28	***	8.19	0.33	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.28	0.06		2.13	0.07		2.11	0.07		1.80	0.06		1.77	0.06	
Residual	1.69	0.06		1.69	0.06		1.69	0.06		1.55	0.04		1.55	0.04	
Panel C: Model Fit															
AIC	32228.58			32039.87			32018.38			30552.68			30503.17		
BIC	32253.72			32071.29			32068.65			30628.09			30603.72		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.5.2 Weighted Mixed Model Regression of Moderate to Severe Psychological Distress on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.79	0.06	**	0.76	0.06	**	0.78	0.06	**	0.79	0.07	**	0.80	0.07	*
Migrant status (non-migrant ref.)				0.24	0.05	***	0.24	0.05	***	0.33	0.07	***	0.31	0.08	***
Demographic Factors															
Age in Years							0.97	0.01	*	0.98	0.01	+	0.98	0.01	*
Male Gender (Female ref.)							0.62	0.15	+	0.70	0.19		0.73	0.20	
Any English Usage (No English Usage)							0.91	0.18	+	0.75	0.17		0.87	0.21	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.65	0.42	*	1.62	0.43	+
Widowed, Separated, Divorced/Annulled, Other										1.81	0.54	*	1.78	0.52	*
Never Married										1.06	0.28		1.20	0.30	
High Isolation (Low ref.)										9.03	1.87	***	8.85	1.85	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.73	0.20	
Some College													0.73	0.20	
College Degree and Above													0.43	0.13	**
Currently Employed (Not Employed ref.)													0.79	0.16	
Constant	0.15	0.02	***	0.25	0.04	***	0.75	0.35		0.23	0.12	**	0.42	0.25	

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.5.3 Weighted Ordinal Logit Mixed Model Regression of Psychological Distress Severity on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
	0.80	0.07		0.77	0.07		0.80	0.07			0.07			0.08	
Survey Wave			*			**			**	0.84		*	0.88		
Migrant status (non-migrant ref.)				0.13	0.03	***	0.12	0.03	***	0.19	0.04	***	0.18	0.04	***
Demographic Factors															
							0.96	0.01			0.01			0.01	
Age in Years									**	0.97		*	0.97		**
Male Gender (Female ref.)							0.71	0.19		0.79	0.19		0.84	0.20	
Any English Usage (No English Usage)							1.08	0.23		0.76	0.18		0.93	0.23	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.55	0.40	+	1.44	0.38	
Widowed, Separated, Divorced/Annulled, Other										1.89	0.67	+	1.82	0.64	+
Never Married										1.22	0.29		1.33	0.31	
High Isolation (Low ref.)										20.01	4.04	***	18.97	3.83	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															

High School Graduate	0.50	0.15	*
Some College	0.53	0.15	
College Degree and Above	0.27	0.08	***
Currently Employed (Not Employed ref.)	0.64	0.11	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.6.1 Weighted Mixed Model Regression of Psychological Distress on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-0.28	0.10	**	-0.26	0.10	**	-0.15	0.08	+	-0.14	0.08	+
Migrant status (non-migrant ref.)	-1.72	0.15	***	-1.77	0.15	***	-1.37	0.14	***	-1.34	0.14	***
Survey Wave x Migrant	0.10	0.12		0.07	0.12		-0.06	0.10		-0.01	0.10	
Demographic Factors												
Age in Years				-0.02	0.01	***	-0.02	0.01	**	-0.02	0.01	***
Male Gender (Female ref.)				-0.23	0.12	+	-0.15	0.11		-0.11	0.11	
Any English Usage (No English Usage)				0.20	0.13		-0.07	0.14		-0.03	0.14	
Social Factors												
Marital Status (Married ref.)												
Living-In							0.11	0.20		0.09	0.20	
Widowed, Separated, Divorced/Annulled, Other							0.16	0.32		0.16	0.32	
Never Married							-0.07	0.14		-0.05	0.14	
High Isolation (Low ref.)							2.84	0.19	***	2.83	0.19	***
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										-0.75	0.21	***
Some College										-0.80	0.20	***
College Degree and Above										-1.12	0.19	***
Currently Employed (Not Employed ref.)										-0.20	0.13	
Constant	7.07	0.13	***	7.81	0.25	***	7.08	0.28	***	8.19	0.33	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.13	0.07		2.11	0.07		1.80	0.06		1.77	0.06	

Residual	1.69	0.06	1.69	0.06	1.55	0.04	1.55	0.04
Panel C: Model Fit								
AIC	32037.87		32018.53		30553.38		30505.16	
BIC	32075.58		32075.09		30635.08		30611.99	

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.6.2 Weighted Mixed Model Regression of Moderate or Severe Psychological Distress on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.72	0.07	***	0.74	0.07	**	0.75	0.08	**	0.74	0.08	**
Migrant status (non-migrant ref.)	0.21	0.05	***	0.21	0.05	***	0.29	0.08	***	0.26	0.08	***
Survey Wave x Migrant	1.32	0.20	+	1.34	0.20	+	1.25	0.23		1.42	0.28	+
Demographic Factors												
Age in Years				0.97	0.01	*	0.98	0.01	+	0.98	0.01	+
Male Gender (Female ref.)				0.62	0.15	+	0.70	0.19		0.73	0.20	
Any English Usage (No English Usage)				0.85	0.17		0.70	0.16		0.78	0.19	
Social Factors												
Marital Status (Married ref.)												
Living-In							1.71	0.44	*	1.70	0.45	*
Widowed, Separated, Divorced/Annulled, Other							1.87	0.56	*	1.88	0.55	*
Never Married							1.10	0.29		1.28	0.33	
High Isolation (Low ref.)							8.99	1.87	***	8.80	1.85	***
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										0.74	0.20	
Some College										0.74	0.20	
College Degree and Above										0.42	0.13	**
Currently Employed (Not Employed ref.)										0.75	0.16	
Constant	0.26	0.04	***	0.79	0.36		0.23	0.12	**	0.42	0.25	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.6.3 Weighted Mixed Model Regression of Psychological Distress Severity on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.74	0.08	**	0.78	0.09	*	0.84	0.09		0.85	0.09	
Migrant status (non-migrant ref.)	0.12	0.03	***	0.12	0.03	***	0.19	0.05	***	0.17	0.05	***
Survey Wave x Migrant	1.13	0.18		1.10	0.18		0.99	0.17		1.14	0.20	
Demographic Factors												
Age in Years				0.96	0.01	**	0.97	0.01	*	0.97	0.01	**
Male Gender (Female ref.)				0.71	0.19		0.79	0.19		0.84	0.20	
Any English Usage (No English Usage)				1.05	0.24		0.76	0.19		0.90	0.23	
Social Factors												
Marital Status (Married ref.)												
Living-In							1.55	0.41	+	1.47	0.39	
Widowed, Separated, Divorced/Annulled, Other							1.89	0.67	+	1.87	0.65	*
Never Married							1.22	0.29		1.37	0.32	
High Isolation (Low ref.)							20.02	4.05	***	18.82	3.80	***
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										0.50	0.15	*
Some College										0.53	0.15	*
College Degree and Above										0.27	0.08	***
Currently Employed (Not Employed ref.)										0.62	0.11	

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.7.1 Weighted Mixed Model Regression of Sleep Disturbance on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
		0.06			0.06			0.06			0.07			0.07			0.07	
Survey Wave	-0.27		***	-0.32		***	-0.28		***	-0.23		***	-0.21		**	-0.26		**
Migrant status (non-migrant ref.)				-2.30	0.12	***	-2.22	0.13	***	-2.02	0.13	***	-2.04	0.13	***	-1.45	0.14	***
Demographic Factors																		
								0.00			0.00			0.00			0.00	
Age in Years							-0.01		*	-0.01			-0.01			-0.03		***
Male Gender (Female ref.)							-0.11	0.12		-0.12	0.12		-0.09	0.12		-0.07	0.11	
Any English Usage (No English Usage)							-0.32	0.15	*	-0.37	0.15	*	-0.34	0.16	*	-0.31	0.15	*
Social Factors																		
Marital Status (Married ref.)																		
											0.17			0.17			0.17	
Living-In										0.81		**	0.79		**	0.64		*
Widowed, Separated, Divorced/Annulled, Other										0.72	0.27	**	0.72	0.27	**	0.70	0.24	**
											0.19			0.19			0.19	
Never Married										0.31		+	0.31		+	0.15		
High Isolation (Low ref.)											0.16			0.16			0.16	
										1.21		***	1.21		***	1.05		***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate														0.17			0.19	
													-0.18			-0.15		
Some College														0.17			0.18	
College Degree and Above													-0.18			-0.05		
														0.19			0.18	
													-0.29			-0.22		
Currently Employed (Not Employed ref.)														0.16			0.15	
													-0.20			-0.29		+
Health Factors																		

Hours of Sleep Per Night																	-0.33	0.04	***
General Health																	0.70	0.07	***
Constant	9.34	0.08	***	10.52	0.10	***	11.00	0.22	***	10.22	0.30	***	10.55	0.36	***	11.42		0.51	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**		**SE**	
Intercept	2.42	0.05		2.14	0.05		2.13	0.05		2.04	0.05		2.03	0.05		1.82		0.05	
Residual	1.90	0.05		1.90	0.05		1.90	0.05		1.88	0.05		1.88	0.05		1.81		0.04	
Panel C: Model Fit																			
AIC	33848.62			33511.26			33494.28			33252.77			33248.89			32505.66			
BIC	33873.76			33542.69			33544.55			33328.18			33349.44			32618.72			

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.7.2 Weighted Binary Mixed Model Regression of Categorical Sleep Disturbance on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.82	0.04	***	0.79	0.04	***	0.80	0.05	***	0.81	0.05	***	0.82	0.05	**	0.77	0.05	***
Migrant status (non-migrant ref.)				0.28	0.04	***	0.29	0.04	***	0.31	0.04	***	0.32	0.05	***	0.42	0.07	***
Demographic Factors																		
Age in Years							0.98	0.01	**	0.99	0.01		0.99	0.01	*	0.97	0.01	***
Male Gender (Female ref.)							0.94	0.15		0.98	0.15		1.00	0.15		1.02	0.15	
Any English Usage (No English Usage)							0.85	0.13		0.78	0.12		0.81	0.13		0.75	0.15	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.07	0.22		1.05	0.21		0.91	0.19	
Widowed, Separated, Divorced/Annulled, Other										1.32	0.31		1.27	0.30		1.25	0.30	
Never Married										1.04	0.18		1.06	0.18		0.95	0.17	
High Isolation (Low ref.)										2.76	0.41	***	2.72	0.41	***	2.59	0.40	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.77	0.15		0.74	0.14	+
Some College													0.88	0.17		0.93	0.16	
College Degree and Above													0.70	0.13	+	0.66	0.12	*
Currently Employed (Not Employed ref.)													0.95	0.10		0.80	0.09	+
Health Factors																		
Hours of Sleep Per Night																0.73	0.03	***
General Health																1.49	0.11	***
Constant	0.61	0.05	***	1.08	0.13		1.95	0.53	*	1.36	0.41		1.84	0.68		9.71	4.87	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.7.3 Weighted Ordinal Mixed Model Regression of Sleep Disturbance Severity on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.78	0.05	***	0.74	0.05	**	0.76	0.05	***	0.79	0.05	***	0.80	0.06	**	0.75	0.05	**
Migrant status (non-migrant ref.)				0.13	0.02	***	0.14	0.03	***	0.17	0.03	***	0.17	0.03	***	0.26	0.05	***
Demographic Factors																		
Age in Years							0.99	0.01	*	0.99	0.01		0.99	0.01		0.98	0.01	**
Male Gender (Female ref.)							1.02	0.20		1.06	0.20		1.08	0.20		1.08	0.19	
Any English Usage (No English Usage)							0.76	0.14		0.70	0.13	+	0.74	0.14		0.70	0.15	+
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.41	0.35		1.39	0.34		1.17	0.28	
Widowed, Separated, Divorced/Annulled, Other										1.44	0.37		1.42	0.37		1.33	0.34	
Never Married										1.17	0.26		1.19	0.26		1.06	0.23	
High Isolation (Low ref.)										3.53	0.69	***	3.47	0.68	***	3.09	0.58	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.90	0.23		0.85	0.19	
Some College													0.94	0.24		1.01	0.22	
College Degree and Above													0.79	0.20		0.76	0.18	
Currently Employed (Not Employed ref.)													0.86	0.11		0.71	0.09	**
Health Factors																		
Hours of Sleep Per Night																0.68	0.03	***
General Health																1.66	0.13	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.8.1 Weighted Mixed Model Regression of Sleep Disturbance on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-0.19	0.09	*	-0.17	0.09	+	-0.13	0.09		-0.13	0.09		-0.18	0.10	+
Migrant status (non-migrant ref.)	-2.08	0.15	***	-2.05	0.16	***	-1.85	0.16	***	-1.87	0.16	***	-1.30	0.17	***
Survey Wave x Migrant	-0.30	0.13	*	-0.26	0.12	*	-0.26	0.12	*	-0.23	0.12	+	-0.21	0.12	+
Demographic Factors															
Age in Years				-0.01	0.01	*	-0.01	0.01		-0.01	0.01		-0.03	0.01	***
Male Gender (Female ref.)				-0.12	0.12		-0.11	0.12		-0.09	0.12		-0.07	0.11	
Any English Usage (No English Usage)				-0.25	0.15	+	-0.33	0.15	*	-0.31	0.15	*	-0.28	0.15	+
Social Factors															
Marital Status (Married ref.)															
Living-In							0.73	0.27	**	0.72	0.27	**	0.58	0.25	*
Widowed, Separated, Divorced/Annulled, Other							0.65	0.27	*	0.65	0.27	*	0.65	0.24	**
Never Married							0.21	0.18		0.22	0.18		0.07	0.17	
High Isolation (Low ref.)							1.24	0.16	***	1.23	0.16	***	1.07	0.15	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															

High School Graduate										-0.19	0.21		-0.16	0.19	
Some College										-0.18	0.20		-0.05	0.18	
College Degree and Above										-0.28	0.19		-0.21	0.18	
Currently Employed (Not Employed ref.)										-0.14	0.16		-0.24	0.15	
Health Factors															
Hours of Sleep Per Night													-0.34	0.04	***
General Health													0.69	0.07	***
Constant	10.40	0.12	***	10.90	0.23	***	10.23	0.30	***	10.53	0.36	***	11.43	0.51	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.14	0.05		2.14	0.05		2.04	0.05		2.03	0.05		1.82	0.05	
Residual	1.90	0.05		1.90	0.05		1.88	0.05		1.88	0.05		1.81	0.04	
Panel C: Model Fit															
AIC	33486.48			33476.31			33235.98			33237.46			32495.51		
BIC	33524.18			33532.87			33317.68			33344.29			32614.91		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 4.8.2 Weighted Binary Mixed Model Regression of Categorical Sleep Disturbance on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.79	0.06	**	0.80	0.06	**	0.82	0.07	*	0.82	0.07	*	0.77	0.07	**
Migrant status (non-migrant ref.)	0.28	0.04	***	0.29	0.04	***	0.32	0.05	***	0.32	0.05	***	0.42	0.08	***
Survey Wave x Migrant Status	0.98	0.10		1.00	0.11		0.97	0.11		0.98	0.11		0.99	0.12	
Demographic Factors															
Age in Years				0.98	0.01	**	0.99	0.01	*	0.99	0.01	*	0.97	0.01	***
Male Gender (Female ref.)				0.94	0.15		0.98	0.15		1.00	0.15		1.02	0.15	
Any English Usage (No English Usage)				0.85	0.13		0.79	0.13		0.82	0.13		0.75	0.16	
Social Factors															
Marital Status (Married ref.)															
Living-In							1.07	0.22		1.05	0.21		0.91	0.19	
Widowed, Separated, Divorced/Annulled, Other							1.31	0.31		1.27	0.29		1.25	0.29	
Never Married							1.04	0.18		1.05	0.18		0.95	0.17	
High Isolation (Low ref.)							2.77	0.41	***	2.72	0.41	***	2.59	0.40	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate										0.77	0.15		0.74	0.14	+
Some College										0.88	0.17		0.93	0.16	
College Degree and Above										0.70	0.13	+	0.66	0.12	*
Currently Employed (Not Employed ref.)										0.95	0.10		0.80	0.09	+
Health Factors															
Hours of Sleep Per Night													0.73	0.03	***

General Health											1.49	0.11	***
Constant	1.08	0.14		1.95	0.53	*	1.36	0.41		1.83	0.68	9.71	4.88	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

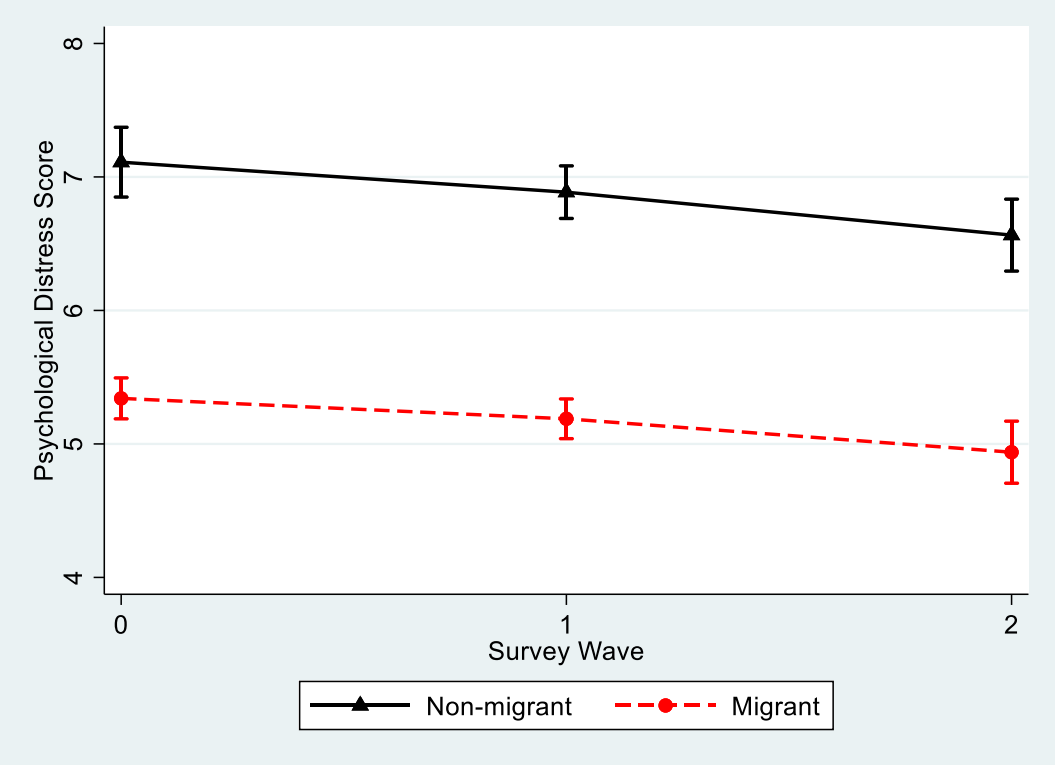
Table 4.8.3 Weighted Binary Mixed Model Regression of Categorical Sleep Disturbance on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.79	0.07	**	0.81	0.07	*	0.84	0.08	*	0.84	0.08	+	0.79	0.07	**
Migrant status (non-migrant ref.)	0.15	0.03	***	0.16	0.03	***	0.19	0.04	***	0.19	0.04	***	0.28	0.07	***
Survey Wave x Migrant Status	0.83	0.10		0.85	0.11		0.83	0.11		0.85	0.11		0.87	0.11	
Demographic Factors															
Age in Years				0.99	0.01	*	0.99	0.01		0.99	0.01		0.98	0.01	**
Male Gender (Female ref.)				1.02	0.20		1.06	0.20		1.08	0.20		1.08	0.19	
Any English Usage (No English Usage)				0.79	0.14		0.74	0.14		0.76	0.14		0.72	0.16	
Social Factors															
Marital Status (Married ref.)															
Living-In							1.36	0.34		1.35	0.34		1.14	0.27	
Widowed, Separated, Divorced/Annulled, Other							1.39	0.36		1.38	0.36		1.30	0.33	
Never Married							1.12	0.25		1.15	0.25		1.03	0.22	
High Isolation (Low ref.)							3.59	0.70	***	3.52	0.69	***	3.13	0.59	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate										0.90	0.23		0.85	0.19	
Some College										0.94	0.24		1.00	0.22	

College Degree and Above	0.79	0.20	0.76	0.18	
Currently Employed (Not Employed ref.)	0.89	0.12	0.73	0.10	*
Health Factors					
Hours of Sleep Per Night			0.68	0.03	***
General Health			1.65	0.13	***

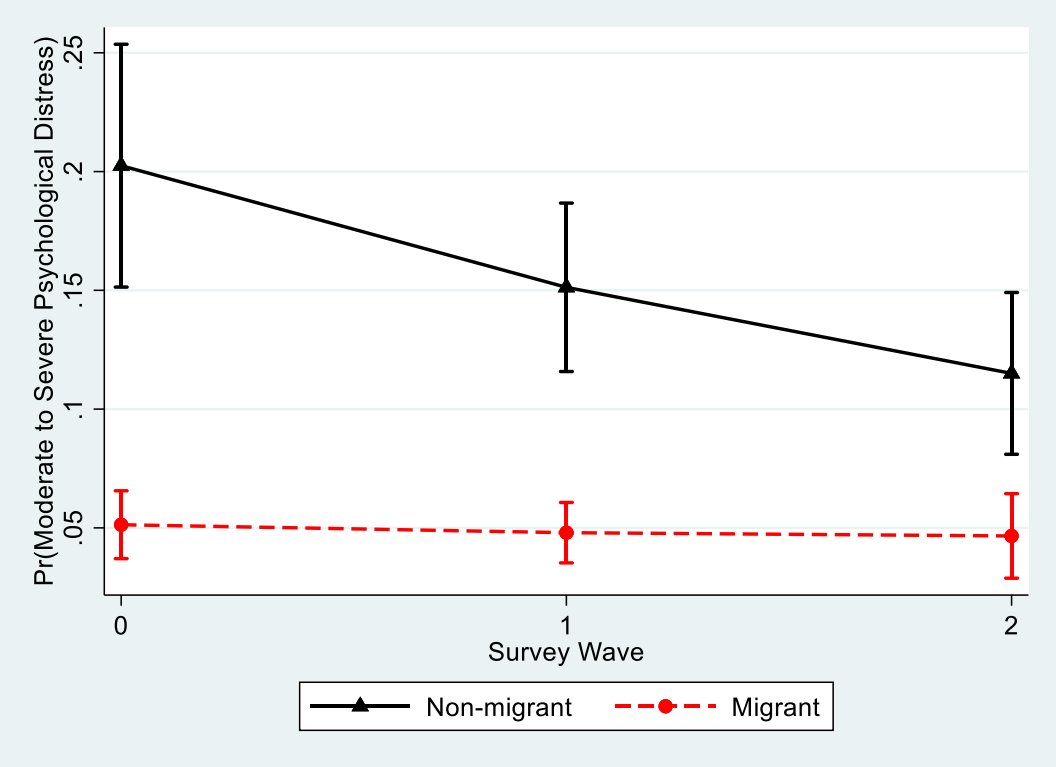
Note. + p < .10, *p < .05, **p < .01, ***p <.001

Figure 4.1.1 Psychological Distress Over Time by Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1,635 individuals, 3,958 observations)



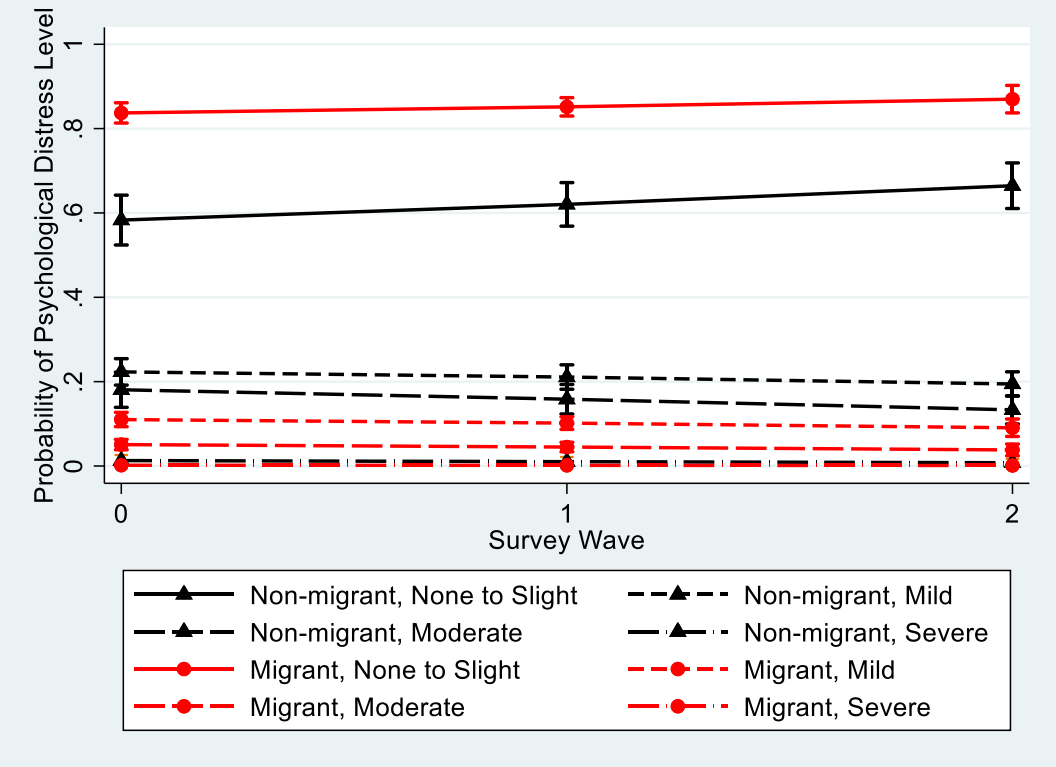
Note. Figure based on Model 2 of Table 4.6.1 (adjusted for demographic factors).

Figure 4.1.2 Predicted Probability of Moderate to Severe Psychological Distress Over Time by Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1,635 individuals, 3,958 observations)



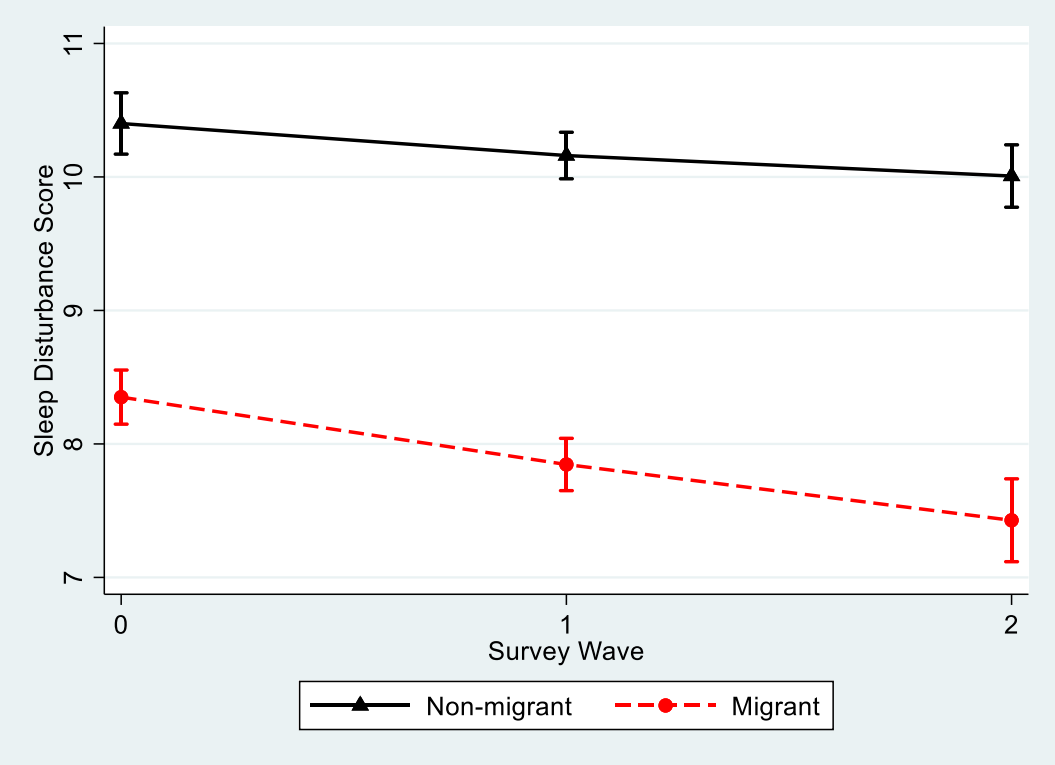
Note. Figure based on Model 2 of Table 4.6.2 (adjusted for demographic factors).

Figure 4.1.3 Predicted Probability Psychological Distress Over Time by Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1,635 individuals, 3,958 observations)



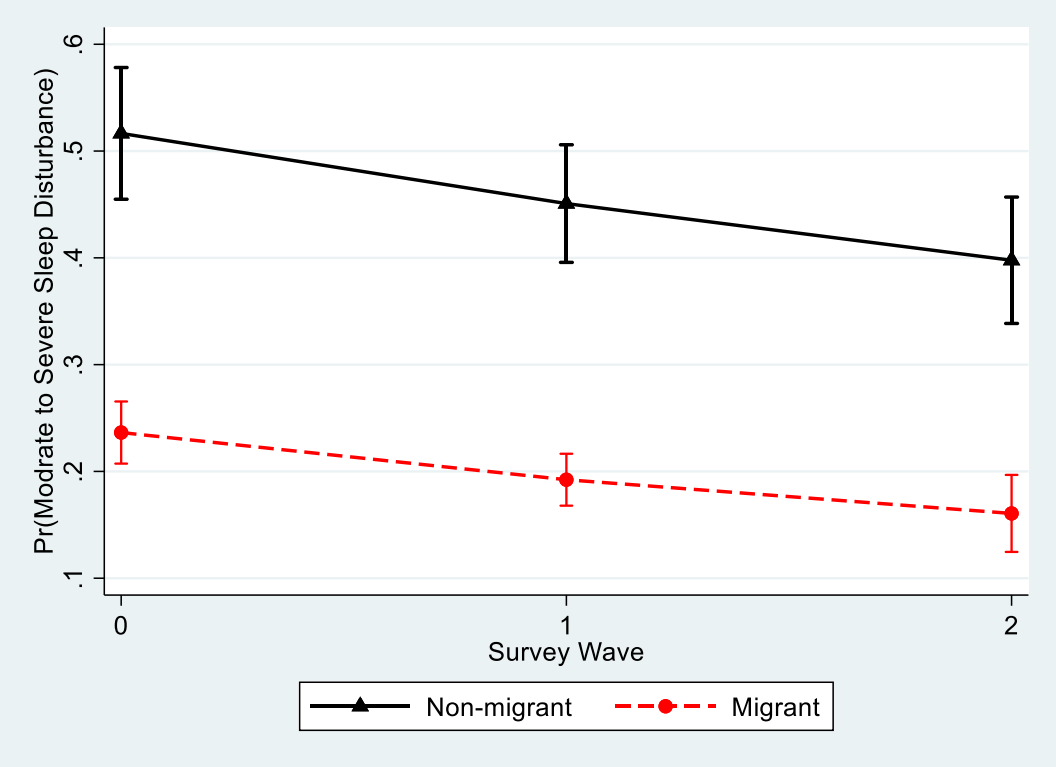
Note. Figure is based on Model 2 of Table 4.6.3 (adjusted for demographic factors). Severity (e.g., "None to Slight") are representative of levels of psychological distress.

Figure 4.2.1 Sleep Disturbance Over Time by Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1,635 individuals, 3,958 observations)



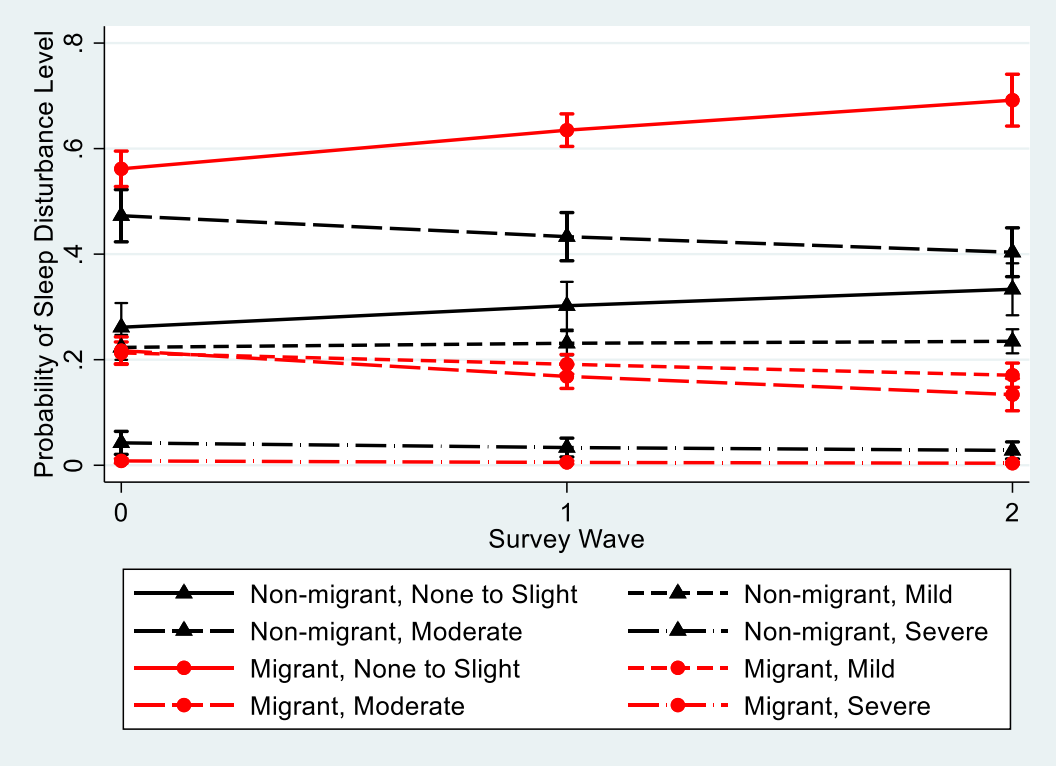
Note. Figure based on Model 2 of Table 4.8.1 (adjusted for demographic factors).

Figure 4.2.2 Predicted Probability of Moderate to Severe Sleep Disturbance Over Time by Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1,635 individuals, 3,958 observations)



Note. Figure based on Model 2 of Table 4.8.2 (adjusted for demographic factors).

Figure 4.2.3 Predicted Probability of Sleep Disturbance Category Over Time by Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1,635 individuals, 3,958 observations)



Note. Figure based on Model 2 of Table 4.3.2 (adjusted for demographic factors). Severity (e.g., "None to Slight") are representative of levels of sleep disturbance.

Table 5.1 Weighted Baseline Sample Characteristics by Migrant Status, Health of Philippine Emigrants Study (HoPES), n = 1633

	Total (n = 1633)	Non-Migrant (n = 801)	Migrant (n = 832)	p-value
	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	
Panel A: Key Outcomes				
Everyday Discrimination Score (Chronicity Weighted)	62.0 (118.0)	75.8 (129.0)	48.7 (129.0)	< .001
Every Discrimination Score (Frequency Summed)	4.3 (4.3)	4.9 (4.5)	3.8 (4.0)	< .001
Every Discrimination Score (Situation-Based Calculated)	2.0 (1.6)	2.1 (1.6)	1.9 (1.6)	.001
Social Resources Score	7.7 (2.4)	7.3 (2.5)	8.0 (2.4)	< .001
Financial Strain				< .001
Very Low	18.7%	10.3%	26.9%	
Low	51.3%	46.9%	55.5%	
Medium	24.5%	32.9%	16.4%	
High	5.5%	10.0%	1.1%	
Panel B: Covariates				
Demographic Factors				
Mean Age in Years	37.0 (11.5)	37.0 (11.4)	36.9 (11.6)	.817
Male Gender	33.6%	33.6%	33.6%	.996
Any English Language Used During Interview	8.8%	4.5%	12.9%	< .001
Social Factors				
Marital Status				< .001
Married	40.6%	44.8%	36.5%	
Living-In	15.5%	20.6%	10.6%	
Widowed, Separated, Divorced/Annulled	7.4%	7.0%	7.7%	
Never Married	36.6%	27.6%	45.1%	

High Social Isolation	14.8%	20.7%	9.2%	< .001
Socioeconomic Factors				
Educational Attainment				< .001
Less than high school	10.3%	12.8%	8.0%	
High School Graduate	18.6%	16.2%	20.9%	
Some College	27.6%	37.4%	18.2%	
College Degree and Above	43.5%	33.7%	52.9%	
Currently Employed	41.5%	60.8%	22.9%	< .001
Discrimination Type				
Age				.210
Never Experienced Discrimination/No	78.3%	76.9%	79.5%	
Maybe/Yes	21.7%	23.1%	20.5%	
Gender or Sex				.033
Never Experienced Discrimination/No	77.1%	74.8%	79.4%	
Maybe/Yes	22.9%	25.2%	20.7%	
Height				.345
Never Experienced Discrimination/No	85.0%	84.2%	85.9%	
Maybe/Yes	15.0%	15.8%	14.1%	
Weight				.008
Never Experienced Discrimination/No	84.4%	81.9%	86.7%	
Maybe/Yes	15.6%	18.1%	13.3%	
Socioeconomic Status				< .001
Never Experienced Discrimination/No	64.1%	58.0%	70.0%	
Maybe/Yes	35.9%	42.0%	30.0%	
Race				.002
Never Experienced Discrimination/No	53.6%	49.6%	57.4%	
Maybe/Yes	46.4%	50.4%	42.6%	
Religion				.312
Never Experienced Discrimination/No	91.3%	92.1%	90.6%	
Maybe/Yes	8.7%	7.9%	9.4%	

Table 5.2.1 Weighted Baseline Multivariable Ordinal Logistic Regression of Financial Strain (4-Categories) on Migrant Status, Health of Philippine Emigrants Study (n = 1633)

	Model 1		Model 2		Model 3		Model 4	
VARIABLES	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Migrant Status (non-migrant ref.)	0.28***	0.23 - 0.35	0.29***	0.23 - 0.35	0.30***	0.25 - 0.37	0.28***	0.22 - 0.35
Demographic Factors								
Age in Years			1.03***	1.02 - 1.03	1.03***	1.02 - 1.04	1.03***	1.02 - 1.04
Male Gender (Female ref.)			1.25*	1.02 - 1.54	1.25*	1.01 - 1.53	1.28*	1.03 - 1.58
Any English Use During Interview (None ref.)			0.70+	0.49 - 1.00	0.71+	0.49 - 1.01	0.83	0.58 - 1.19
Social Factors								
Marital Status (Married ref.)								
Living-In					1.53**	1.13 - 2.07	1.52**	1.12 - 2.07
Widowed, Separated, Divorced/Annulled					1.48+	0.99 - 2.24	1.50+	1.00 - 2.27
Never Married					1.17	0.90 - 1.50	1.21	0.94 - 1.55
High Isolation (Low ref.)					1.61**	1.21 - 2.14	1.51**	1.13 - 2.02
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate							0.86	0.59 - 1.24
Some College							0.67*	0.47 - 0.96
College Degree and Above							0.53***	0.37 - 0.75
Currently Employed (None ref.)							0.79+	0.63 - 1.00

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.2.2 Weighted Baseline Multivariable Ordinal Logistic Regression of Financial Strain (3-Categories) on Migrant Status, Health of Philippine Emigrants Study (n = 1633)

	Model 1		Model 2		Model 3		Model 4	
VARIABLES	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Migrant Status (non-migrant ref.)	0.29***	0.24 - 0.36	0.30***	0.24 - 0.36	0.31***	0.25 - 0.39	0.29***	0.23 - 0.37
Demographic Factors								
Age in Years			1.02***	1.02 - 1.03	1.03***	1.02 - 1.04	1.03***	1.02 - 1.04
Male Gender (Female ref.)			1.27*	1.03 - 1.56	1.26*	1.02 - 1.56	1.29*	1.04 - 1.59
Any English Use During Interview (None ref.)			0.71+	0.49 - 1.02	0.71+	0.50 - 1.03	0.84	0.58 - 1.21
Social Factors								
Marital Status (Married ref.)								
Living-In					1.46*	1.08 - 1.97	1.45*	1.07 - 1.97
Widowed, Separated, Divorced/Annulled					1.39	0.93 - 2.08	1.41+	0.94 - 2.13
Never Married					1.14	0.88 - 1.48	1.18	0.92 - 1.53
High Isolation (Low ref.)					1.52**	1.14 - 2.01	1.43*	1.08 - 1.90
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate							0.94	0.66 - 1.35
Some College							0.73+	0.51 - 1.03
College Degree and Above							0.57**	0.41 - 0.80
Currently Employed (None ref.)							0.82+	0.65 - 1.03

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.3.1 Weighted Baseline Ordinary Least Squares Regression of Everyday Discrimination Score (Chronicity-Based) on Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1633)

	Model 1		Model 2		Model 3		Model 4	
VARIABLES	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Migrant Status (non-migrant ref.)	-27.10***	-38.57 - -15.64	-27.57***	-38.77 - -16.37	-19.70***	-31.42 - -7.99	-14.92*	-27.39 - -2.45
Demographic Factors								
Age in Years			-1.64***	-2.13 - -1.16	-1.64***	-2.28 - -1.00	-1.89***	-2.56 - -1.23
Male Gender (Female ref.)			17.83**	5.43 - 30.23	18.99**	6.71 - 31.27	18.31**	6.20 - 30.43
Any English Use During Interview (None ref.)			2.88	-14.02 - 19.79	3.18	-13.53 - 19.89	11.27	-5.49 - 28.04
Social Factors								
Marital Status (Married ref.)								
Living-In					14.29	-3.19 - 31.77	13.17	-4.47 - 30.80
Widowed, Separated, Divorced/Annulled					17.88	-6.05 - 41.82	16.49	-7.29 - 40.26
Never Married					-0.90	-16.59 - 14.80	0.32	-15.20 - 15.85
High Isolation (Low ref.)					55.73***	33.92 - 77.55	52.51***	30.98 - 74.04
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate							-31.51*	-59.85 - -3.16
Some College							-38.34**	-66.13 - -10.55
College Degree and Above							-54.43***	-80.47 - -28.40
Currently Employed (None ref.)							4.22	-8.25 - 16.68
Constant	75.81***	66.74 - 84.88	130.56***	108.95 - 152.16	114.62***	87.01 - 142.23	159.66***	117.54 - 201.78
R-squared	0.01		0.04		0.07		0.09	

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.3.2 Weighted Baseline Ordinary Least Squares Regression of Everyday Discrimination Score (Frequency Summed) on Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1632)

	Model 1		Model 2		Model 3		Model 4	
VARIABLES	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Migrant Status (non-migrant ref.)	-1.04***	-1.45 - -0.62	-1.12***	-1.53 - -0.71	-0.82***	-1.24 - -0.41	-0.69**	-1.14 - -0.23
Demographic Factors								
Age in Years			-0.08***	-0.09 - -0.06	-0.07***	-0.09 - -0.05	-0.08***	-0.10 - -0.05
Male Gender (Female ref.)			0.61**	0.16 - 1.06	0.66**	0.21 - 1.10	0.65**	0.20 - 1.09
Any English Use During Interview (None ref.)			0.87*	0.19 - 1.54	0.89**	0.22 - 1.56	1.00**	0.33 - 1.67
Social Factors								
Marital Status (Married ref.)								
Living-In					0.47	-0.15 - 1.09	0.46	-0.16 - 1.09
Widowed, Separated, Divorced/Annulled					0.75+	-0.05 - 1.55	0.68+	-0.13 - 1.49
Never Married					0.13	-0.42 - 0.68	0.14	-0.40 - 0.69
High Isolation (Low ref.)					2.42***	1.76 - 3.08	2.38***	1.73 - 3.04
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate							-0.43	-1.23 - 0.37
Some College							-0.27	-1.03 - 0.50
College Degree and Above							-0.72*	-1.44 - -0.01
Currently Employed (None ref.)							0.12	-0.33 - 0.57
Constant	4.86***	4.54 - 5.18	7.46***	6.71 - 8.21	6.62***	5.67 - 7.58	7.08***	5.83 - 8.33
R-squared	0.01		0.07		0.11		0.11	

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.3.3 Weighted Baseline Ordinary Least Squares Regression of Everyday Discrimination Score (Situation Based) on Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1633)

	Model 1		Model 2		Model 3		Model 4	
VARIABLES	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Migrant Status (non-migrant ref.)	-0.27***	-0.43 - -0.11	-0.31***	-0.47 - -0.15	-0.22**	-0.38 - -0.06	-0.20*	-0.38 - -0.02
Demographic Factors								
Age in Years			-0.02***	-0.03 - -0.02	-0.02***	-0.03 - -0.01	-0.02***	-0.03 - -0.01
Male Gender (Female ref.)			0.06	-0.11 - 0.23	0.07	-0.09 - 0.24	0.07	-0.09 - 0.24
Any English Use During Interview (None ref.)			0.40**	0.13 - 0.66	0.40**	0.14 - 0.67	0.38**	0.11 - 0.65
Social Factors								
Marital Status (Married ref.)					0.10	-0.15 - 0.34	0.10	-0.14 - 0.34
Living-In					0.12	-0.20 - 0.45	0.10	-0.22 - 0.43
Widowed, Separated, Divorced/Annulled					0.07	-0.14 - 0.28	0.06	-0.15 - 0.27
Never Married					0.79***	0.56 - 1.01	0.80***	0.58 - 1.02
High Isolation (Low ref.)								
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate							-0.08	-0.36 - 0.21
Some College							0.10	-0.17 - 0.38
College Degree and Above							0.05	-0.21 - 0.32
Currently Employed (None ref.)							0.01	-0.16 - 0.19
Constant	2.13***	2.01 - 2.24	2.95***	2.67 - 3.23	2.65***	2.28 - 3.02	2.59***	2.14 - 3.05
R-squared	0.01		0.04		0.07		0.07	

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.4 Weighted Baseline Multivariable Ordinary Least Squares Regression of Social Resources on Migrant Status, Health of Philippine Emigrants Study (HoPES) (n = 1633)

	Model 1		Model 2		Model 3		Model 4	
VARIABLES	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Migrant Status (non-migrant ref.)	0.73***	0.49 - 0.96	0.69***	0.45 - 0.94	0.70***	0.44 - 0.95	0.76***	0.48 - 1.04
Demographic Factors								
Age in Years			0.01+	-0.00 - 0.02	0.01+	-0.00 - 0.02	0.01	-0.00 - 0.02
Male Gender (Female ref.)			-0.05	-0.31 - 0.20	-0.06	-0.32 - 0.19	-0.08	-0.33 - 0.18
Any English Use During Interview (None ref.)			0.40*	0.03 - 0.76	0.39*	0.02 - 0.76	0.25	-0.13 - 0.63
Social Factors								
Marital Status (Married ref.)								
Living-In					0.03	-0.34 - 0.40	0.03	-0.34 - 0.39
Widowed, Separated, Divorced/Annulled					-0.19	-0.72 - 0.34	-0.19	-0.72 - 0.34
Never Married					-0.01	-0.34 - 0.31	-0.04	-0.36 - 0.28
High Isolation (Low ref.)					-0.03	-0.38 - 0.31	0.02	-0.33 - 0.36
Socioeconomic Factors								
Educational Attainment (Less than high school ref.)								
High School Graduate							-0.18	-0.68 - 0.31
Some College							0.03	-0.45 - 0.50
College Degree and Above							0.28	-0.17 - 0.74
Currently Employed (None ref.)							0.22+	-0.04 - 0.49
Constant	7.28***	7.11 - 7.46	6.92***	6.51 - 7.33	6.91***	6.35 - 7.48	6.78***	6.04 - 7.53
R-squared	0.02		0.03		0.03		0.03	

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.5.1 Weighted Mixed Model Ordinal Logistic Regression of Financial Strain (4-Categories) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

	Model 1			Model 2			Model 3			Model 4			Model 5		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.61	0.04	***	0.58	0.04	***	0.57	0.04	***	0.58	0.04	***	0.63	0.04	***
Migrant status (non-migrant ref.)				0.11	0.02	***	0.11	0.02	***	0.13	0.02	***	0.10	0.02	***
Demographic Factors															
Age in Years							1.04	0.01	***	1.05	0.01	***	1.04	0.01	***
Male Gender (Female ref.)							1.02	0.18		1.00	0.18		1.15	0.20	
Any English Usage (No English Usage)							0.79	0.12		0.82	0.13		1.06	0.17	
Social Factors															
Marital Status (Married ref.)															
Living-In										2.31	0.53	***	2.24	0.53	**
Widowed, Separated, Divorced/Annulled, Other										1.91	0.54	*	2.00	0.55	*
Never Married										1.50	0.25	*	1.68	0.28	**
High Isolation (Low ref.)										1.57	0.25	**	1.47	0.23	*
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.63	0.17	+
Some College													0.44	0.11	**
College Degree and Above													0.29	0.07	***

Currently Employed (Not Employed ref.)	0.43	0.05	***

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.5.2 Weighted Mixed Model Ordinal Logistic Regression of Financial Strain (3-Categories) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

	Model 1			Model 2			Model 3			Model 4			Model 5		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.60	0.04	***	0.57	0.04	***	0.56	0.04	***	0.58	0.04	***	0.63	0.04	***
Migrant status (non-migrant ref.)				0.11	0.02	***	0.12	0.02	***	0.13	0.02	***	0.11	0.02	***
Demographic Factors															
Age in Years							1.03	0.01	***	1.04	0.01	***	1.04	0.01	***
Male Gender (Female ref.)							0.96	0.16		0.94	0.16		1.06	0.18	
Any English Usage (No English Usage)							0.80	0.13		0.83	0.14		1.07	0.18	
Social Factors															
Marital Status (Married ref.)															
Living-In										2.23	0.54	**	2.16	0.54	**
Widowed, Separated, Divorced/Annulled, Other										1.87	0.49	*	1.96	0.50	**
Never Married										1.50	0.26	*	1.68	0.28	**
High Isolation (Low ref.)										1.55	0.26	**	1.45	0.25	*
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.77	0.18	
Some College													0.56	0.13	**
College Degree and Above													0.37	0.09	***

Currently Employed (Not Employed ref.)	0.44	0.06	***

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.6.1 Weighted Mixed Model Regression of Financial Strain (4-Category) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.81	0.07	*	0.77	0.07	**	0.78	0.07	**	0.78	0.07	**
Migrant status (non-migrant ref.)	0.19	0.03	***	0.18	0.03	***	0.20	0.04	***	0.15	0.03	***
Survey Wave x Migrant	0.41	0.05	***	0.42	0.05	***	0.45	0.06	***	0.53	0.07	***
Demographic Factors												
Age in Years				1.04	0.01	***	1.04	0.01	***	1.04	0.01	***
Male Gender (Female ref.)				1.02	0.18		1.02	0.18		1.15	0.20	
Any English Usage (No English Usage)				1.00	0.16		1.00	0.17		1.22	0.20	
Social Factors												
Marital Status (Married ref.)												
Living-In							1.98	0.46	**	1.98	0.47	**
Widowed, Separated, Divorced/Annulled, Other							1.70	0.47	+	1.82	0.50	*
Never Married							1.27	0.22	*	1.47	0.24	*
High Isolation (Low ref.)							1.66	0.26	**	1.53	0.24	*
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										0.62	0.17	+
Some College										0.44	0.11	**
College Degree and Above										0.29	0.07	***
Currently Employed (Not Employed ref.)										0.48	0.06	***

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.6.2 Weighted Mixed Model Regression of Financial Strain (3-Category) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Survey Wave	0.81	0.07	*	0.78	0.07	**	0.78	0.07	**	0.79	0.07	**
Migrant status (non-migrant ref.)	0.20	0.04	***	0.20	0.04	***	0.22	0.04	***	0.16	0.03	***
Survey Wave x Migrant	0.41	0.05	***	0.42	0.05	***	0.44	0.06	***	0.52	0.07	***
Demographic Factors												
Age in Years				1.03	0.01	***	1.04	0.01	***	1.04	0.01	***
Male Gender (Female ref.)				0.96	0.16		0.95	0.16		1.06	0.18	
Any English Usage (No English Usage)				1.00	0.17		1.01	0.18		1.22	0.21	
Social Factors												
Marital Status (Married ref.)												
Living-In							1.92	0.46	**	1.92	0.48	**
Widowed, Separated, Divorced/Annulled, Other							1.65	0.44	+	1.76	0.45	*
Never Married							1.29	0.23		1.48	0.25	*
High Isolation (Low ref.)							1.65	0.27	**	1.52	0.26	*
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										0.77	0.18	
Some College										0.56	0.12	**
College Degree and Above										0.37	0.09	***
Currently Employed (Not Employed ref.)										0.50	0.07	***

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.7.1 Weighted Mixed Model Regression of Everyday Discrimination (Chronicity Calculated) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-8.85	2.70	**	-9.57	2.73	***	-8.77	2.72	**	-7.61	2.81	**	-6.23	2.97	*
Migrant status (non-migrant ref.)				-23.85	4.40	***	-26.14	4.63	***	-20.15	4.92	***	-19.32	4.81	***
Demographic Factors															
Age in Years							-0.97	0.18	***	-0.90	0.21	***	-1.08	0.23	***
Male Gender (Female ref.)							16.88	4.78	***	17.61	4.75	***	19.26	4.72	***
Any English Usage (No English Usage)							3.02	5.52		-0.01	5.72		2.33	5.81	
Social Factors															
Marital Status (Married ref.)															
Living-In										16.17	12.78		14.46	12.47	
Widowed, Separated, Divorced/Annulled, Other										16.44	13.25		15.74	13.25	
Never Married										2.93	6.33		2.83	6.33	
High Isolation (Low ref.)										38.98	8.69	***	38.31	8.67	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-24.20	9.82	*
Some College													-26.19	10.25	*
College Degree and Above													-34.05	9.47	
Currently Employed (Not Employed ref.)													-9.74	5.89	+
Constant	60.66	3.04	***	73.09	4.20	***	103.69	8.33	***	87.40	10.60	***	123.67	15.65	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	75.36	4.30		74.37	4.28		73.26	4.36		70.59	4.37		70.23	4.30	
Residual	81.61	4.17		81.62	4.17		81.57	4.17		81.28	4.05		81.13	4.04	
Panel C: Model Fit															

AIC	88875.43	88847.26	88809.72	88685.45	88658.20
BIC	88900.57	88878.68	88859.99	88760.85	88758.75

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.7.2 Weighted Mixed Model Regression of Everyday Discrimination (Frequency Summed) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-0.80	0.08	***	-0.83	0.08	***	-0.78	0.08	***	-0.73	0.08	***	-0.69	0.08	***
Migrant status (non-migrant ref.)				-1.32	0.17	***	-1.46	0.17	***	-1.30	0.17	***	-1.32	0.18	***
Demographic Factors															
Age in Years							-0.06	0.01	***	-0.05	0.01	***	-0.05	0.01	***
Male Gender (Female ref.)							0.67	0.18	***	0.65	0.18	***	0.68	0.18	***
Any English Usage (No English Usage)							0.17	0.19		0.12	0.19		0.17	0.19	
Social Factors															
Marital Status (Married ref.)															
Living-In										0.48	0.28		0.45	0.28	
Widowed, Separated, Divorced/Annulled, Other										0.42	0.42		0.40	0.42	
Never Married										0.46	0.26	+	0.45	0.26	+
High Isolation (Low ref.)										1.34	0.24	***	1.33	0.24	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-0.22	0.31	
Some College													0.02	0.30	
College Degree and Above													-0.23	0.29	
Currently Employed (Not Employed ref.)													-0.30	0.18	+
Constant	4.38	0.11	***	5.07	0.15	***	7.17	0.31	***	6.27	0.42	***	6.52	0.53	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	3.05	0.09		2.98	0.08		2.87	0.09		2.76	0.08		2.77	0.08	
Residual	2.63	0.07		2.63	0.07		2.63	0.07		2.62	0.07		2.61	0.07	

Panel C: Model Fit					
AIC	38390.06	38328.85	38234.89	38100.33	38095.13
BIC	38415.2	38360.27	38285.16	38175.74	38195.67

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.7.3 Weighted Mixed Model Regression of Everyday Discrimination (Situation Based) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-0.38	0.03	***	-0.39	0.03	***	-0.37	0.03	***	-0.35	0.03	***	-0.34	0.03	***
Migrant status (non-migrant ref.)				-0.55	0.06	***	-0.58	0.07	***	-0.53	0.07	***	-0.57	0.07	***
Demographic Factors															
Age in Years							-0.02	0.00	***	-0.02	0.00	***	-0.02	0.00	***
Male Gender (Female ref.)							0.14	0.07		0.12	0.07	+	0.13	0.07	+
Any English Usage (No English Usage)							-0.02	0.08		-0.03	0.08		-0.02	0.08	
Social Factors															
Marital Status (Married ref.)															
Living-In										0.17	0.12		0.17	0.12	
Widowed, Separated, Divorced/Annulled, Other										0.07	0.18		0.07	0.17	
Never Married										0.20	0.12	+	0.19	0.12	
High Isolation (Low ref.)										0.43	0.09	***	0.44	0.09	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.05	0.11	
Some College													0.24	0.11	*
College Degree and Above													0.21	0.11	+
Currently Employed (Not Employed ref.)													-0.12	0.07	
Constant	2.03	0.04	***	7.63	0.09	***	3.13	0.12	***	2.78	0.17	***	2.61	0.20	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	1.19	0.02		1.16	0.02		1.12	0.02		1.09	0.02		1.09	0.02	
Residual	0.99	0.02		0.99	0.02		0.99	0.02		0.99	0.02		0.99	0.02	

Panel C: Model Fit					
AIC	23995.78	23923.79	23850.91	23750.14	23738.88
BIC	24020.92	23955.21	23901.18	23825.54	23839.42

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.8.1 Weighted Mixed Model Regression of Everyday Discrimination (Chronicity Calculated) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-8.44	3.99	*	-7.44	3.99	+	-6.00	4.07		-5.61	4.09	
Migrant status (non-migrant ref.)	-21.94	6.20	***	-24.03	6.25	***	-17.46	6.89	*	-18.08	6.66	**
Wave x Migrant	-2.56	5.32		-3.15	5.30		-3.97	5.46		-1.65	5.28	*
Demographic Factors												
Age in Years				-0.97	0.18	***	-0.93	0.21	***	-1.09	0.23	***
Male Gender (Female ref.)				16.81	4.79	***	17.70	4.74	***	19.24	4.72	***
Any English Usage (No English Usage)				3.83	5.39		0.74	5.59		2.57	5.73	
Social Factors												
Marital Status (Married ref.)												
Living-In							15.08	12.48		14.04	12.37	
Widowed, Separated, Divorced/Annulled, Other							15.46	13.29		15.33	13.30	
Never Married							1.52	6.51		2.26	6.43	
High Isolation (Low ref.)							39.34	8.83	***	38.46	8.81	***
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										-24.25	9.82	*
Some College										-26.17	10.25	*
College Degree and Above										-34.03	9.48	***

Currently Employed (Not Employed ref.)										-9.31	5.68	
Constant	72.02	5.06	***	102.45	8.56	***	87.34	10.62	***	123.46	15.71	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	74.38	4.28		73.27	4.36		70.60	4.37		70.22	4.31	
Residual	81.61	4.16		81.56	4.16		81.26	4.05		81.13	4.04	
Panel C: Model Fit												
AIC	88848.20			88810.16			88685.1			88659.82		
BIC	88885.90			88866.72			88766.79			88766.65		

Table 5.8.2 Weighted Mixed Model Regression of Everyday Discrimination (Frequency Summed) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-0.67	0.11	***	-0.60	0.11	***	-0.55	0.11	***	-0.55	0.11	***
Migrant status (non-migrant ref.)	-1.05	0.21	***	-1.18	0.21	***	-1.01	0.21	***	-1.04	0.22	***
Wave x Migrant	-0.38	0.16	*	-0.42	0.16	**	-0.43	0.16	**	-0.39	0.16	*
Demographic Factors												
Age in Years				-0.06	0.01	***	-0.06	0.01	***	-0.06	0.01	***
Male Gender (Female ref.)				0.66	0.18	***	0.66	0.18	***	0.68	0.18	***
Any English Usage (No English Usage)				0.28	0.19		0.20	0.19		0.22	0.19	
Social Factors												
Marital Status (Married ref.)												
Living-In							0.35	0.28		0.34	0.28	
Widowed, Separated, Divorced/Annulled, Other							0.30	0.43		0.29	0.43	
Never Married							0.29	0.26		0.29	0.26	
High Isolation (Low ref.)							1.38	0.25	***	1.37	0.25	***
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										-0.23	0.31	
Some College										0.02	0.30	
College Degree and Above										-0.22	0.29	
Currently Employed (Not Employed ref.)										-0.20	0.18	

Constant	4.91	0.16	***	7.00	0.31	***	6.28	0.41	***	6.48	0.53	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.98	0.08		2.87	0.09		2.76	0.08		2.77	0.08	
Residual	2.62	0.07		2.62	0.07		2.61	0.07		2.61	0.07	
Panel C: Model Fit												
AIC	38308.68			38210.5			38075.92			38077.26		
BIC	38346.39			38267.05			38157.61			38184.09		

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.8.3 Weighted Mixed Model Regression of Everyday Discrimination (Situation Based) on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	-0.28	0.04	***	-0.26	0.04	***	-0.24	0.04	***	-0.24	0.04	***
Migrant status (non-migrant ref.)	-0.37	0.08	***	-0.41	0.08	***	-0.35	0.08	***	-0.37	0.09	***
Wave x Migrant	-0.26	0.06	***	-0.26	0.06	***	-0.27	0.06	***	-0.26	0.06	***
Demographic Factors												
Age in Years				-0.02	0.00	***	-0.02	0.00	***	-0.02	0.00	***
Male Gender (Female ref.)				0.13	0.07	+	0.13	0.07	+	0.13	0.07	+
Any English Usage (No English Usage)				0.05	0.08		0.02	0.08		0.02	0.08	
Social Factors												
Marital Status (Married ref.)												
Living-In							0.09	0.12		0.09	0.12	
Widowed, Separated, Divorced/Annulled, Other							-0.01	0.17		-0.01	0.17	
Never Married							0.09	0.11		0.08	0.11	
High Isolation (Low ref.)							0.46	0.09	***	0.46	0.09	***
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										0.04	0.11	
Some College										0.24	0.11	*
College Degree and Above										0.21	0.11	+
Currently Employed (Not Employed ref.)										-0.05	0.08	
Constant	2.21	0.06	***	3.03	0.12	***	2.79	0.17	***	2.59	0.20	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	1.16	0.02		1.13	0.02		1.09	0.02		1.09	0.02	

Residual	0.99	0.02	0.99	0.02	0.98	0.02	0.98	0.02
Panel C: Model Fit								
AIC	23853.92		23779.64		23678.77		23676.37	
BIC	23891.62		23836.19		23760.46		23783.20	

Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.9 Weighted Mixed Model Regression of Social Resources on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	0.37	0.06	***	0.38	0.06	***	0.41	0.06	***	0.39	0.06	***	0.38	0.06	***
Migrant status (non-migrant ref.)				0.22	0.10	*	0.34	0.11	**	0.35	0.11	**	0.34	0.12	**
Demographic Factors															
Age in Years							0.00	0.00		-0.01	0.01	+	-0.01	0.01	
Male Gender (Female ref.)							-0.09	0.11		-0.08	0.11		-0.10	0.11	
Any English Usage (No English Usage)							-0.42	0.13	**	-0.43	0.13	**	-0.46	0.13	***
Social Factors															
Marital Status (Married ref.)															
Living-In										0.22	0.19		0.23	0.19	
Widowed, Separated, Divorced/Annulled, Other										-0.37	0.24		-0.37	0.24	
Never Married										-0.33	0.16	*	-0.35	0.16	*
High Isolation (Low ref.)										-0.37	0.15	*	-0.35	0.15	*
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-0.13	0.21	
Some College													0.13	0.19	
College Degree and Above													0.33	0.19	+
Currently Employed (Not Employed ref.)													0.10	0.12	
Constant	7.74	0.07	***	7.63	0.09	***	7.83	0.19	***	8.16	0.26	***	7.95	0.33	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	1.72	0.04		1.71	0.04		1.72	0.04		1.73	0.04		1.72	0.04	
Residual	1.82	0.04		1.82	0.04		1.81	0.04		1.80	0.04		1.80	0.04	

Panel C: Model Fit					
AIC	32380.59	32377.44	32347.84	32302.58	32295.53
BIC	32405.73	32408.86	32398.11	32377.99	32396.07

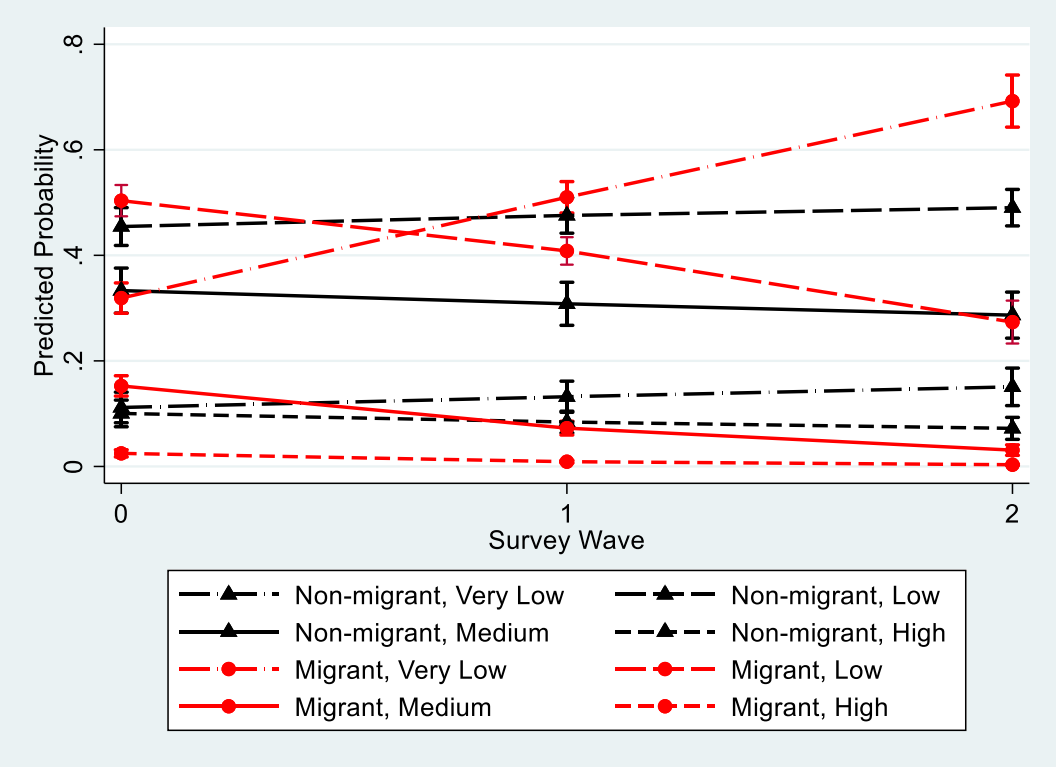
Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Table 5.10 Weighted Mixed Model Regression of Social Resources on Survey Wave and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Survey Wave	0.52	0.09	***	0.53	0.09	***	0.52	0.08	***	0.52	0.08	***
Migrant status (non-migrant ref.)	0.47	0.13	***	0.53	0.13	***	0.57	0.14	***	0.62	0.14	***
Survey Wave x Migrant	-0.33	0.12	**	-0.28	0.12	**	-0.32	0.11	**	-0.37	0.12	**
Demographic Factors												
Age in Years				-0.01	0.00		-0.01	0.01	*	-0.01	0.01	*
Male Gender (Female ref.)				-0.10	0.11		-0.07	0.11		-0.10	0.11	
Any English Usage (No English Usage)				-0.35	0.13	**	-0.37	0.13	**	-0.41	0.13	**
Social Factors												
Marital Status (Married ref.)												
Living-In							0.12	0.19		0.13	0.20	
Widowed, Separated, Divorced/Annulled, Other							-0.45	0.24	+	-0.47	0.24	+
Never Married							-0.45	0.16		-0.49	0.16	+
High Isolation (Low ref.)							-0.34	0.15	*	-0.32	0.15	*
Socioeconomic Factors												
Educational Attainment (Less than high school ref.)												
High School Graduate										-0.14	0.21	
Some College										0.13	0.19	
College Degree and Above										0.33	0.19	+
Currently Employed (Not Employed ref.)										0.20	0.12	+
Constant	7.49	0.11	***	7.72	0.19	***	8.17	0.26	***	7.91	0.33	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	1.71	0.04		1.72	0.04		1.73	0.04		1.72	0.04	
Residual	1.81	0.04		1.81	0.04		1.80	0.04		1.80	0.04	
Panel C: Model Fit												
AIC	32343.47			32325.14			32273.28			32257.89		
BIC	32381.17			32381.69			32354.97			32364.72		

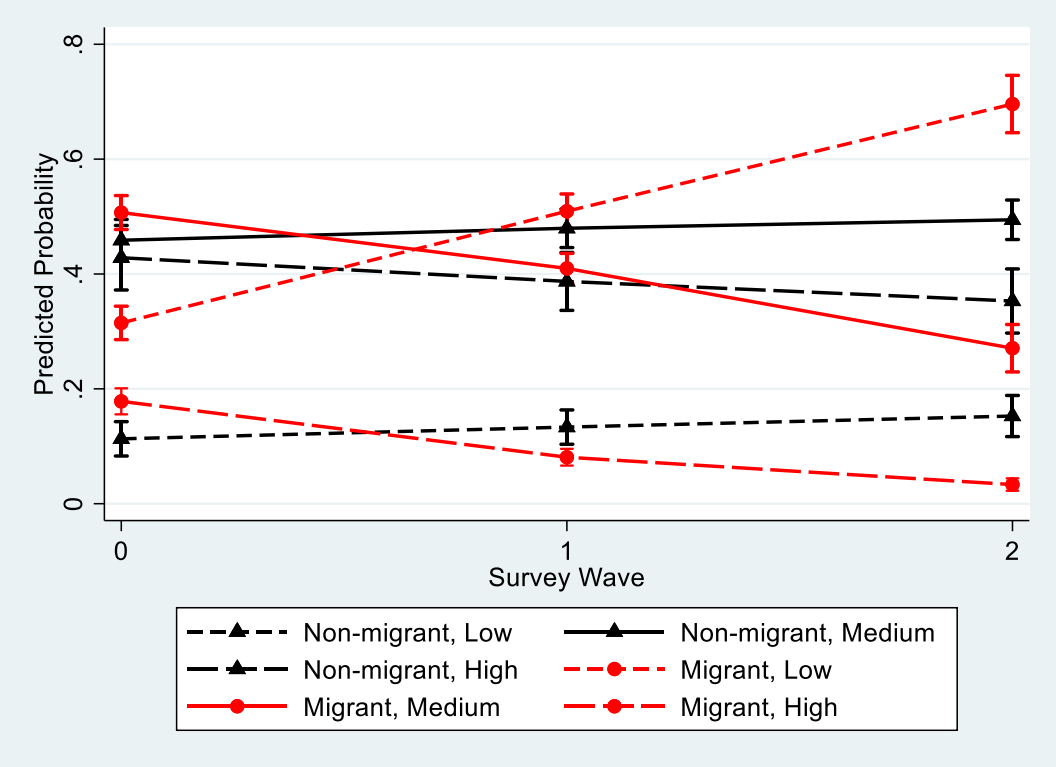
Note. + p < .10, * p < .05, ** p < .01, *** p < .001.

Figure 5.1 Predicted Probability of Financial Strain Categories (4-Category Version) Over Time by Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



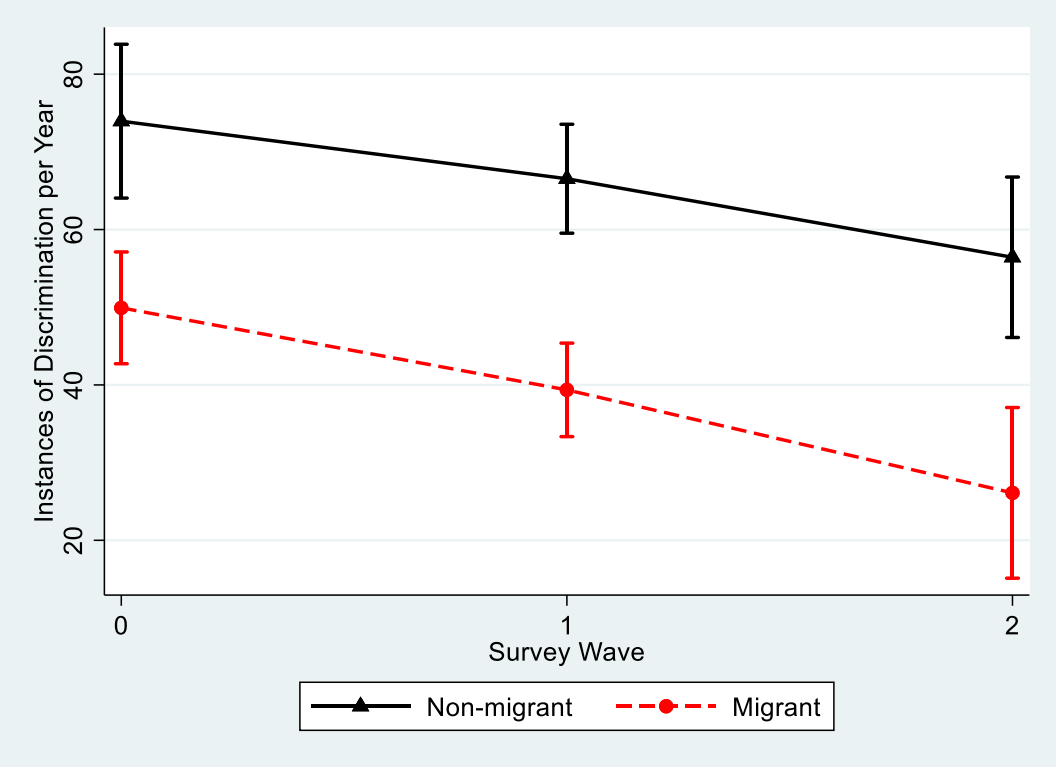
Note: Predicted probabilities account for age, gender, and interview language (Based on Table 5.6.1, Model 2). Levels (e.g., "Very Low") are representative of levels of financial strain.

Figure 5.2 Predicted Probability of Financial Strain Categories (3-Category Version) Over Time by Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



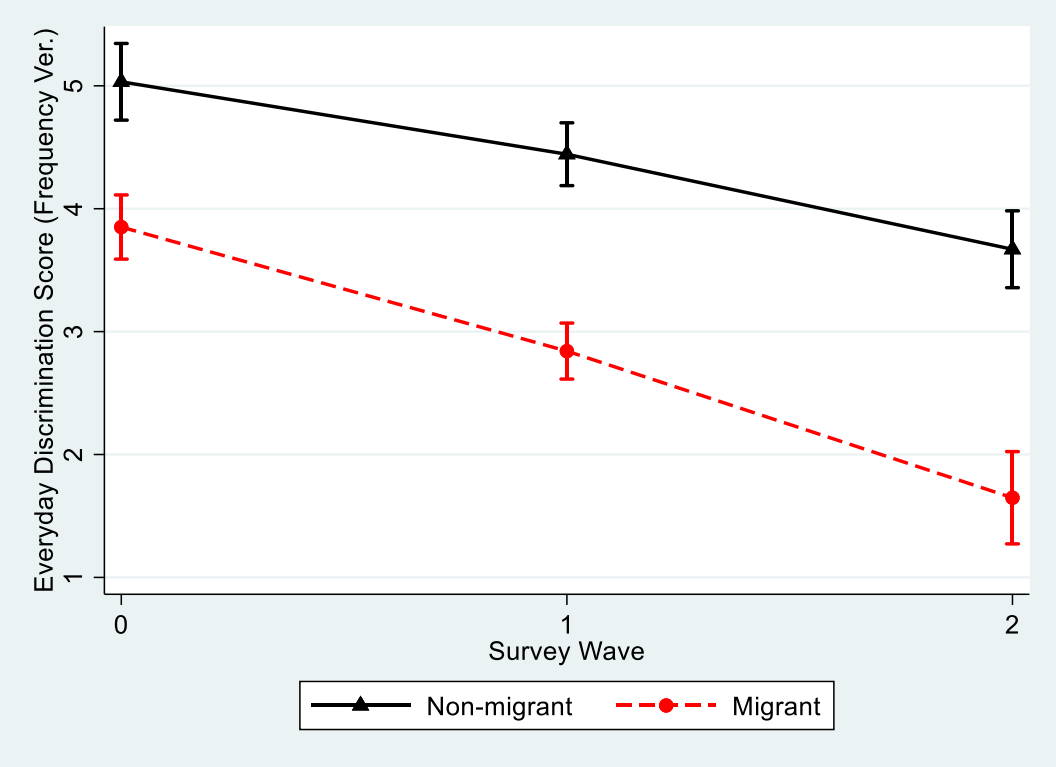
Note: Predicted probabilities account for age, gender, and interview language (Based on Table 5.6.2, Model 2). Levels (e.g., "Low") are representative of levels of financial strain.

Figure 5.3 Chronicity-Calculated Everyday Discrimination Score Over Time and by Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



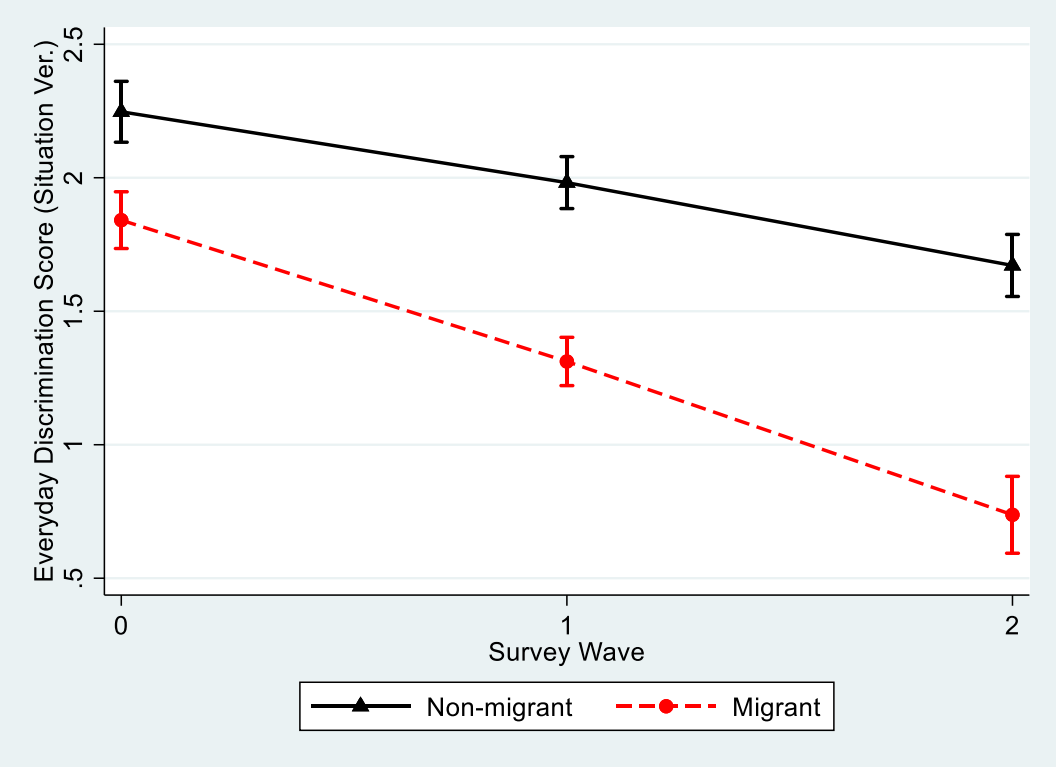
Note. Adjusted for demographic factors. Based on Table 5.8.1, Model 2 (Chronicity Calculated)

Figure 5.4 Frequency-Summed Everyday Discrimination Score Over Time and by Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



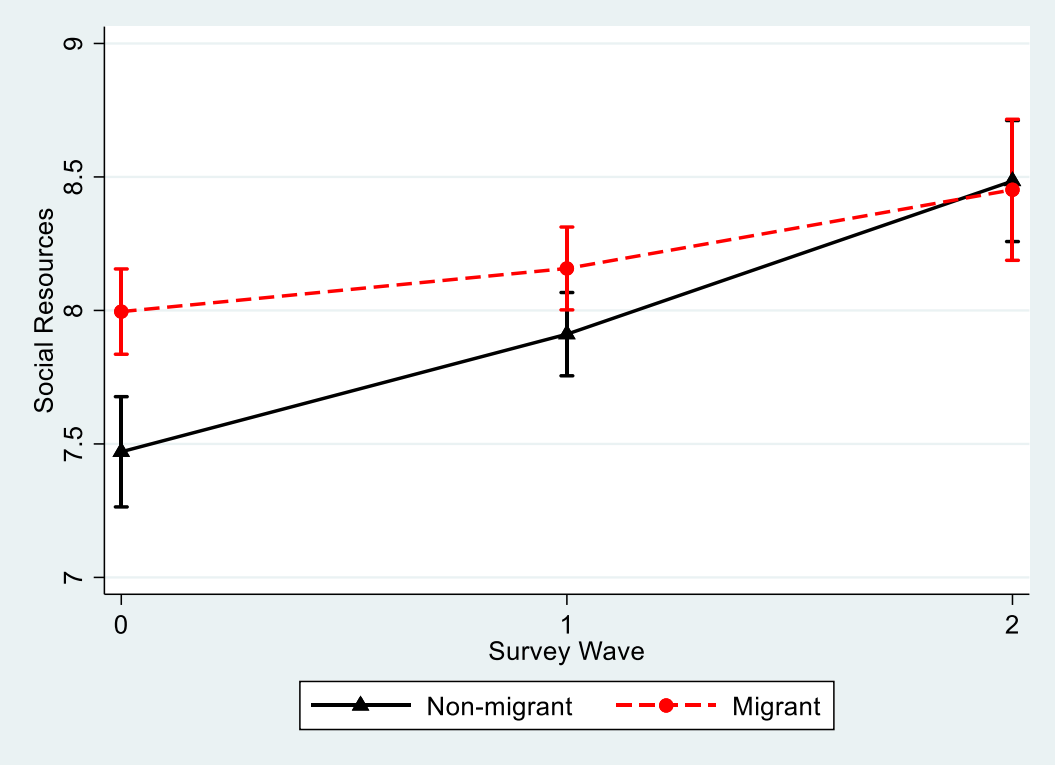
Note. Adjusted for demographic factors. Based on Table 5.8.2, Model 2 (Frequency Summed)

Figure 5.5 Situation Based Everyday Discrimination Score Over Time and by Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



Note. Adjusted for demographic factors. Based on Table 5.8.3, Model 2 (Situation Based)

Figure 5.6 Social Resources Score Over Time and by Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



Note. Predicted margin values account for age, gender, and interview language (Based on Table 5.10, Model 2).

Table 6.1.1 Weighted Multivariable Zero-Inflated Negative Binomial Regression of Baseline Decile-Calculated Allostatic Load on Financial Strain, Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1		Model 2		Model 3		Model 4		Model 5	
Panel A: Negative Binomial	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Financial Strain (Very low ref.)										
Low	0.03	0.08	-0.01	0.09	-0.00	0.09	-0.01	0.09	-0.01	0.09
Medium	0.15	0.10	0.04	0.10	0.04	0.10	0.01	0.10	0.02	0.10
High	0.21	0.15	0.03	0.15	0.02	0.15	-0.03	0.15	-0.02	0.15
Migrant Status (non-migrant ref.)			-0.16*	0.08	-0.14+	0.08	-0.18+	0.09	-0.18+	0.09
Demographic Factors										
Age in Years			0.02***	0.00	0.02***	0.00	0.02***	0.00	0.02***	0.00
Male Gender (Female ref.)			0.18**	0.05, 0.31	0.19**	0.07	0.22**	0.07	0.11	0.08
English Use During Survey (No English ref.)			0.14	0.10	0.14	0.10	0.18+	0.11	0.17	0.11
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.10	0.11	-0.10	0.11	-0.11	0.11
Widowed, Separated, Divorced/Annulled					-0.07	0.12	-0.09	0.12	-0.09	0.12
Never Married					-0.17+	0.09	-0.16+	0.09	-0.14	0.09
High Social Isolation (Low ref.)					0.11	0.09	0.11	0.09	0.11	0.09
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.18+	0.10	-0.17+	0.10
Some College							-0.14	0.10	-0.16	0.10

College Degree and Above							-0.24*	0.10	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)							-0.13+	0.07	-0.13+	0.07
Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.14+	0.07
Current Smoking Status (Never smoked ref.)										
Former Smoker									0.13+	0.08
Current Smoker									0.08	0.11
Constant	0.43***	0.08	-0.45*	0.18	-0.34+	0.20	-0.21	0.24	-0.31	0.24
Panel B: Zero Inflation	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.09	0.16	-0.28	0.20	-0.30	0.21	-0.31	0.21	-0.31	0.21
Age in Years	-0.08***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01
Constant	2.17***	0.29	1.18**	0.37	1.17**	0.38	1.19**	0.39	1.24**	0.40

Note. + p < .10, *p < .05, ** p < .01, *** p < .001

Table 6.1.2 Weighted Multivariable Poisson Regression of Quartile Allostatic Load on Financial Strain and Associated Covariates, Health of Philippine Emigrants Study at Baseline (n = 1,633)

	Model 1		Model 2		Model 3		Model 4		Model 5	
VARIABLES	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Financial Strain (Very low ref.)										
Low	-0.01	(0.06)	-0.06	(0.06)	-0.06	(0.06)	-0.06	(0.06)	-0.06	(0.06)
Medium	0.10	(0.07)	-0.06	(0.07)	-0.06	(0.07)	-0.07	(0.07)	-0.06	(0.07)
High	0.12	(0.11)	-0.12	(0.10)	-0.10	(0.10)	-0.13	(0.10)	-0.13	(0.10)
Demographic Factors										
Migrant Status (non-migrant ref.)			-0.04	(0.04)	-0.02	(0.05)	-0.04	(0.05)	-0.05	(0.05)
Age in Years			0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)
Male Gender (Female ref.)			0.22***	(0.04)	0.23***	(0.04)	0.24***	(0.04)	0.20***	(0.05)
English Use During Survey (No English ref.)			0.04	(0.07)	0.04	(0.08)	0.07	(0.08)	0.07	(0.08)
Social Factors										
Marital Status (Married ref.)					0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Living-In					-0.05	(0.06)	-0.05	(0.06)	-0.06	(0.06)
Widowed, Separated, Divorced/Annulled					-0.06	(0.08)	-0.07	(0.08)	-0.07	(0.08)
Never Married					-0.16**	(0.06)	-0.17**	(0.06)	-0.16**	(0.06)
High Social Isolation (Low ref.)					0.00	(0.06)	-0.00	(0.06)	-0.01	(0.06)
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)							0.00	(0.00)	0.00	(0.00)
High School Graduate							-0.10	(0.08)	-0.10	(0.07)
Some College							-0.05	(0.07)	-0.06	(0.07)
College Degree and Above							-0.13+	(0.07)	-0.14+	(0.07)
Currently Employed (Not Currently Employed Ref.)							-0.09*	(0.05)	-0.09*	(0.05)
Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.02	(0.05)
Current Smoking Status (Never smoked ref.)									0.00	(0.00)
Former Smoker									0.10+	(0.05)
Current Smoker									0.04	(0.07)
Constant	0.97***	(0.05)	-0.20*	(0.09)	-0.04	(0.11)	0.01	(0.14)	-0.01	(0.14)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.1.3 Weighted Multivariable Poisson Regression of Risk-Calculated Allostatic Load on Financial Strain and Associated Covariates, Health of Philippine Emigrants Study at Baseline (n = 1,633)

	Model 1		Model 2		Model 3		Model 4		Model 5	
VARIABLES	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Financial Strain (Very low ref.)										
Low	0.06	(0.04)	0.01	(0.04)	0.02	(0.04)	0.01	(0.04)	0.02	(0.04)
Medium	0.13**	(0.05)	0.01	(0.05)	0.02	(0.05)	0.01	(0.05)	0.01	(0.05)
High	0.12	(0.08)	-0.07	(0.07)	-0.05	(0.07)	-0.08	(0.07)	-0.07	(0.07)
Demographic Factors										
Migrant Status (non-migrant ref.)			-0.05+	(0.03)	-0.04	(0.03)	-0.06+	(0.04)	-0.06+	(0.04)
Age in Years			0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)			0.03	(0.03)	0.03	(0.03)	0.03	(0.03)	-0.03	(0.04)
English Use During Survey (No English ref.)			0.05	(0.05)	0.04	(0.05)	0.06	(0.06)	0.06	(0.05)
Social Factors										
Marital Status (Married ref.)					0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Living-In					-0.05	(0.04)	-0.05	(0.04)	-0.06	(0.04)
Widowed, Separated, Divorced/Annulled					-0.17**	(0.06)	-0.16**	(0.06)	-0.17**	(0.06)
Never Married					-0.12**	(0.04)	-0.12**	(0.04)	-0.11**	(0.04)
High Social Isolation (Low ref.)					-0.00	(0.04)	-0.01	(0.04)	-0.02	(0.04)
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)							0.00	(0.00)	0.00	(0.00)

High School Graduate							-0.06	(0.05)	-0.06	(0.05)
Some College							-0.09+	(0.05)	-0.10+	(0.05)
College Degree and Above							-0.09+	(0.05)	-0.09+	(0.05)
Currently Employed (Not Currently Employed Ref.)							0.06+	(0.03)	0.06+	(0.03)
Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.03	(0.03)
Current Smoking Status (Never smoked ref.)									0.00	(0.00)
Former Smoker									0.10**	(0.04)
Current Smoker									0.11*	(0.05)
Constant	0.99***	(0.04)	0.11+	(0.07)	0.22**	(0.08)	0.28**	(0.10)	0.23*	(0.10)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.2.1 Weighted Multivariable Zero-Inflated Negative Binomial Regression of Baseline Decile-Calculated Allostatic Load on Everyday Discrimination (Chronicity-Weighted), Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1		Model 2		Model 3		Model 4		Model 5	
Panel A: Negative Binomial	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Everyday Discrimination (Chronicity-Calculated)	-0.01	0.01	-0.00	0.01	-0.00	0.01	-0.00	0.01	-0.00	0.01
Migrant Status (non-migrant ref.)			-0.18*	0.07	-0.15*	0.08	-0.18*	0.09	-0.18*	0.09
Demographic Factors										
Age in Years			0.02***	0.00	0.02***	0.00	0.02***	0.00	0.02***	0.00
Male Gender (Female ref.)			0.18**	0.07	0.20**	0.07	0.22**	0.07	0.11	0.08
English Use During Survey (No English ref.)			0.13	0.10	0.14	0.10	0.18+	0.11	0.17	0.11
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.10	0.11	-0.10	0.11	-0.11	0.11
Widowed, Separated, Divorced/Annulled					-0.07	0.12	-0.08	0.12	-0.09	0.12
Never Married					-0.17+	0.08	-0.17+	0.09	-0.14	0.09
High Social Isolation (Low ref.)					0.11	0.09	0.11	0.09	0.12	0.09
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.18+	0.10	-0.18+	0.10
Some College							-0.14	0.10	-0.16	0.10
College Degree and Above							-0.25*	0.10	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)							-0.13+	0.07	-0.13+	0.07

Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.16+	0.07
Current Smoking Status (Never smoked ref.)										
Former Smoker									0.14+	0.08
Current Smoker									0.08	0.11
Constant	0.52***	0.05	-0.45*	0.17	-0.31	0.19	-0.06	0.39	-0.15	0.22
Panel B: Zero Inflation	β	SE	β	SE	β	SE	β	SE	β	SE
Migrant Status (non-migrant ref.)	-0.04	0.16	-0.28	0.20	-0.31	0.21	-0.30	0.21	-0.30	0.21
Age in Years	-0.08***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01
Constant	2.19	0.30	1.19**	0.37	1.18**	0.39	1.19**	0.39	1.24**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.2.2 Weighted Multivariable Poisson Regression of Baseline Quartile and Risk-Calculated Allostatic Load on Everyday Discrimination (Chronicity-Calculated), Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Everyday Discrimination (Chronicity-Calculated)	-0.0001	(0.0002)	-0.0001	(0.0001)
Demographic Factors				
Migrant Status (non-migrant ref.)	-0.0323	(0.0479)	-0.0593+	(0.0343)
Age in Years	0.0270***	(0.0022)	0.0229***	(0.0016)
Male Gender (Female ref.)	0.2018***	(0.0525)	-0.0328	(0.0369)
English Use During Survey (No English ref.)	0.0737	(0.0761)	0.0574	(0.0551)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.0619	(0.0640)	-0.0645	(0.0444)
Widowed, Separated, Divorced/Annulled	-0.0730	(0.0771)	-0.1764**	(0.0568)
Never Married	-0.1626**	(0.0599)	-0.1135**	(0.0430)
High Social Isolation (Low ref.)	-0.0111	(0.0616)	-0.0140	(0.0447)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.1032	(0.0747)	-0.0576	(0.0519)
Some College	-0.0580	(0.0719)	-0.0960+	(0.0517)
College Degree and Above	-0.1322+	(0.0694)	-0.0867+	(0.0479)
Currently Employed (Not Currently Employed Ref.)	-0.0903*	(0.0454)	-0.0607+	(0.0331)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.0176	(0.0476)	0.0344	(0.0344)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.1003+	(0.0522)	0.1049**	(0.0357)
Current Smoker	0.0381	(0.0742)	0.1112*	(0.0512)
Constant	0.0425	(0.1329)	0.3200***	(0.0957)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.2.3 Weighted Multivariable Zero-Inflated Negative Binomial Regression of Baseline Decile-Calculated Allostatic Load on Everyday Discrimination (Frequency-Summed), Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1		Model 2		Model 3		Model 4		Model 5	
Panel A: Negative Binomial	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Discrimination (Frequency-Summed)	-0.01	0.01	-0.00	0.01	-0.00	0.01	-0.00	0.08	-0.00	0.01
Migrant Status (non-migrant ref.)			-0.18*	0.07	-0.15*	0.08	-0.18*	0.09	-0.18*	0.09
Demographic Factors										
Age in Years			0.02***	0.00	0.02***	0.00	0.02***	0.00	0.02***	0.00
Male Gender (Female ref.)			0.18**	0.07	0.20**	0.07	0.22**	0.07	0.11	0.08
English Use During Survey (No English ref.)			0.13	0.10	0.14	0.10	0.18+	0.11	0.17	0.11
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.10	0.11	-0.10	0.11	-0.11	0.11
Widowed, Separated, Divorced/Annulled					-0.07	0.12	-0.08	0.12	-0.09	0.12
Never Married					-0.17+	0.09	-0.17+	0.09	-0.14	0.09
High Social Isolation (Low ref.)					0.11	0.09	0.11	0.09	0.12	0.09
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.18+	0.10	-0.18+	0.10
Some College							-0.14	0.10	-0.16	0.10
College Degree and Above							-0.25*	0.10	-0.25	0.10*
Currently Employed (Not Currently Employed Ref.)							-0.13*	0.10	-0.13+	0.07

Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.14+	0.07
Current Smoking Status (Never smoked ref.)										
Former Smoker									0.14+	0.08
Current Smoker									0.08	0.11
Constant	0.52***	0.06	-0.45*	0.17	-0.31	0.19	-0.06	0.22	-0.15	0.22
Panel B: Zero Inflation	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.04	0.16	-0.28	0.20	-0.31	0.21	-0.30	0.21	-0.30	0.21
Age in Years	-0.08***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01
Constant	2.19***	0.30	1.19**	0.39	1.18**	0.39	1.19**	0.39	1.24**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.2.4 Weighted Multivariable Poisson Regression of Baseline Quartile and Risk-Calculated Allostatic Load on Everyday Discrimination (Frequency-Summed), Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Everyday Discrimination (Frequency Summed)	-0.00	(0.01)	-0.00	(0.00)
Demographic Factors				
Migrant Status (non-migrant ref.)	-0.03	(0.05)	-0.06+	(0.03)
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.03	(0.04)
English Use During Survey (No English ref.)	0.08	(0.08)	0.06	(0.06)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.06	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.18**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.00	(0.06)	-0.02	(0.05)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.10	(0.07)	-0.06	(0.05)
Some College	-0.06	(0.07)	-0.09+	(0.05)
College Degree and Above	-0.13+	(0.07)	-0.08+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.09*	(0.05)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10+	(0.05)	0.10**	(0.04)
Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.06	(0.13)	0.31**	(0.10)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.2.5 Weighted Multivariable Zero-Inflated Negative Binomial Regression of Baseline Decile-Calculated Allostatic Load on Everyday Discrimination (Frequency-Summed), Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1		Model 2		Model 3		Model 4		Model 5	
Panel A: Negative Binomial	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Discrimination (Situation-Based)	-0.02	0.02	-0.01	0.02	-0.01	0.02	-0.01	0.02	-0.01	0.02
Migrant Status (non-migrant ref.)			-0.18*	0.07	-0.05*	0.08	-0.18*	0.09	-0.18*	0.09
Demographic Factors										
Age in Years			0.02***	0.00	0.02***	0.00	0.02***	0.00	0.02***	0.00
Male Gender (Female ref.)			0.18**	0.07	0.20**	0.07	0.22**	0.07	0.11	0.08
English Use During Survey (No English ref.)			0.13	0.10	0.14	0.10	0.18+	0.11	0.17	0.11
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.10	0.11	-0.10	0.11	-0.11	0.11
Widowed, Separated, Divorced/Annulled					-0.07	0.12	-0.09	0.12	-0.09	0.13
Never Married					-0.17+	0.09	-0.17+	0.09	-0.14	0.09
High Social Isolation (Low ref.)					0.12	0.09	0.11	0.09	0.12	0.09
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.18+	0.10	-0.18+	0.10
Some College							-0.14	0.10	-0.16	0.10
College Degree and Above							-0.24*	0.10	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)							-0.13+	0.07	-0.13+	0.07

Health Behaviors										
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.14+	0.07
Current Smoking Status (Never smoked ref.)										
Former Smoker									0.14+	0.08
Current Smoker									0.09	0.11
Constant	0.53***	0.06	-0.44*	0.17	-0.31	0.19	-0.07	0.22	-0.16	0.22
Panel B: Zero Inflation	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.05	0.16	-0.28	0.20	-0.31	0.21	-0.31	0.21	-0.30	0.22
Age in Years	-0.08***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01
Constant	2.20***	0.30	1.18**	0.37	1.17**	0.39	1.18**	0.39	1.24**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.2.6 Weighted Multivariable Poisson Regression of Baseline Quartile and Risk-Calculated Allostatic Load on Everyday Discrimination (Situation-Based), Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Everyday Discrimination (Situation-Based)	-0.02	(0.01)	-0.01	(0.01)
Demographic Factors				
Migrant Status (non-migrant ref.)	-0.03	(0.05)	-0.06+	(0.03)
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.03	(0.04)
English Use During Survey (No English ref.)	0.08	(0.08)	0.06	(0.06)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.07	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.18**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.00	(0.06)	-0.02	(0.04)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.10	(0.07)	-0.06	(0.05)
Some College	-0.05	(0.07)	-0.09+	(0.05)
College Degree and Above	-0.13+	(0.07)	-0.08+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.09*	(0.05)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10*	(0.05)	0.11**	(0.04)
Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.07	(0.13)	0.32**	(0.10)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.3.1 Weighted Multivariable Zero-Inflated Negative Binomial Regression of Baseline Decile-Calculated Allostatic Load on Social Capital, Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1		Model 2		Model 3		Model 4		Model 5	
Panel A: Negative Binomial	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Social Capital	0.00	0.01	-0.00	0.01	-0.00	0.01	0.00	0.01	0.00	0.01
Migrant Status (non-migrant ref.)			-0.17*	0.07	-0.15*	0.08	-0.18*	0.09	-0.18*	0.09
Demographic Factors										
Age in Years			0.02***	0.00	0.02***	0.00	0.02***	0.00	0.02***	0.00
Male Gender (Female ref.)			0.18**	0.07	0.20**	0.07	0.22**	0.07	0.11	0.08
English Use During Survey (No English ref.)			0.13	0.10	0.14	0.10	0.18	0.11+	0.16	0.11
Social Factors										
Marital Status (Married ref.)										
Living-In					-0.10	0.11	-0.10	0.11	-0.11	0.11
Widowed, Separated, Divorced/Annulled					-0.07	0.12	-0.08	0.12	-0.09	0.12
Never Married					-0.17+	0.09	-0.17+	0.09	-0.14	0.09
High Social Isolation (Low ref.)					0.11	0.08	0.10	0.08	0.11	0.09
Socioeconomic Factors										
Educational Attainment (Less than high school ref.)										
High School Graduate							-0.18+	0.10	-0.18+	0.10
Some College							-0.14	0.10	-0.16	0.10
College Degree and Above							-0.25*	0.10	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)							-0.13+	0.07	-0.13+	0.07
Health Behaviors										

Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)									0.13+	0.07
Current Smoking Status (Never smoked ref.)										
Former Smoker									0.14+	0.08
Current Smoker									0.08	0.11
Constant	0.47***	0.11	-0.44*	0.19	-0.32	0.21	-0.09	0.23	-0.19	0.24
Panel B: Zero Inflation	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.05	0.16	-0.28	0.20	-0.31	0.21	-0.31	0.21	-0.31	0.21
Age in Years	-0.08***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01	-0.05***	0.01
Constant	2.22***	0.30	1.19**	0.37	1.17**	0.39	1.19	0.39**	1.24**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.3.2 Weighted Multivariable Poisson Regression of Baseline Quartile and Risk-Calculated Allostatic Load on Social Capital, Health of Philippine Emigrants Study (HoPES), n = 1633

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Social Capital	-0.00	(0.01)	-0.00	(0.01)
Demographic Factors				
Migrant Status (non-migrant ref.)	-0.03	(0.05)	-0.06	(0.03)
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.03	(0.04)
English Use During Survey (No English ref.)	0.07	(0.08)	0.06	(0.06)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.07	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.18**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.02	(0.06)	-0.02	(0.04)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.10	(0.07)	-0.06	(0.05)
Some College	-0.06	(0.07)	-0.09+	(0.05)
College Degree and Above	-0.13+	(0.07)	-0.08+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.09*	(0.05)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10+	(0.05)	0.10**	(0.04)
Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.04	(0.14)	0.30**	(0.10)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.4.1 Weighted Mixed Model Regression of Psychological Distress Score on Survey Wave and Financial Strain, Health of Philippine Emigrants Study, (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**
Wave	-0.16	0.07	*	-0.33	0.09	***	-0.34	0.09	***	-0.26	0.07	***	-0.22	0.08	**
Financial Strain (Very low ref.)															
Low	0.18	0.12		-0.01	0.18		-0.05	0.18		-0.05	0.16		-0.07	0.16	
Medium	0.94	0.19	***	0.43	0.23	+	0.31	0.23		0.26	0.20		0.22	0.20	
High	1.00	0.40	*	1.61	0.49	**	1.36	0.50	**	1.17	0.38	**	1.10	0.38	**
Wave x Financial Strain															
Wave x Low				0.16	0.15		0.11	0.15		0.09	0.12		0.07	0.12	
Wave x Medium				0.60	0.17	***	0.58	0.17	**	0.48	0.14	**	0.46	0.14	**
Wave x High				-0.67	0.44		-0.64	0.44		-0.60	0.38		-0.64	0.38	+
Migrant status (non-migrant ref.)							-1.48	0.13	***	-1.22	0.12	***	-1.17	0.12	***
Demographic Factors															
Age in Years							-0.02	0.01	***	-0.02	0.01	***	-0.03	0.01	***
Male Gender (Female ref.)							-0.23	0.12	+	-0.14	0.10		-0.11	0.10	
Any English Usage (No English Usage)							0.24	0.13	+	-0.06	0.13		-0.02	0.13	
Social Factors															
Marital Status (Married ref.)															
Living-In										0.06	0.20		0.04	0.20	
Widowed, Separated, Divorced/Annulled, Other										0.14	0.31		0.14	0.31	
Never Married										-0.10	0.14		-0.09	0.14	

High Isolation (Low ref.)										2.78	0.19	***	2.78	0.19	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-0.71	0.21	**
Some College													-0.74	0.20	***
College Degree and Above													-1.03	0.19	***
Currently Employed (Not Employed ref.)													-0.17	0.13	
Constant	5.81	0.13	***	5.99	0.14	***	7.68	0.26	***	7.07	0.28	***	8.10	0.34	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.19	0.07		2.19	0.07		2.07	0.07		1.78	0.06		1.75	0.06	
Residual	1.67	0.05		1.67	0.05		1.67	0.05		1.53	0.04		1.53	0.04	
Panel C: Model Fit															
AIC	32074.88			31986.69			31818.58			30380.36			30341.56		
BIC	32118.87			32049.52			31906.55			30493.46			30479.8		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.4.2 Weighted Mixed Model Binary Regression of Moderate/Severe Psychological on Survey Wave and Financial Strain, Health of Philippine Emigrants Study, (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.83	0.07	*	0.77	0.14		0.78	0.15		0.86	0.18		0.87	0.19	
Financial Strain (Very low ref.)															
Low	1.71	0.32	**	1.58	0.49		1.35	0.42		1.47	0.50		1.40	0.45	
Medium	2.98	0.71	***	2.58	0.87	**	1.95	0.69	+	2.06	0.78	+	1.86	0.69	+
High	5.38	1.60	***	6.25	2.64	***	5.09	2.24	***	4.51	2.01	**	3.79	1.70	**
Wave x Financial Strain															
Wave x Low				1.10	0.27		1.04	0.27		0.96	0.26		0.93	0.25	
Wave x Medium				1.22	0.29		1.18	0.29		0.97	0.26		0.98	0.26	
Wave x High				0.80	0.28		0.79	0.28		0.79	0.28		0.18	0.28	
Migrant status (non-migrant ref.)							0.32	0.07	***	0.42	0.10	***	0.39	0.10	***
Demographic Factors															
Age in Years							0.96	0.01	**	0.97	0.01	*	0.97	0.01	*
Male Gender (Female ref.)							0.61	0.15	*	0.69	0.19		0.71	0.19	
Any English Usage (No English Usage)							0.97	0.20	+	0.74	0.17		0.84	0.21	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.53	0.40		1.53	0.41	
Widowed, Separated, Divorced/Annulled, Other										1.72	0.48	+	1.71	0.47	+
Never Married										1.08	0.29		1.21	0.31	
High Isolation (Low ref.)										8.81	1.84	***	8.69	1.81	***

Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.82	0.22	
Some College													0.83	0.24	
College Degree and Above													0.51	0.16	*
Currently Employed (Not Employed ref.)													0.83	0.17	
Constant	0.07	0.01	***	0.08	0.02	***	0.57	0.28		0.16	0.09	**	0.26	0.16	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.4.3 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave and Financial Strain, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.87	0.07	+	0.66	0.11	*	0.66	0.11	*	0.71	0.12	*	0.75	0.13	
Financial Strain (Very low ref.)															
Low	2.03	0.47	**	1.53	0.51		1.24	0.40		1.24	0.40		1.16	0.36	
Medium	5.77	1.54	***	3.59	1.28	***	2.51	0.88	**	2.35	0.84	*	2.06	0.73	*
High	7.10	2.56	***	8.56	4.51	***	5.87	3.16	**	4.55	2.24	**	3.45	1.71	*
Wave x Financial Strain															
Wave x Low				1.33	0.31		1.26	0.30		1.25	0.29		1.19	0.27	
Wave x Medium				1.78	0.40	*	1.75	0.39	*	1.61	0.36	*	1.57	0.36	*
Wave x High				0.78	0.29		0.80	0.30		0.87	0.30		0.84	0.29	
Migrant status (non-migrant ref.)							0.20	0.05	***	0.27	0.06	***	0.25	0.06	***
Demographic Factors															
Age in Years							0.68	0.01	***	0.97	0.01	**	0.96	0.01	**
Male Gender (Female ref.)							0.73	0.18		0.81	0.19		0.85	0.20	
Any English Usage (No English Usage)							1.15	0.26	+	0.80	0.19		0.95	0.24	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.37	0.34		1.26	0.33	
Widowed, Separated, Divorced/Annulled, Other										1.67	0.55		1.64	0.55	
Never Married										1.15	0.27		1.24	0.29	
High Isolation (Low ref.)										18.80	3.83	***	18.18	3.67	***

Socioeconomic Factors			
Educational Attainment (Less than high school ref.)			
High School Graduate	0.54	0.15	*
Some College	0.59	0.17	+
College Degree and Above	0.33	0.10	***
Currently Employed (Not Employed ref.)	0.69	0.13	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.1 Weighted Mixed Model Regression of Psychological Distress Score on Survey Wave and Everyday Discrimination Score (Chronicity-Weighted), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**
Wave	-0.1805	0.0612	**	-0.1463	0.0646	*	-0.1777	0.0640	**	-0.1329	0.0597	*	-0.1072	0.0648	+
Everyday Discrimination (Chronicity Weighted)	0.0027	0.0007	** *	0.0032	0.0010	**	0.0031	0.0010	**	0.0021	0.0009	*	0.0020	0.0009	*
Wave x Everyday Discrimination (Chronicity Weighted)				-0.0007	0.0007		-0.0007	0.0007		-0.0006	0.0006		-0.0005	0.0006	
Migrant status (non-migrant ref.)							-1.6542	0.1195	** *	-1.3689	0.1097	** *	-1.3070	0.1144	** *
Demographic Factors															
Age in Years							-0.0154	0.0051	**	-0.0137	0.0053	*	-0.0197	0.0052	** *
Male Gender (Female ref.)							-0.2801	0.1182	*	-0.1839	0.1047	+	-0.1467	0.1049	
Any English Usage (No English Usage)							0.2126	0.1277	+	-0.0769	0.1327		-0.0291	0.1358	
Social Factors															
Marital Status (Married ref.)															
Living-In										0.1235	0.2008		0.0883	0.1995	
Widowed, Separated, Divorced/Annulled, Other										0.1679	0.3343		0.1539	0.3360	

											0.148			0.148	
Never Married										-0.0455	2		-0.0438	2	
High Isolation (Low ref.)										2.7922	0.204 8		2.7858	0.204 7	
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-0.7056	0.206 1	**
Some College													-0.7537	0.197 0	** *
College Degree and Above													-1.0559	0.189 2	** *
Currently Employed (Not Employed ref.)													-0.1834	0.126 9	
Constant	6.0195	0.084 5	** *	5.9862	0.089 6	** *	7.4741	0.243 1	** *	6.8799	0.281 0	** *	7.9320	0.327 4	** *
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.2029	0.064 3		2.2014	0.064 2		2.0478	0.065 0		1.7669	0.058 9		1.7389	0.058 4	
Residual	1.6866	0.058 5		1.6859	0.058 8		1.6840	0.058 6		1.5480	0.044 8		1.5469	0.044 7	
Panel C: Model Fit															
AIC	32105.26			32100.59			31896.84			30484.82			30441.52		
BIC	32136.68			32138.29			31959.67			30572.79			30554.62		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.2 Weighted Mixed Model Binary Logistic Regression of Moderate/Severe Psychological Distress on Survey Wave and Everyday Discrimination Score (Chronicity-Weighted), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	OR	SE	Sig.	OR	SE	Sig.	OR	SE	Sig.	OR	SE	Sig.	OR	SE	Sig.
Wave	0.8093	0.0691	*	0.8585	0.0684	+	0.8464	0.0701	*	0.8608	0.0803		0.8658	0.0832	
Everyday Discrimination (Chronicity Weighted)	1.0028	0.0006	***	1.0033	0.0008	***	1.0033	0.0008	***	1.0026	0.0007	***	1.0024	0.0007	**
Wave x Everyday Discrimination (Chronicity Weighted)				0.9993	0.0005		0.9993	0.0006		0.9991	0.0006		0.9992	0.0006	
Migrant status (non-migrant ref.)							0.2575	0.0505	***	0.3355	0.0755	***	0.3223	0.0820	***
Demographic Factors															
Age in Years							0.9739	0.0100	*	0.9799	0.0104	+	0.9796	0.0102	*
Male Gender (Female ref.)							0.5856	0.1416	*	0.6845	0.1825		0.7030	0.1887	
Any English Usage (No English Usage)							0.9409	0.1921	*	0.7753	0.1743		0.8869	0.2102	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.6520	0.4080	*	1.6333	0.4227	+
Widowed, Separated, Divorced/Annulled, Other										1.7890	0.5677	+	1.7780	0.5503	+
Never Married										1.0509	0.2596		1.1840	0.2835	

High Isolation (Low ref.)									8.4285	1.7352	***	8.3211	1.7237	***
Socioeconomic Factors														
Educational Attainment (Less than high school ref.)														
High School Graduate												0.8147	0.2262	
Some College												0.7971	0.2097	
College Degree and Above												0.4818	0.1459	*
Currently Employed (Not Employed ref.)												0.7966	0.1616	
Constant	0.1165	0.0165	***	0.1115	0.0163	***	0.5321	0.2530	0.1833	0.0968	**	0.2974	0.1711	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.3 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave and Everyday Discrimination Score (Chronicity-Weighted), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.8361	0.0704	*	0.8518	0.0753	+	0.8334	0.0746	*	0.8731	0.0793		0.8948	0.0847	
Everyday Discrimination (Chronicity Weighted)	1.0042	0.0006	** *	1.0044	0.0009	** *	1.0040	0.0009	** *	1.0029	0.0007	** *	1.0025	0.0008	**
Wave x Everyday Discrimination (Chronicity Weighted)				0.9997	0.0007		0.9998	0.0006		0.9998	0.0006		1.0000	0.0006	
Migrant status (non-migrant ref.)							0.1487	0.0359	** *	0.2041	0.0454	** *	0.1953	0.0453	** *
Demographic Factors															
Age in Years							0.9662	0.0103	**	0.9775	0.0097	*	0.9745	0.0093	**
Male Gender (Female ref.)							0.6812	0.1668		0.7677	0.1765		0.8163	0.1850	
Any English Usage (No English Usage)							1.0823	0.2281	*	0.7865	0.1826		0.9475	0.2277	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.5330	0.3869	+	1.4324	0.3655	
Widowed, Separated,										1.8390	0.6329	+	1.7824	0.6067	+

Divorced/Annulled, Other						
Never Married	1.2099	0.2711		1.3157	0.2928	
High Isolation (Low ref.)	17.3301	3.4184	**	16.5905	3.2893	**
Socioeconomic Factors			*			*
Educational Attainment (Less than high school ref.)						
High School Graduate				0.5720	0.1634	+
Some College				0.5868	0.1560	+
College Degree and Above				0.3214	0.0931	**
Currently Employed (Not Employed ref.)				0.6521	0.1127	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.4 Weighted Mixed Model Regression of Psychological Distress Score on Survey Wave and Everyday Discrimination Score (Frequency-Summed), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**
Wave	-0.10	0.06	+	-0.09	0.08		-0.12	0.08		-0.09	0.07		-0.06	0.08	
Everyday Discrimination Score (Frequency Summed)	0.12	0.02	***	0.13	0.02	***	0.12	0.02	***	0.09	0.02	***	0.09	0.02	***
Wave x Everyday Discrimination Score				-0.07	0.02		-0.01	0.02		-0.01	0.02		-0.01	0.02	
Migrant status (non-migrant ref.)							-1.55	0.12	***	-1.29	0.11	***	-1.23	0.11	***
Demographic Factors															
Age in Years							-0.01	0.01	*	-0.01	0.01	*	-0.02	0.01	**
Male Gender (Female ref.)							-0.31	0.11	**	-0.21	0.10	*	-0.17	0.10	+
Any English Usage (No English Usage)							0.20	0.13		-0.09	0.13		-0.04	0.14	
Social Factors															
Marital Status (Married ref.)															
Living-In										0.11	0.20		0.07	0.20	
Widowed, Separated, Divorced/Annulled, Other										0.16	0.33		0.15	0.34	
Never Married										-0.08	0.15		-0.07	0.15	

High Isolation (Low ref.)										2.75	0.20	***	2.74	0.20	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-0.73	0.20	***
Some College													-0.80	0.20	***
College Degree and Above													-1.10	0.19	***
Currently Employed (Not Employed ref.)													-0.18	0.13	
Constant	5.64	0.10	***	5.62	0.11	***	6.93	0.26	***	6.50	0.29	***	7.59	0.33	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.12	0.06		2.12	0.06		1.99	0.06		1.73	0.06		1.70	0.06	
Residual	1.68	0.06		1.68	0.06		1.68	0.06		1.54	0.05		1.54	0.04	
Panel C: Model Fit															
AIC	31958.53			31959.98			31772.15			30389.09			30341.73		
BIC	31989.95			31997.68			31834.99			30477.06			30454.83		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.5 Weighted Mixed Model Binary Logistic Regression of Moderate/Severe Psychological Distress on Survey Wave and Everyday Discrimination Score (Frequency-Summed), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.88	0.08		1.01	0.11		0.99	0.11		1.02	0.13		1.03	0.14	
Everyday Discrimination Score (Frequency Summed)	1.14	0.02	***	1.17	0.03	***	1.16	0.03	***	1.13	0.03	***	1.13	0.03	***
Wave x Everyday Discrimination Score				0.97	0.02		0.97	0.02		0.96	0.02	+	0.96	0.02	+
Migrant status (non-migrant ref.)							0.29	0.06	***	0.37	0.08	***	0.35	0.09	***
Demographic Factors															
Age in Years							0.98	0.10	+	0.99	0.01		0.98	0.01	
Male Gender (Female ref.)							0.56	0.13	*	0.66	0.18		0.68	0.18	
Any English Usage (No English Usage)							0.90	0.19		0.77	0.18		0.89	0.22	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.72	0.44	*	1.70	0.45	*
Widowed, Separated, Divorced/Annulled, Other										1.80	0.85	+	1.80	0.57	+
Never Married										1.00	0.25		1.13	0.28	
High Isolation (Low ref.)										8.11	1.71	***	7.99	1.69	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.75	0.22	

Some College													0.71	0.19	
College Degree and Above													0.43	0.13	**
Currently Employed (Not Employed ref.)													0.79	0.16	
Constant	0.07	0.01	***	0.06	0.01	***	0.21	0.10	**	0.09	0.05	***	0.17	0.09	**

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.6 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave and Everyday Discrimination Score (Frequency-Summed), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.95	0.08		0.95	0.10		0.91	0.10		0.94	0.10		0.97	0.11	
Everyday Discrimination Score (Frequency Summed)	1.21	0.02	***	1.21	0.03	***	1.19	0.03	***	1.15	0.03	***	1.14	0.03	***
Wave x Everyday Discrimination Score				1.00	0.02		1.00	0.02		1.00	0.02		1.00	0.02	
Migrant status (non-migrant ref.)							0.19	0.04	***	0.24	0.05	***	0.23	0.05	***
Demographic Factors															
Age in Years							0.98	0.01	*	0.99	0.01		0.98	0.01	
Male Gender (Female ref.)							0.66	0.15	+	0.74	0.16		0.78	0.17	
Any English Usage (No English Usage)							1.04	0.22		0.77	0.18		0.94	0.22	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.56	0.39	+	1.45	0.36	
Widowed, Separated, Divorced/Annulled, Other										1.81	0.60	+	1.76	0.58	
Never Married										1.13	0.25		1.24	0.27	
High Isolation (Low ref.)										15.54	3.02	***	14.62	2.87	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.55	0.16	*

Some College	0.54	0.14	*
College Degree and Above	0.29	0.09	***
Currently Employed (Not Employed ref.)	0.64	0.11	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.7 Weighted Mixed Model Regression of Psychological Distress Score on Survey Wave and Everyday Discrimination Score (Situation-Based), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**
Wave	-0.09	0.07		-0.13	0.08		-0.16	0.08	*	-0.12	0.07		-0.09	0.08	
Everyday Discrimination Score (Situation Based)	0.29	0.04	***	0.27	0.05	***	0.26	0.05	***	0.19	0.04	***	0.20	0.04	***
Wave x Everyday Discrimination Score				0.02	0.04		0.02	0.04		0.01	0.04		0.01	0.01	
Migrant status (non-migrant ref.)							-1.56	0.12	***	-1.30	0.11	***	-1.22	0.12	***
Demographic Factors															
Age in Years							-0.01	0.01	*	-0.01	0.01	*	-0.02	0.01	**
Male Gender (Female ref.)							-0.27	0.12	*	-0.18	0.10	+	-0.14	0.10	
Any English Usage (No English Usage)							0.22	0.13		-0.07	0.13		-0.02	0.14	
Social Factors															
Marital Status (Married ref.)															
Living-In										0.10	0.21		0.07	0.20	
Widowed, Separated, Divorced/Annulled, Other										0.17	0.34		0.16	0.34	
Never Married										-0.08	0.15		-0.08	0.15	
High Isolation (Low ref.)										2.77	0.19	***	2.76	0.19	***

Socioeconomic Factors																
Educational Attainment (Less than high school ref.)																
High School Graduate													-0.76	0.21	***	
Some College													-0.85	0.20	***	
College Degree and Above													-1.16	0.19	***	
Currently Employed (Not Employed ref.)													-0.18	0.13		
Constant	5.59	0.11	***	5.62	0.12	***	6.96	0.26	***	6.52	0.30	***	7.65	0.35	***	
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		
Intercept	2.15	0.07		2.15	0.07		2.02	0.07		1.74	0.06		1.71	0.06		
Residual	1.68	0.06		1.68	0.06		1.68	0.06		1.54	0.04		1.54	0.04		
Panel C: Model Fit																
AIC	32005.31			32005.57			31820.82			30418.63			30366.03			
BIC	32036.73			32005.57			31883.66			30506.57			30479.13			

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.8 Weighted Mixed Model Binary Logistic Regression of Moderate/Severe Psychological Distress on Survey Wave and Everyday Discrimination Score (Situation-Based), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.91	0.08		1.05	0.15		1.01	0.15		1.05	0.17		1.09	0.18	
Everyday Discrimination Score (Situation Based)	1.40	0.07	***	1.53	0.11	***	1.47	0.11	***	1.39	0.12	***	1.42	0.12	***
Wave x Everyday Discrimination Score				0.94	0.05		0.94	0.05		0.91	0.06		0.90	0.06	
Migrant status (non-migrant ref.)							0.30	0.06	***	0.38	0.08	***	0.36	0.09	***
Demographic Factors															
Age in Years							0.99	0.01		0.99	0.01		0.98	0.01	
Male Gender (Female ref.)							0.62	0.15	*	0.71	0.20		0.73	0.20	
Any English Usage (No English Usage)							0.90	0.20		0.77	0.19		0.91	0.23	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.75	0.45	*	1.74	0.47	*
Widowed, Separated, Divorced/Annulled, Other										1.88	0.60	*	1.87	0.60	*
Never Married										0.99	0.25		1.13	0.28	
High Isolation (Low ref.)										8.38	1.79	***	8.13	1.76	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.70	0.20	
Some College													0.64	0.17	+

College Degree and Above													0.36	0.11	**
Currently Employed (Not Employed ref.)													0.78	0.16	
Constant	0.06	0.01	***	0.05	0.01	***	0.17	0.09	**	0.08	0.04	***	0.14	0.09	**

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.5.9 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave and Everyday Discrimination Score (Situation-Based), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.97	0.08		0.90	0.12		0.85	0.11		0.89	0.11		0.94	0.13	
Everyday Discrimination Score (Situation Based)	1.66	0.09	***	1.61	0.12	***	1.49	0.11	***	1.37	0.10	***	1.41	0.10	***
Wave x Everyday Discrimination Score				1.04	0.06		1.04	0.06		1.03	0.06		1.02	0.06	
Migrant status (non-migrant ref.)							0.18	0.04	***	0.24	0.05	***	0.24	0.05	***
Demographic Factors															
Age in Years							0.98	0.01	*	0.99	0.01		0.98	0.01	+
Male Gender (Female ref.)							0.71	0.17		0.79	0.18		0.85	0.19	
Any English Usage (No English Usage)							1.05	0.22		0.77	0.18		0.94	0.23	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.58	0.41	+	1.48	0.38	
Widowed, Separated, Divorced/Annulled, Other										1.93	0.67	+	1.88	0.65	
Never Married										1.12	0.25		1.23	0.28	
High Isolation (Low ref.)										16.61	3.31	***	15.34	3.09	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.51	0.15	*

Some College	0.48	0.13	**
College Degree and Above	0.25	0.07	***
Currently Employed (Not Employed ref.)	0.63	0.11	**

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.6.1 Weighted Mixed Model Regression of Psychological Distress Score on Survey Wave and Social Capital, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
		0.06			0.23			0.23			0.20			0.20	
Wave	-0.19		**	-0.47		*	-0.45		*	-0.37		+	-0.34		+
		0.02			0.04			0.04			0.03			0.03	
Social Capital	-0.04			-0.07		+	-0.06			-0.03			-0.03		
Wave x Social					0.03			0.03			0.02			0.02	
Capital				0.04			0.03			0.02			0.03		
Migrant status								0.12			0.11			0.11	
(non-migrant ref.)							-1.70		***	-1.40		***	-1.33		***
Demographic Factors															
								0.01			0.01			0.01	
Age in Years							-0.02		**	-0.02		**	-0.02		***
Male Gender								0.12			0.11			0.11	
(Female ref.)							-0.24		+	-0.15			-0.11		
Any English Usage (No English Usage)							0.21	0.13	+	-0.07	0.13		-0.02	0.13	
Social Factors															
Marital Status (Married ref.)															
											0.20			0.20	
Living-In										0.13			0.09		
Widowed, Separated, Divorced/Annulled, Other											0.33			0.33	
										0.17			0.16		
											0.15			0.15	
Never Married										-0.05			-0.04		
High Isolation											0.19			0.19	
(Low ref.)										2.84		***	2.83		***

Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													-0.75	0.21	***
Some College													-0.80	0.20	***
College Degree and Above													-1.11	0.19	***
Currently Employed (Not Employed ref.)													-0.20	0.13	
Constant	6.45	0.19	***	6.72	0.29	***	8.21	0.36	***	7.29	0.35	***	8.38	0.39	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.28	0.06		2.28	0.06		2.12	0.07		1.80	0.06		1.77	0.06	
Residual	1.69	0.06		1.69	0.06		1.68	0.06		1.55	0.04		1.55	0.04	
Panel C: Model Fit															
AIC	32204.14			32197.05			31992.46			30532.97			30483.55		
BIC	32235.56			32234.75			32055.3			30620.94			30596.66		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.6.2 Weighted Mixed Model Binary Logistic Regression of Moderate/Severe Psychological Distress on Survey Wave and Social Capital, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.81	0.06	**	0.52	0.14	*	0.58	0.16	*	0.57	0.15	*	0.59	0.16	+
Social Capital	0.94	0.03	*	0.89	0.04	*	0.90	0.04	*	0.90	0.05	+	0.91	0.05	+
Wave x Social Capital				1.06	0.03	+	1.04	0.03		1.05	0.04		1.04	0.04	
Migrant status (non-migrant ref.)							0.25	0.05	***	0.33	0.07	***	0.32	0.08	***
Demographic Factors															
Age in Years							0.97	0.01	**	0.98	0.01	+	0.98	0.01	*
Male Gender (Female ref.)							0.61	0.15	*	0.69	0.19		0.72	0.20	
Any English Usage (No English Usage)							0.93	0.18		0.76	0.17		0.87	0.21	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.65	0.41	*	1.61	0.41	+
Widowed, Separated, Divorced/Annulled, Other										1.83	0.55	*	1.78	0.52	+
Never Married										1.08	0.28		1.21	0.30	
High Isolation (Low ref.)										9.05	1.84	***	8.89	1.83	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.72	0.20	
Some College													0.75	0.20	
College Degree and Above													0.44	0.13	
Currently Employed (Not Employed ref.)													0.80	0.16	

Constant	0.24	0.07	***	0.34	0.12	**	1.63	0.94		0.48	0.29		0.81	0.53	

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.6.3 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave and Social Capital, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.82	0.07	*	0.51	0.14	*	0.62	0.17	+	0.63	0.16	+	0.66	0.16	+
Social Capital	0.95	0.03		0.90	0.05	*	0.92	0.05		0.95	0.04		0.95	0.04	
Wave x Social Capital				1.06	0.04	+	1.04	0.03		1.04	0.03		1.04	0.03	
Migrant status (non-migrant ref.)							0.13	0.03	***	0.19	0.04	***	0.18	0.04	***
Demographic Factors															
Age in Years							0.96	0.01	**	0.98	0.01	*	0.97	0.01	**
Male Gender (Female ref.)							0.70	0.19		0.79	0.19		0.84	0.20	
Any English Usage (No English Usage)							1.08	0.23		0.77	0.18		0.94	0.23	
Social Factors															
Marital Status (Married ref.)															
Living-In										1.56	0.41	+	1.44	0.38	
Widowed, Separated, Divorced/Annulled, Other										1.90	0.67	+	1.83	0.65	+
Never Married										1.23	0.29		1.34	0.31	
High Isolation (Low ref.)										20.07	3.99	***	19.10	3.81	***
Socioeconomic Factors															
Educational Attainment (Less than high school ref.)															
High School Graduate													0.49	0.15	*
Some College													0.53	0.15	*

College Degree and Above	0.27	0.08	***
Currently Employed (Not Employed ref.)	0.64	0.11	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.7.1 Weighted Mixed Model Regression of Sleep Disturbance Score on Survey Wave and Financial Strain, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Variable	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**	**β**	**SE**	**Sig.**
Wave	-0.19	0.07	**	-0.53	0.15	**	-0.53	0.15	***	-0.45	0.15	**	-0.42	0.16	**	-0.40	0.17	*
Financial Strain (Very low ref.)																		
Low	0.61	0.16	***	0.14	0.27		0.00	0.26		0.00	0.26		-0.01	0.26		-0.09	0.27	
Medium	0.89	0.22	***	0.32	0.29		0.06	0.29		0.06	0.29		0.04	0.28		-0.12	0.29	
High	1.55	0.28	***	1.75	0.49	***	1.33	0.49	**	1.24	0.49	*	1.23	0.50	*	0.93	0.50	+
Wave x Financial Strain																		
Wave x Low				0.46	0.19	*	0.41	0.19	*	0.36	0.19	+	0.35	0.19	+	0.22	0.19	
Wave x Medium				0.64	0.21	**	0.59	0.21	**	0.59	0.21	*	0.48	0.21	*	0.37	0.21	+
Wave x High				-0.25	0.38		-0.21	0.38		-0.26	0.38		-0.30	0.39		-0.37	0.40	
Migrant status (non-migrant ref.)							-1.95	0.14	***	-1.80	0.14	***	-1.81	0.15	***	-1.35	0.15	***
Demographic Factors																		
Age in Years							-0.02	0.01	**	-0.01	0.01	+	-0.01	0.01	+	-0.03	0.01	***
Male Gender (Female ref.)							-0.11	0.12		-0.10	0.12		-0.08	0.12		-0.06	0.11	
Any English Usage (No English Usage)							-0.29	0.15	+	-0.35	0.15	*	-0.33	0.15	*	-0.31	0.15	*
Social Factors																		
Marital Status (Married ref.)																		
Living-In										0.69	0.26	**	0.68	0.26	**	0.59	0.24	*
Widowed, Separated, Divorced/Annulled, Other										0.68	0.26	**	0.68	0.26	**	0.71	0.23	**
Never Married										0.24	0.19		0.25	0.19		0.13	0.18	
High Isolation (Low ref.)										1.17	0.16	***	1.17	0.16	***	1.03	0.16	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													-0.13	0.21		-0.11	0.18	

Some College													-0.10	0.20		-0.01	0.18		
College Degree and Above													-0.19	0.19		-0.16	0.18		
Currently Employed (Not Employed ref.)													-0.13	0.16		-0.27	0.15	+	
Health Factors																			
Hours of Sleep																-0.34	0.04	***	
General Poor Health																0.67	0.07	***	
Constant	8.72	0.16	***	9.07	0.23	***	10.89	0.30	***	10.22	0.36	***	10.43	0.42	***	11.50	0.54	***	
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		
Intercept	2.31	0.05		2.30	0.05		2.10	0.05		2.01	0.05		2.01	0.05		1.81	0.05		
Residual	1.90	0.05		1.89	0.05		1.89	0.04		1.87	0.04		1.87	0.04		1.80	0.04		
Panel C: Model Fit																			
AIC	33691.5			33630.8			33354.59			33136.98			33140.14			32438.2			
BIC	33735.48			33693.64			33442.56			33250.09			33278.38			32589			

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.7.2 Weighted Mixed Model Regression of Moderate to Severe Sleep Disturbance on Survey Wave and Financial Strain, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.87	0.05	*	0.85	0.11		0.86	0.12		0.88	0.13		0.88	0.13		0.85	0.14	
Financial Strain (Very low ref.)																		
Low	1.64	0.20	***	1.54	0.30	*	1.32	0.28		1.33	0.29		1.32	0.28		1.23	0.30	
Medium	2.48	0.34	***	2.35	0.52	***	1.79	0.42	*	1.78	0.44	*	1.75	0.43	*	1.44	0.39	+
High	3.96	0.92	***	6.43	2.01	***	4.65	1.59	***	4.55	1.62	***	4.30	1.50	***	3.80	1.44	***
Wave x Financial Strain																		
Wave x Low				1.09	0.18		1.03	0.18		1.01	0.18		1.01	0.18		0.95	0.18	
Wave x Medium				1.07	0.20		1.02	0.20		0.97	0.19		0.97	0.19		0.95	0.20	
Wave x High				0.55	0.16	*	0.55	0.16	*	0.54	0.16	*	0.55	0.17	*	0.45	0.16	*
Migrant status (non-migrant ref.)							0.35	0.05	***	0.37	0.05	***	0.38	0.06	***	0.45	0.07	***
Demographic Factors																		
Age in Years							0.98	0.01	***	0.98	0.01	**	0.98	0.01	**	0.97	0.01	***
Male Gender (Female ref.)							0.94	0.14		0.98	0.14		0.99	0.15		1.01	0.15	
Any English Usage (No English Usage)							0.86	0.14		0.79	0.13		0.80	0.13		0.74	0.15	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.00	0.20		0.99	0.20		0.89	0.18	
Widowed, Separated, Divorced/Annulled, Other										1.29	0.29		1.25	0.28		1.26	0.28	
Never Married										1.03	0.18		1.04	0.18		0.95	0.17	

High Isolation (Low ref.)									2.69	0.40		2.67	0.40	***	2.60	0.40	***
Socioeconomic Factors																	
Educational Attainment (Less than high school ref.)																	
High School Graduate												0.84	0.16		0.80	0.14	
Some College												0.98	0.18		0.98	0.17	
College Degree and Above												0.82	0.15		0.73	0.13	+
Currently Employed (Not Employed ref.)												0.99	0.11		0.80	0.09	+
Health Factors																	
Hours of Sleep															0.73	0.03	***
General Poor Health															1.44	0.10	***
Constant	0.35	0.04	***	0.36	0.06	***	1.46	0.45	1.05	0.35		1.22	0.48		8.33	4.49	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.7.3 Weighted Mixed Model Regression of Sleep Disturbance Severity on Survey Wave and Financial Strain, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**	**OR**	**SE**	**Sig.**
Wave	0.85	0.06	*	0.72	0.12	+	0.73	0.12	+	0.76	0.12	+	0.77	0.13		0.72	0.13	+
Financial Strain (Very low ref.)																		
Low	1.99	0.29	***	1.59	0.38	+	1.25	0.29		1.22	0.28		1.20	0.28		1.03	0.27	
Medium	3.34	0.66	***	2.50	0.70	**	1.62	0.45	+	1.56	0.43		1.53	0.43		1.12	0.34	
High	7.90	2.53	***	7.10	2.56	***	6.92	3.39	***	6.03	2.81	**	5.92	2.72	***	4.03	1.76	**
Wave x Financial Strain																		
Wave x Low				1.28	0.25		1.17	0.22		1.15	0.22		1.14	0.21		1.12	0.22	
Wave x Medium				1.42	0.32		1.29	0.28		1.20	0.26		1.19	0.26		1.21	0.26	
Wave x High				0.54	0.19	+	0.56	0.19	+	0.57	0.19	+	0.56	0.19	+	0.49	0.17	*
Migrant status (non-migrant ref.)							0.19	0.04	***	0.22	0.04	***	0.21	0.04	***	0.29	0.06	***
Demographic Factors																		
Age in Years							0.98	0.01	**	0.99	0.01	+	0.99	0.01		0.97	0.01	**
Male Gender (Female ref.)							1.02	0.20		1.05	0.19		1.06	0.19		1.07	0.19	
Any English Usage (No English Usage)							0.77	0.14		0.71	0.14	+	0.73	0.14	+	0.70	0.15	+
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.27	0.31		1.27	0.30		1.12	0.26	
Widowed, Separated, Divorced/Annulled, Other										1.36	0.34		1.36	0.34		1.32	0.32	
Never Married										1.16	0.25		1.16	0.25		1.06	0.23	

High Isolation (Low ref.)	3.36	0.64	***	3.34	0.65	***	3.02	0.57	***
Socioeconomic Factors									
Educational Attainment (Less than high school ref.)									
High School Graduate				1.02	0.26		0.94	0.20	
Some College				1.08	0.26		1.09	0.23	
College Degree and Above				0.97	0.24		0.86	0.20	
Currently Employed (Not Employed ref.)				0.91	0.12		0.72	0.09	*
Health Factors									
Hours of Sleep							0.68	0.03	***
General Poor Health							1.60	0.12	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.1 Weighted Mixed Model Regression of Sleep Disturbance Score on Survey Wave and Everyday Discrimination Score (Chronicity-Calculated), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.2341	0.0642	***	-0.1773	0.0666	**	-0.2013	0.0677	**	-0.1530	0.0692	*	-0.1330	0.0747	+	-0.1677	0.0755	*
Everyday Discrimination Score (Chronicity-Calculated)	0.0034	0.0006	***	0.0044	0.0006	***	0.0042	0.0006	***	0.0038	0.0007	***	0.0037	0.0007	***	0.0039	0.0006	***
Wave x Everyday Discrimination Score (Chronicity-Calculated)				-0.0012	0.0006	+	-0.0011	0.0006	+	-0.0012	0.0006	*	-0.0012	0.0006	+	-0.0016	0.0006	*
Migrant status (non-migrant ref.)							2.1370	0.1267	***	1.9570	0.1277	***	1.9783	0.1336	***	1.3989	0.1399	***
Demographic Factors																		
Age in Years							0.0083	0.0051		0.0030	0.0060		0.0032	0.0062		0.0225	0.0057	***
Male Gender (Female ref.)							-0.1677	0.1226		-0.1664	0.1214		-0.1435	0.1207		-0.1195	0.1112	
Any English Usage (No English Usage)							-0.3114	0.1456	*	-0.3508	0.1487	*	-0.3203	0.1536	*	-0.2982	0.1479	*
Social Factors																		
Marital Status (Married ref.)																		
Living-In										0.8166	0.2509	**	0.7961	0.2494	**	0.6533	0.2300	**
Widowed, Separated, Divorced/Annulled, Other										0.7605	0.2699	**	0.7543	0.2681	**	0.7393	0.2386	**
Never Married										0.3293	0.1772	+	0.3250	0.1765	+	0.1664	0.1671	
High Isolation (Low ref.)										1.1080	0.1566	***	1.1057	0.1565	***	0.9547	0.1487	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													-0.1034	0.2057		-0.0749	0.1823	
Some College													-0.0852	0.1992		-0.0390	0.1772	

College Degree and Above													-0.1725	0.1926		-0.1066	0.1744	
Currently Employed (Not Employed ref.)													-0.1741	0.1539		-0.2694	0.1491	+
Health Factors																		
Hours of Sleep																-0.3436	0.0375	***
General Poor Health																-0.6823	0.0655	***
Constant	9.1264	0.0888	***	9.0711	0.0882	***	10.5851	0.2200	***	9.8585	0.2915	***	10.0695	0.3603	***	11.0502	0.4991	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.3640	0.0490		2.3619	0.0492		2.0932	0.0536		2.0142	0.0520		2.0125	0.0524		1.7963	0.0495	
Residual	1.8887	0.0467		1.8868	0.0465		1.8829	0.0461		1.8646	0.0455		1.8637	0.0459		1.7940	0.0451	
Panel C: Model Fit																		
AIC	33670.21			33657.39			33317.26			33104.96			33104.88			32350.4		
BIC	33701.63			33695.09			33380.09			33192.93			33217.98			32476.07		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.2 Weighted Mixed Model Regression of Moderate to Severe Sleep Disturbance on Survey Wave and Everyday Discrimination Score (Chronicity-Calculated) Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
	0.848	0.045		0.867	0.053		0.844	0.056		0.851	0.059		0.851	0.062		0.810	0.063	
Wave	2	4	**	8	4	*	6	0	*	5	9	*	1	0	*	1	8	**
Everyday Discrimination (Chronicity	1.003	0.000		1.003	0.000		1.003	0.000		1.002	0.000		1.002	0.000		1.003	0.000	
Weighted)	0	4	***	4	6	***	2	7	***	8	7	***	7	7	***	2	7	***
Wave x Everyday Discrimination (Chronicity				0.999	0.000		0.999	0.000		0.999	0.000		0.999	0.000		0.999	0.000	
Weighted)				6	6		6	6		5	6		6	6		3	6	
Migrant status (non-migrant ref.)							0.299	0.040		0.320	0.045		0.326	0.047		0.428	0.069	
							8	5	***	8	1	***	4	7	***	8	7	***
Demographic Factors																		
							0.986	0.005		0.988	0.006		0.987	0.006		0.973	0.006	
Age in Years							3	9	*	2	5	+	5	7	+	3	8	***
Male Gender (Female ref.)							0.904	0.140		0.945	0.143		0.956	0.146		0.973	0.147	
							0	7		7	9		3	2		5	5	
Any English Usage (No English Usage)							0.865	0.128		0.802	0.124		0.827	0.129		0.759	0.149	
							9	0		5	2		1	1		4	4	
Social Factors																		
Marital Status (Married ref.)																		
										1.062	0.214		1.043	0.208		0.891	0.176	
Living-In										1	5		2	0		7	5	
Widowed, Separated, Divorced/Annulled, Other										1.310	0.306		1.271	0.295		1.247	0.302	
										3	9		2	1		1	0	
										1.028	0.182		1.039	0.183		0.937	0.171	
Never Married										5	4		3	2		4	7	
High Isolation (Low ref.)										2.463	0.380		2.441	0.376		2.277	0.362	
										8	4	***	5	9	***	4	9	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School													0.839	0.163		0.815	0.146	
Graduate													0	1		7	7	

												0.950	0.181		1.006	0.177	
Some College												3	8		4	3	
College Degree												0.773	0.145		0.737	0.133	
and Above												2	7		5	8	+
Currently Employed												0.968	0.103		0.807	0.092	
(Not Employed ref.)												9	8		1	9	+
Health Factors																	
															0.719	0.029	
Hours of Sleep															2	6	***
															1.486	0.109	
General Poor Health															7	0	***
	0.502	0.041		0.492	0.043		1.466	0.403		1.114	0.351	1.354	0.535		8.007	4.057	
Constant	3	6	***	6	2	***	2	8		7	5	2	0		9	4	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.3 Weighted Mixed Model Regression of Sleep Disturbance Severity on Survey Wave and Everyday Discrimination Score (Chronicity-Calculated), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.8112	0.0531	**	0.8483	0.0625	*	0.8191	0.0607	**	0.8401	0.0642	*	0.8519	0.0683	*	0.8143	0.0655	*
Everyday Discrimination (Chronicity Weighted)	1.0037	0.0006	***	1.0044	0.0007	***	1.0038	0.0007	***	1.0033	0.0008	***	1.0032	0.0008	***	1.0036	0.0007	***
Wave x Everyday Discrimination (Chronicity Weighted)				0.9991	0.0006		0.9992	0.0006		0.9991	0.0006		0.9991	0.0006		0.9988	0.0006	*
Migrant status (non-migrant ref.)							0.1556	0.0296	***	0.1808	0.0342	***	0.1761	0.0347	***	0.2697	0.0560	***
Demographic Factors																		
Age in Years							0.9888	0.0066	+	0.9935	0.0080		0.9942	0.0083		0.9778	0.0080	**
Male Gender (Female ref.)							0.9709	0.1916		1.0098	0.1869		1.0296	0.1879		1.0252	0.1817	
Any English Usage (No English Usage)							0.7613	0.1327		0.7125	0.1301		0.7406	0.1361		0.6994	0.1484	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.4077	0.3466		1.3929	0.3413		1.1772	0.2721	
Widowed, Separated, Divorced/Annulled, Other										1.4592	0.3783		1.4507	0.3742		1.3494	0.3463	
Never Married										1.1599	0.2584		1.1765	0.2588		1.0430	0.2314	
High Isolation (Low ref.)										3.1016	0.6129	***	3.0686	0.6057	***	2.7039	0.5138	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													1.0111	0.2556		0.9611	0.2029	
Some College													1.0437	0.2617		1.1236	0.2366	

College Degree and Above	0.9074	0.2229	0.8744	0.1919	
Currently Employed	0.8690	0.1129	0.7127	0.0924	
(Not Employed ref.)					*
Health Factors					
Hours of Sleep			0.6753	0.0313	***
General Poor Health			1.6499	0.1268	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.4 Weighted Mixed Model Regression of Sleep Disturbance Score on Survey Wave and Everyday Discrimination Score (Frequency-Summed), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.15	0.06	*	-0.08	0.08		-0.11	0.08		-0.06	0.08		-0.04	0.08		-0.07	0.08	
Everyday Discrimination Score (Frequency-Summed)	0.14	0.01	***	0.16	0.02	***	0.15	0.02	***	0.14	0.02	***	0.14	0.02	***	0.13	0.02	***
Wave x Everyday Discrimination Score (Frequency-Summed)				-0.02	0.02		-0.02	0.02		-0.02	0.02		-0.02	0.02		-0.03	0.02	+
Migrant status (non-migrant ref.)							-2.03	0.13	***	-1.87	0.13	***	-1.88	0.13	***	-1.34	0.14	***
Demographic Factors																		
Age in Years							0.00	0.01		0.00	0.01		0.00	0.01		-0.02	0.01	***
Male Gender (Female ref.)							-0.20	0.02	+	-0.19	0.02		-0.17	0.02		-0.14	0.01	
Any English Usage (No English Usage)							-0.32	0.14	*	-0.36	0.15	*	-0.33	0.15	*	-0.31	0.15	*
Social Factors																		
Marital Status (Married ref.)																		
Living-In										0.79	0.26	**	0.77	0.26	**	0.63	0.24	**
Widowed, Separated, Divorced/Annulled, Other										0.75	0.26	**	0.74	0.26	**	0.73	0.23	**
Never Married										0.28	0.18		0.28	0.18		0.13	0.17	
High Isolation (Low ref.)										1.06	0.16	***	1.06	0.16	***	0.92	0.15	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													-0.15	0.21		-0.12	0.18	
Some College													-0.17	0.20		-0.05	0.18	

College Degree and Above															-0.26	0.19		-0.20	0.17		
Currently Employed (Not Employed ref.)															-0.17	0.15		-0.27	0.15		+
Health Factors																					
Hours of Sleep																		-0.34	0.04		***
General Poor Health																		0.66	0.07		***
Constant	8.71	0.10	***	8.64	0.11	***	9.96	0.23	***	9.35	0.29	***	9.65	0.36	***	10.71	0.50	***			
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**				
Intercept	2.29	0.05		2.29	0.05		2.04	0.05		1.97	0.05		1.97	0.05		1.76	0.05				
Residual	1.88	0.05		1.88	0.05		1.88	0.05		1.86	0.05		1.86	0.05		1.79	0.04				
Panel C: Model Fit																					
AIC	33538.83			33533.97			33206.51			33008.86			33008.15			32283.95					
BIC	33570.25			33571.67			33269.34			33096.83			33121.26			32409.62					

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.5 Weighted Mixed Model Regression of Moderate to Severe Sleep Disturbance on Survey Wave and Everyday Discrimination Score (Frequency-Summed) Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.91	0.05	+	0.89	0.07		0.86	0.07	+	0.87	0.08		0.87	0.08		0.84	0.08	+
Everyday Discrimination Score (Frequency-Summed)	1.23	0.01	***	1.12	0.02	***	1.11	0.02	***	1.09	0.02	***	1.09	0.02	***	1.11	0.02	***
Wave x Everyday Discrimination Score (Frequency-Summed)				1.00	0.01		1.00	0.01		1.00	0.01		1.00	0.02		1.00	0.02	
Migrant status (non-migrant ref.)							0.33	0.04	***	0.35	0.05	***	0.35	0.05	***	0.46	0.07	***
Demographic Factors																		
Age in Years							0.99	0.01		0.99	0.01		0.99	0.01		0.98	0.01	**
Male Gender (Female ref.)							0.89	0.14		0.94	0.14		0.95	0.14		0.96	0.14	
Any English Usage (No English Usage)							0.85	0.12		0.79	0.12		0.82	0.13		0.75	0.14	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.07	0.22		1.05	0.21		0.90	0.18	
Widowed, Separated, Divorced/Annulled, Other										1.31	0.30		1.28	0.29		1.25	0.29	
Never Married										0.99	0.18		1.01	0.18		0.91	0.17	
High Isolation (Low ref.)										2.36	0.36	***	2.33	0.36	***	2.14	0.33	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.80	0.16		0.77	0.13	
Some College													0.88	0.17		0.91	0.16	

College Degree and Above														0.71	0.14	+	0.66	0.12	*
Currently Employed (Not Employed ref.)														0.96	0.10		0.80	0.09	*
Health Factors																			
Hours of Sleep																	0.72	0.03	***
General Poor Health																	1.47	0.11	***
Constant	0.35	0.03	***	0.35	0.04	***	0.88	0.24		0.74	0.24			0.98	0.39		6.11	3.13	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.6 Weighted Mixed Model Regression of Sleep Disturbance Severity on Survey Wave and Everyday Discrimination Score (Frequency-Summed), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.90	0.06	+	0.92	0.08		0.88	0.08		0.89	0.08		0.90	0.08		0.87	0.08	
Everyday Discrimination Score (Frequency-Summed)	1.17	0.02	***	1.17	0.02	***	1.14	0.02	***	1.12	0.02	***	1.12	0.02	***	1.13	0.02	***
Wave x Everyday Discrimination Score (Frequency-Summed)				0.99	0.02		0.99	0.02		0.99	0.02		0.99	0.02		0.98	0.02	
Migrant status (non-migrant ref.)							0.18	0.03	***	0.20	0.04	***	0.20	0.04	***	0.30	0.06	***
Demographic Factors																		
Age in Years							1.00	0.01		1.00	0.01		1.00	0.01		0.98	0.01	*
Male Gender (Female ref.)							0.95	0.18		1.00	0.18		1.02	0.18		1.02	0.17	
Any English Usage (No English Usage)							0.75	0.13	+	0.70	0.12	*	0.74	0.13	+	0.70	0.14	+
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.39	0.33		1.38	0.33		1.17	0.26	
Widowed, Separated, Divorced/Annulled, Other										1.43	0.35		1.43	0.35		1.33	0.32	
Never Married										1.09	0.25		1.11	0.25		0.99	0.22	
High Isolation (Low ref.)										2.87	0.56	***	2.82	0.55	***	2.50	0.47	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.96	0.24		0.91	0.19	
Some College													0.94	0.23		1.00	0.21	
College Degree and Above													0.82	0.20		0.77	0.17	
Currently Employed (Not Employed ref.)													0.87	0.11		0.71	0.09	**
Health Factors																		

Hours of Sleep	0.68	0.03	**
General Poor Health	1.62	0.12	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.7 Weighted Mixed Model Regression of Sleep Disturbance Score on Survey Wave and Everyday Discrimination Score (Situation-Based), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.12	0.06	*	-0.11	0.08		-0.14	0.08	+	-0.09	0.08		-0.07	0.08		-0.11	0.08	
Everyday Discrimination Score (Situation-Based)	0.36	0.04	***	0.37	0.05	***	0.34	0.05	***	0.32	0.05	***	0.32	0.05	***	0.30	0.05	***
Wave x Everyday Discrimination Score (Situation-Based)				0.00	0.02		0.00	0.02		-0.01	0.02		-0.01	0.02		-0.02	0.02	
Migrant status (non-migrant ref.)							-2.03	0.13	***	-1.86	0.13	***	-1.87	0.13	***	-1.33	0.14	***
Demographic Factors																		
Age in Years							0.00	0.01		0.00	0.01		0.00	0.01		-0.02	0.01	***
Male Gender (Female ref.)							-0.15	0.12		-0.15	0.12		-0.12	0.12		-0.09	0.11	
Any English Usage (No English Usage)							-0.30	0.15	*	-0.34	0.15	*	-0.31	0.16	+	-0.29	0.15	+
Social Factors																		
Marital Status (Married ref.)																		
Living-In										0.78	0.26	**	0.76	0.26	**	0.62	0.24	*
Widowed, Separated, Divorced/Annulled, Other										0.77	0.25	**	0.76	0.25	**	0.75	0.22	**
Never Married										0.27	0.18		0.27	0.18		0.13	0.17	
High Isolation (Low ref.)										1.09	0.16	***	1.08	0.16	***	0.95	0.15	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													-0.19	0.21		-0.17	0.18	
Some College													-0.25	0.20		-0.12	0.18	

College Degree and Above															-0.35	0.19	+		-0.29	0.18	
Currently Employed (Not Employed ref.)															-0.17	0.16			-0.27	0.15	+
Health Factors																					
Hours of Sleep																			-0.34	0.04	***
General Poor Health																			0.66	0.07	***
Constant	8.60	0.11	***	8.58	0.13	***	9.93	0.25	***	9.32	0.30	***	9.70	0.37	***	10.78	0.50	***			
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**				
Intercept	2.28	0.05		2.28	0.05		2.04	0.05		1.96	0.05		1.96	0.05		1.76	0.05				
Residual	1.89	0.05		1.89	0.05		1.88	0.05		1.86	0.05		1.86	0.05		1.80	0.05				
Panel C: Model Fit																					
AIC	33557			33558.69			33238.36			33031.35			33028.51			32310.94					
BIC	33588.42			33596.39			33301.22			33119.32			33141.62			32436.61					

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.8 Weighted Mixed Model Regression of Moderate to Severe Sleep Disturbance on Survey Wave and Everyday Discrimination Score (Situation-Based) Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.93	0.05		0.86	0.06	*	0.82	0.06	*	0.83	0.07	*	0.84	0.07	*	0.80	0.07	*
Everyday Discrimination Score (Situation-Based)	1.35	0.05	***	1.30	0.05	***	1.24	0.05	***	1.22	0.05	***	1.23	0.05	***	1.25	0.06	***
Wave x Everyday Discrimination Score (Situation-Based)				1.02	0.01		1.02	0.01		1.02	0.01		1.01	0.01		1.01	0.01	
Migrant status (non-migrant ref.)							0.33	0.04	***	0.35	0.05	***	0.36	0.05	***	0.46	0.08	***
Demographic Factors																		
Age in Years							0.99	0.01		0.99	0.01		0.99	0.01		0.98	0.01	**
Male Gender (Female ref.)							0.93	0.14		0.97	0.15		0.99	0.15		1.01	0.15	
Any English Usage (No English Usage)							0.85	0.13		0.79	0.12		0.83	0.13		0.76	0.14	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.08	0.22		1.06	0.21		0.90	0.18	
Widowed, Separated, Divorced/Annulled, Other										1.34	0.31		1.31	0.30		1.28	0.30	
Never Married										0.99	0.18		1.01	0.18		0.92	0.17	
High Isolation (Low ref.)										2.45	0.37	***	2.40	0.36	***	2.24	0.34	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.78	0.15		0.74	0.13	+
Some College													0.82	0.16		0.86	0.15	
College Degree and Above													0.65	0.12	*	0.60	0.11	**
Currently Employed (Not Employed ref.)													0.96	0.10		0.79	0.09	*

Health Factors																
Hours of Sleep															0.72	0.03	***
General Poor Health															1.47	0.10	***
Constant	0.31	0.03	***	0.34	0.04	***	0.88	0.24		0.71	0.22		0.99	0.38	5.90	2.98	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.8.9 Weighted Mixed Model Regression of Sleep Disturbance Severity on Survey Wave and Everyday Discrimination Score (Situation-Based), Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.93	0.06		0.91	0.08		0.85	0.07	+	0.88	0.08		0.90	0.08		0.86	0.08	+
Everyday Discrimination Score (Situation-Based)	1.51	0.07	***	1.49	0.08	***	1.37	0.07	***	1.34	0.07	***	1.34	0.07	***	1.34	0.07	***
Wave x Everyday Discrimination Score (Situation-Based)				1.01	0.02		1.01	0.01		1.00	0.01		1.00	0.01		0.99	0.01	
Migrant status (non-migrant ref.)							0.18	0.04	***	0.21	0.04	***	0.21	0.04	***	0.31	0.06	***
Demographic Factors																		
Age in Years							1.00	0.01		1.00	0.01		1.00	0.01		0.98	0.01	*
Male Gender (Female ref.)							1.00	0.19		1.05	0.19		1.07	0.19		1.07	0.18	
Any English Usage (No English Usage)							0.76	0.13		0.71	0.13	+	0.76	0.14		0.71	0.15	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.42	0.34		1.40	0.33		1.19	0.26	
Widowed, Separated, Divorced/Annulled, Other										1.47	0.36		1.46	0.36		1.36	0.33	
Never Married										1.08	0.25		1.11	0.25		0.99	0.22	
High Isolation (Low ref.)										2.98	0.58	***	2.91	0.56	***	2.60	0.48	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.91	0.23		0.86	0.18	
Some College													0.87	0.21		0.92	0.19	
College Degree and Above													0.73	0.18		0.69	0.15	+
Currently Employed (Not Employed ref.)													0.86	0.11		0.70	0.09	**

Health Factors			
Hours of Sleep	0.68	0.03	**
General Poor Health	1.61	0.12	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.9.1 Weighted Mixed Model Regression of Sleep Disturbance Score on Survey Wave and Social Resources, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**			**Model 3**			**Model 4**			**Model 5**			**Model 6**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
		0.0			0.2			0.2			0.2			0.2			0.2	
Wave	-0.24	6	***	-0.46	4	+	-0.36	4		-0.31	4		-0.29	4		-0.44	5	+
		0.0			0.0			0.0			0.0			0.0			0.0	
Social Resources	-0.07	3	**	-0.10	4	**	-0.08	4	*	-0.07	4	*	-0.07	4	*	-0.05	4	
Wave x Social					0.0			0.0			0.0			0.0			0.0	
Resources				0.03	3		0.01	3		0.01	3		0.01	3		0.02	3	
Migrant status (non-migrant ref.)								0.1			0.1			0.1			0.1	
							-2.20	3	***	-1.99	3	***	-2.01	4	***	-1.44	4	***
Demographic Factors																		
								0.0			0.0			0.0			0.0	
Age in Years							-0.01	1	*	-0.01	1		-0.01	1		-0.03	1	***
Male Gender (Female								0.1			0.1			0.1			0.1	
ref.)							-0.11	2		-0.12	2		-0.09	2		-0.07	1	
Any English Usage								0.1			0.1			0.1			0.1	
(No English Usage)							-0.33	5	*	-0.38	5	*	-0.34	6	*	-0.30	5	*
Social Factors																		
Marital Status (Married ref.)																		
											0.2			0.2			0.2	
Living-In										0.85	6	**	0.82	6	**	0.66	4	**
Widowed, Separated,											0.2			0.2			0.2	
Divorced/Annulled, Other										0.76	7	**	0.76	7	**	0.75	4	**
											0.1			0.1			0.1	
Never Married										0.31	8	+	0.31	8	+	0.16	7	
High Isolation (Low											0.1			0.1			0.1	
ref.)										1.18	6	***	1.18	6	***	1.04	5	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School														0.2			0.1	
Graduate													-0.19	1		-0.15	9	
														0.2			0.1	
Some College													-0.17	0		-0.05	8	
College Degree														0.2			0.1	
and Above													-0.27	0		-0.21	8	
Currently Employed														0.1			0.1	
(Not Employed ref.)													-0.20	6		-0.29	5	+

Health Factors																			
Hours of Sleep																	-0.33	0.04	***
General Poor Health																	0.69	0.07	***
Constant	9.90	0.22	***	10.11	0.32	***	11.65	0.37	***	10.79	0.41	***	11.10	0.46	***	11.81		0.58	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**	**SE**		**Estimate**		**SE**	
Intercept	2.42	0.05		2.42	0.05		2.14	0.05		2.04	0.05		2.04	0.05		1.82		0.05	
Residual	1.90	0.05		1.90	0.05		1.89	0.05		1.87	0.04		1.87	0.04		1.81		0.04	
Panel C: Model Fit																			
AIC	33785.25			33782.63			33434.59			33197.11			33193.65			32468.09			
BIC	33816.67			33820.33			33497.42			33285.08			33306.75			32593.76			

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.9.2 Weighted Mixed Model Regression of Moderate to Severe Sleep Disturbance on Survey Wave and Social Resources Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.83	0.04	***	0.73	0.13		0.84	0.17		0.84	0.17		0.84	0.18		0.71	0.16	
Social Resources	0.97	0.02		0.96	0.03		0.98	0.03		0.99	0.03		0.99	0.03		0.99	0.03	
Wave x Social Resources				1.02	0.02		1.00	0.02		1.00	0.02		1.00	0.02		1.01	0.03	
Migrant status (non-migrant ref.)							0.29	0.04	***	0.31	0.04	***	0.32	0.05	***	0.42	0.07	***
Demographic Factors																		
Age in Years							0.98	0.01	**	0.99	0.01	*	0.99	0.01	*	0.97	0.01	***
Male Gender (Female ref.)							0.94	0.15		0.98	0.15		0.99	0.15		1.02	0.15	
Any English Usage (No English Usage)							0.85	0.13		0.78	0.12		0.81	0.13		0.76	0.15	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.08	0.22		1.05	0.21		0.91	0.18	
Widowed, Separated, Divorced/Annulled, Other										1.32	0.32		1.28	0.30		1.26	0.30	
Never Married										1.05	0.18		1.06	0.18		0.95	0.17	
High Isolation (Low ref.)										2.74	0.41	***	2.70	0.40	***	2.59	0.40	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.77	0.15		0.74	0.14	+
Some College													0.88	0.17		0.93	0.16	
College Degree and Above													0.70	0.13		0.66	0.12	*
Currently Employed (Not Employed ref.)													0.95	0.10		0.80	0.09	+
Health Factors																		
Hours of Sleep																0.73	0.03	***

General Poor Health																				1.49	0.11	***
Constant	0.75	0.13	+		0.83	0.20			2.28	0.82	*		1.51	0.60			2.02	0.92		10.61	6.02	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.9.3 Weighted Mixed Model Regression of Psychological Distress Severity on Survey Wave and Social Resources, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.79	0.05	***	0.66	0.15	+	0.81	0.18		0.85	0.19		0.86	0.19		0.70	0.16	
Social Resources	0.96	0.02		0.94	0.04		0.97	0.04		0.99	0.04		0.99	0.04		0.99	0.04	
Wave x Social Resources				1.02	0.03		0.99	0.03		0.99	0.03		0.99	0.03		1.01	0.03	
Migrant status (non-migrant ref.)							0.14	0.03	***	0.17	0.03	***	0.17	0.03	***	0.26	0.06	***
Demographic Factors																		
Age in Years							0.99	0.01	*	0.99	0.01		0.99	0.01		0.98	0.01	**
Male Gender (Female ref.)							1.02	0.20		1.05	0.20		1.08	0.20		1.08	0.19	
Any English Usage (No English Usage)							0.75	0.14		0.70	0.13	+	0.74	0.13		0.70	0.15	
Social Factors																		
Marital Status (Married ref.)																		
Living-In										1.42	0.35		1.39	0.35		1.17	0.28	
Widowed, Separated, Divorced/Annulled, Other										1.45	0.38		1.44	0.37		1.34	0.34	
Never Married										1.17	0.26		1.19	0.26		1.06	0.23	
High Isolation (Low ref.)										3.50	0.68	***	3.44	0.67	***	3.09	0.58	***
Socioeconomic Factors																		
Educational Attainment (Less than high school ref.)																		
High School Graduate													0.90	0.23		0.85	0.19	
Some College													0.95	0.24		1.01	0.21	
College Degree and Above													0.80	0.20		0.76	0.18	
Currently Employed (Not Employed ref.)													0.86	0.11		0.71	0.09	*
Health Factors																		
Hours of Sleep																0.68	0.03	***
General Poor Health																1.66	0.13	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.10.1 Weighted Zero Inflated Negative Binomial Logistic Regression of Baseline Decile-Calculated Allostatic Load on Financial Strain and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1	
Panel A: Negative Binomial	**β**	**SE**
Financial Strain (Very Low ref.)		
Low	-0.05	0.17
Medium	-0.04	0.18
High	-0.02	0.20
Migrant Status (non-migrant ref.)	-0.23	0.19
Financial Strain x Migrant Status		
Low x Migrant	0.05	0.20
Medium x Migrant	0.12	0.22
High x Migrant	-0.56	0.58
Demographic Factors		
Age in Years	0.02***	0.00
Male Gender (Female ref.)	0.11	0.08
English Use During Survey (No English ref.)	0.16	0.11
Social Factors		
Marital Status (Married ref.)		
Living-In	-0.11	0.11
Widowed, Separated, Divorced/Annulled	-0.09	0.13
Never Married	-0.14	0.09
High Social Isolation (Low ref.)	0.11	0.09
Socioeconomic Factors		
Educational Attainment (Less than high school ref.)		
High School Graduate	-0.18+	0.10
Some College	-0.16	0.10

College Degree and Above	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)	-0.13+	0.07
Health Behaviors		
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.14+	0.07
Current Smoking Status (Never smoked ref.)		
Former Smoker	0.13+	0.08
Current Smoker	0.08	0.11
Constant	-0.12	0.28
Panel B: Zero Inflation	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.32	0.21
Age in Years	-0.05***	0.01
Constant	1.28**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.10.2 Weighted Poisson Regression of Baseline Quartile and Risk Calculated Allostatic Load on Financial Strain and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Financial Strain (Very Low Ref.)				
Low	-0.07	(0.11)	0.07	(0.08)
Medium	-0.09	(0.11)	0.04	(0.08)
High	-0.13	(0.13)	-0.01	(0.10)
Migrant Status (non-migrant ref.)	-0.07	(0.12)	-0.01	(0.08)
Financial Strain x Migrant Status				
Low x Migrant	0.01	(0.13)	-0.08	(0.09)
Medium x Migrant	0.07	(0.14)	-0.01	(0.10)
High x Migrant	-0.08	(0.34)	-0.25	(0.23)
Demographic Factors				
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.04	(0.04)
English Use During Survey (No English ref.)	0.07	(0.08)	0.06	(0.05)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.07	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.17**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.01	(0.06)	-0.02	(0.04)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.10	(0.07)	-0.06	(0.05)
Some College	-0.06	(0.07)	-0.10+	(0.05)
College Degree and Above	-0.14+	(0.07)	-0.08+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.09*	(0.05)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10+	(0.05)	0.10**	(0.04)

Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.10	(0.16)	0.26*	(0.12)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.11.1 Weighted Zero Inflated Negative Binomial Regression of Baseline Decile-Allostatic Load on Everyday Discrimination Score (Chronicity-Calculated) and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1	
Panel A: Negative Binomial	**β**	**SE**
Discrimination (Chronicity-Calculated)	-0.00	0.00
Migrant Status (non-migrant ref.)	-0.19*	0.09
Discrimination x Migrant Status	0.00	0.00
Demographic Factors		
Age in Years	0.02***	0.00
Male Gender (Female ref.)	0.11	0.08
English Use During Survey (No English ref.)	0.17	0.11
Social Factors		
Marital Status (Married ref.)		
Living-In	-0.11	0.11
Widowed, Separated, Divorced/Annulled	-0.09	0.12
Never Married	-0.14	0.09
High Social Isolation (Low ref.)	0.12	0.08
Socioeconomic Factors		
Educational Attainment (Less than high school ref.)		
High School Graduate	-0.18+	0.10
Some College	-0.17+	0.10
College Degree and Above	-0.26**	0.10
Currently Employed (Not Currently Employed Ref.)	-0.13+	0.07
Health Behaviors		
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.13+	0.07

Current Smoking Status (Never smoked ref.)		
Former Smoker	0.14+	0.08
Current Smoker	0.08	0.11
Constant	-0.12	0.23
Panel B: Zero Inflation	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.30	0.21
Age in Years	-0.05***	0.01
Constant	1.25**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.11.2 Weighted Poisson Regression of Baseline Quartile and Risk Calculated Allostatic Load on Everyday Discrimination Score (Chronicity-Calculated) and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Discrimination (Chronicity-Calculated)	-0.00	(0.00)	-0.00	(0.00)
Migrant Status (non-migrant ref.)	-0.04	(0.05)	-0.05	(0.04)
Discrimination x Migrant Status	0.00	(0.00)	-0.00	(0.00)
Demographic Factors				
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.03	(0.04)
English Use During Survey (No English ref.)	0.07	(0.08)	0.06	(0.06)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.07	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.18**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.01	(0.06)	-0.01	(0.04)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.10	(0.07)	-0.06	(0.05)
Some College	-0.06	(0.07)	-0.10+	(0.05)
College Degree and Above	-0.13+	(0.07)	-0.09+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.09*	(0.05)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10+	(0.05)	0.10**	(0.04)
Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.05	(0.13)	0.32***	(0.10)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.11.3 Weighted Zero Inflated Negative Binomial Regression of Baseline Decile-Allostatic Load on Everyday Discrimination Score (Frequency-Summed) and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1	
Panel A: Negative Binomial	**β**	**SE**
Discrimination (Frequency-Summed)	-0.00	0.01
Migrant Status (non-migrant ref.)	-0.17+	0.10
Discrimination x Migrant Status	-0.00	0.01
Demographic Factors		
Age in Years	0.02***	0.00
Male Gender (Female ref.)	0.11	0.08
English Use During Survey (No English ref.)	0.17	0.11
Social Factors		
Marital Status (Married ref.)		
Living-In	-0.11	0.11
Widowed, Separated, Divorced/Annulled	-0.09	0.12
Never Married	-0.14	0.09
High Social Isolation (Low ref.)	0.12	0.09
Socioeconomic Factors		
Educational Attainment (Less than high school ref.)		
High School Graduate	-0.18+	0.10
Some College	-0.16	0.10
College Degree and Above	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)	-0.13+	0.07
Health Behaviors		
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.14+	0.07

Current Smoking Status (Never smoked ref.)		
Former Smoker	0.14+	0.08
Current Smoker	0.08	0.11
Constant	-0.16	0.23
Panel B: Zero Inflation	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.31	0.21
Age in Years	-0.05***	0.01
Constant	1.25**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.11.4 Weighted Poisson Regression of Baseline Quartile and Risk Calculated Allostatic Load on Everyday Discrimination Score (Frequency-Summed) and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	β	SE	β	SE
Discrimination (Frequency-Summed)	-0.00	(0.01)	0.00	(0.00)
Migrant Status (non-migrant ref.)	-0.04	(0.06)	-0.03	(0.04)
Discrimination x Migrant Status	0.00	(0.01)	-0.01	(0.01)
Demographic Factors				
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.03	(0.04)
English Use During Survey (No English ref.)	0.08	(0.08)	0.06	(0.06)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.07	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.18**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.00	(0.06)	-0.02	(0.05)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.06	(0.07)	-0.06	(0.05)
Some College	-0.13+	(0.07)	-0.09+	(0.05)
College Degree and Above	-0.09*	(0.05)	-0.08+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.10	(0.07)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10+	(0.05)	0.10**	(0.04)
Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.06	(0.14)	0.30**	(0.10)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.11.5 Weighted Zero Inflated Negative Binomial Regression of Baseline Decile-Allostatic Load on Everyday Discrimination Score (Situation-Based) and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1	
Panel A: Negative Binomial	**β**	**SE**
Discrimination (Situation-Based)	-0.01	0.03
Migrant Status (non-migrant ref.)	-0.15	0.10
Discrimination x Migrant Status	-0.01	0.04
Demographic Factors		
Age in Years	0.02***	0.00
Male Gender (Female ref.)	0.11	0.08
English Use During Survey (No English ref.)	0.17	0.11
Social Factors		
Marital Status (Married ref.)		
Living-In	-0.11	0.11
Widowed, Separated, Divorced/Annulled	-0.09	0.12
Never Married	-0.14	0.09
High Social Isolation (Low ref.)	0.12	0.09
Socioeconomic Factors		
Educational Attainment (Less than high school ref.)		
High School Graduate	-0.18+	0.10
Some College	-0.16	0.10
College Degree and Above	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)	-0.13+	0.07
Health Behaviors		
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.14+	0.07

Current Smoking Status (Never smoked ref.)		
Former Smoker	0.14+	0.08
Current Smoker	0.08	0.11
Constant	-0.17	0.22
Panel B: Zero Inflation	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.31	0.22
Age in Years	-0.05***	0.01
Constant	1.23**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.11.6 Weighted Poisson Regression of Baseline Quartile and Risk Calculated Allostatic Load on Everyday Discrimination Score (Situation-Based) and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Discrimination (Situation-Based)	-0.02	(0.02)	0.00	(0.01)
Migrant Status (non-migrant ref.)	-0.03	(0.07)	-0.02	(0.05)
Discrimination x Migrant Status	-0.00	(0.03)	-0.02	(0.02)
Demographic Factors				
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.03	(0.04)
English Use During Survey (No English ref.)	0.08	(0.08)	0.06	(0.06)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.07	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.18**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.00	(0.06)	-0.02	(0.05)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.10	(0.07)	-0.06	(0.05)
Some College	-0.05	(0.07)	-0.09+	(0.05)
College Degree and Above	-0.13+	(0.07)	-0.08+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.09*	(0.05)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10*	(0.05)	0.11**	(0.04)
Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.07	(0.14)	0.29**	(0.10)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.12.1 Weighted Mixed Model Regression of Psychological Distress Score on Survey Wave, Financial Strain, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects		**Model 1**			**Model 2**	
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.55	0.22	*	-0.19	0.17	
Financial Strain (Very low ref.)						
Low	-0.03	0.38		-0.02	0.33	
Medium	0.35	0.40		0.26	0.34	
High	1.31	0.59	*	1.14	0.47	*
Wave x Financial Strain						
Wave x Low	0.25	0.28		0.00	0.21	
Wave x Medium	0.72	0.27	**	0.41	0.21	+
Wave x High	-0.43	0.49		-0.66	0.42	
Migrant status (non-migrant ref.)	-1.42	0.35	***	-1.13	0.31	***
Wave x Migrant Status	0.26	0.23		-0.04	0.19	
Financial Strain x Migrant Status						
Low x Migrant	-0.11	0.42		-0.09	0.36	
Medium x Migrant	-0.32	0.48		-0.10	0.42	
High x Migrant	-0.43	0.99		-0.16	1.03	
Wave x Financial Strain x Migrant Status						
Wave x Low x Migrant	-0.06	0.32		0.16	0.25	
Wave x Medium x Migrant	0.08	0.48		0.13	0.40	
Wave x High x Migrant	0.08	0.94		-0.31	1.35	
Demographic Factors						
Age in Years				-0.03	0.01	***
Male Gender (Female ref.)				-0.11	0.10	
Any English Usage (No English Usage)				-0.03	0.13	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.05	0.20	

Widowed, Separated, Divorced/Annulled, Other				0.15	0.30	
Never Married				-0.07	0.14	
High Isolation (Low ref.)				2.78	0.19	
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.71	0.21	**
Some College				-0.73	0.20	***
College Degree and Above				-1.03	0.19	***
Currently Employed (Not Employed ref.)				-0.18	0.13	
Constant	6.83	0.32	***	8.06	0.40	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.09	0.07		1.75	0.06	
Residual	1.67	0.05		1.53	0.04	
Panel C: Model Fit						
AIC	31841.24			30351.38		
BIC	31954.34			30533.6		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.12.2 Weighted Mixed Model Regression of Moderate or Severe Psychological Distress on Survey Wave, Financial Strain, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.50	0.21	+	0.59	0.30	
Financial Strain (Very low ref.)						
Low	1.76	1.03		2.07	1.23	
Medium	2.27	2.27		2.49	1.51	
High	4.37	2.77	*	4.94	3.17	*
Wave x Financial Strain						
Wave x Low	1.39	0.67		1.24	0.70	
Wave x Medium	1.72	0.78		1.44	0.79	
Wave x High	1.25	0.64		1.15	0.69	
Migrant status (non-migrant ref.)	0.45	0.27		0.63	0.38	
Wave x Migrant Status	1.72	0.78		1.68	0.90	
Financial Strain x Migrant Status						
Low x Migrant	0.45	0.30		0.37	0.26	
Medium x Migrant	0.55	0.41		0.53	0.42	
High x Migrant	0.62	0.67		0.41	0.53	
Wave x Financial Strain x Migrant Status						
Wave x Low x Migrant	0.92	0.52		0.96	0.62	
Wave x Medium x Migrant	0.67	0.46		0.69	0.50	
Wave x High x Migrant	1.03	1.10		0.92	1.03	
Demographic Factors						
Age in Years				0.97	0.01	*
Male Gender (Female ref.)				0.71	0.19	
Any English Usage (No English Usage)				0.74	0.18	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.59	0.43	+
Widowed, Separated, Divorced/Annulled, Other				1.84	0.51	*
Never Married				1.29	0.34	
High Isolation (Low ref.)				8.63	1.83	***

Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.85	0.23	
Some College				0.83	0.23	
College Degree and Above				0.50	0.15	
Currently Employed (Not Employed ref.)				0.79	0.16	
Constant	0.13	0.07	***	0.19	0.15	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.12.3 Weighted Mixed Model Regression of Psychological Distress Severity on Survey Wave, Financial Strain, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects		**Model 1**			**Model 2**	
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.50	0.17	*	0.63	0.22	
Financial Strain (Very low ref.)						
Low	1.48	0.98		1.45	0.92	
Medium	2.73	1.77		2.46	1.57	
High	4.63	3.50	*	3.95	2.81	+
Wave x Financial Strain						
Wave x Low	1.43	0.58		1.28	0.52	
Wave x Medium	2.05	0.75	*	1.77	0.68	
Wave x High	1.09	0.52		1.01	0.48	
Migrant status (non-migrant ref.)	0.22	0.15	*	0.31	0.19	+
Wave x Migrant Status	1.46	0.56		1.31	0.52	
Financial Strain x Migrant Status						
Low x Migrant	0.63	0.46		0.61	0.42	
Medium x Migrant	0.57	0.43		0.64	0.47	
High x Migrant	0.74	1.03		0.58	0.86	
Wave x Financial Strain x Migrant Status						
Wave x Low x Migrant	0.97	0.48		1.08	0.52	
Wave x Medium x Migrant	1.07	0.57		1.07	0.58	
Wave x High x Migrant	0.63	0.91		0.34	0.56	
Demographic Factors						
Age in Years				0.97	0.01	**
Male Gender (Female ref.)				0.85	0.20	
Any English Usage (No English Usage)				0.88	0.22	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.32	0.35	

Widowed, Separated, Divorced/Annulled, Other	1.71	0.56	
Never Married	1.31	0.31	
High Isolation (Low ref.)	17.85	3.62	***
Socioeconomic Factors			
Educational Attainment (Less than high school ref.)			
High School Graduate	0.55	0.16	*
Some College	0.60	0.17	+
College Degree and Above	0.33	0.10	***
Currently Employed (Not Employed ref.)	0.66	0.12	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.1 Weighted Mixed Model Regression of Psychological Distress on Survey Wave, Everyday Discrimination Score (Chronicity-Calculated), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.2521	0.1050	*	-0.1119	0.0937	
Everyday Discrimination (Chronicity Weighted)	0.0025	0.0016		0.0019	0.0012	
Wave x Everyday Discrimination (Chronicity Weighted)	-0.0002	0.0011		-0.0003	0.0009	
Migrant status (non-migrant ref.)	-1.7311	0.1820	***	-1.3034	0.1528	***
Wave x Migrant	0.1538	0.1251		0.0034	0.1100	
Discrimination x Migrant	0.0014	0.0019		0.0001	0.0016	
Wave x Discrimination x Migrant	-0.0011	0.0013		-0.0005	0.0011	
Demographic Factors						
Age in Years				-0.0197	0.0052	***
Male Gender (Female ref.)				-0.1483	0.1050	
Any English Usage (No English Usage)				-0.0236	0.1386	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.0812	0.1998	
Widowed, Separated, Divorced/Annulled, Other				0.1542	0.3280	
Never Married				-0.0462	0.1421	
High Isolation (Low ref.)				2.7869	0.2028	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.7034	0.2061	**

Some College				-0.7519	0.1968	***
College Degree and Above				-1.0535	0.1891	***
Currently Employed (Not Employed ref.)				-0.1765	0.1262	
Constant	6.8926	0.1613	***	7.9253	0.3358	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.0594	0.0651		1.7377	0.0586	
Residual	1.6842	0.0580		1.5470	0.0448	
Panel C: Model Fit						
AIC	31913.75			30446.27		
BIC	31976.59			30578.22		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.2 Weighted Mixed Model Regression of Moderate or Severe Psychological Distress on Survey Wave, Everyday Discrimination Score (Chronicity-Calculated), and Migrant Status , Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects		**Model 1**			**Model 2**	
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.7638	0.0730	**	0.8130	0.0932	+
Everyday Discrimination (Chronicity Weighted)	1.0032	0.0010	**	1.0028	0.0008	**
Wave x Everyday Discrimination (Chronicity Weighted)	0.9994	0.0008		0.9991	0.0007	
Migrant status (non-migrant ref.)	0.2206	0.0558	***	0.2955	0.1023	***
Wave x Migrant	1.3770	0.2228	*	1.3657	0.2875	
Discrimination x Migrant	1.0001	0.0014		0.9987	0.0016	
Wave x Discrimination x Migrant	0.9996	0.0011		1.0002	0.0014	
Demographic Factors						
Age in Years				0.9800	0.0098	*
Male Gender (Female ref.)				0.7009	0.1886	
Any English Usage (No English Usage)				0.8060	0.1926	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.7057	0.4424	*
Widowed, Separated, Divorced/Annulled, Other				1.8870	0.5809	*
Never Married				1.2433	0.3087	
High Isolation (Low ref.)				8.3265	1.7475	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.8266	0.2308	
Some College				0.8056	0.2111	

College Degree and Above				0.4838	0.1470	*
Currently Employed (Not Employed ref.)				0.7579	0.1584	
Constant	0.1908	0.0365	***	0.2943	0.1693	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.3 Weighted Mixed Model Regression of Psychological Distress Severity on Survey Wave, Everyday Discrimination Score (Chronicity-Calculated), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects		**Model 1**			**Model 2**	
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.7563	0.0867	*	0.8498	0.0995	
Everyday Discrimination (Chronicity Weighted)	1.0038	0.0013	**	1.0027	0.0009	**
Wave x Everyday Discrimination (Chronicity Weighted)	1.0003	0.0009		1.0003	0.0008	
Migrant status (non-migrant ref.)	0.1344	0.0390	***	0.1885	0.0546	***
Wave x Migrant	1.2313	0.2051		1.1969	0.2222	
Discrimination x Migrant	1.0007	0.0017		0.9994	0.0016	
Wave x Discrimination x Migrant	0.9986	0.0012		0.9990	0.0012	
Demographic Factors						
Age in Years				0.9751	0.0091	**
Male Gender (Female ref.)				0.8190	0.1844	
Any English Usage (No English Usage)				0.9257	0.2264	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.4545	0.3737	
Widowed, Separated, Divorced/Annulled, Other				1.8259	0.6114	+
Never Married				1.3497	0.3044	
High Isolation (Low ref.)				16.5266	3.2904	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.5786	0.1647	+
Some College				0.5892	0.1548	*

College Degree and Above	0.3233	0.0932	***
Currently Employed (Not Employed ref.)	0.6403	0.1133	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.4 Weighted Mixed Model Regression of Psychological Distress on Survey Wave, Everyday Discrimination Score (Frequency-Summed), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.20	0.13		-0.08	0.12	
Everyday Discrimination (Frequency-Summed)	0.12	0.04	**	0.09	0.03	**
Wave x Everyday Discrimination (Frequency-Summed)	0.00	0.03		0.00	0.02	
Migrant status (non-migrant ref.)	-1.62	0.24	***	-1.21	0.19	***
Wave x Migrant	0.17	0.15		-0.01	0.04	
Discrimination x Migrant	0.01	0.05		-0.01	0.03	
Wave x Discrimination x Migrant	-0.01	0.03		0.00	0.00	
Demographic Factors						
Age in Years				-0.02	0.01	**
Male Gender (Female ref.)				-0.18	0.10	+
Any English Usage (No English Usage)				-0.04	0.14	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.08	0.20	
Widowed, Separated, Divorced/Annulled, Other				0.16	0.33	
Never Married				-0.06	0.14	
High Isolation (Low ref.)				2.74	0.20	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.73	0.20	***
Some College				-0.80	0.20	***
College Degree and Above				-1.09	0.19	***

Currently Employed (Not Employed ref.)				-0.18	0.13	
Constant	6.49	0.22	***	7.56	0.36	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	1.99	0.06		1.69	0.06	
Residual	1.68	0.06		1.54	0.05	
Panel C: Model Fit						
AIC	31785.34			30345.25		
BIC	31848.17			30477.2		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.5 Weighted Mixed Model Binary Logistic Regression of Moderate or Severe Psychological Distress on Survey Wave, Everyday Discrimination Score (Frequency-Summed), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.90	0.12		0.98	0.16	
Everyday Discrimination Score (Frequency-Summed)	1.16	0.03	***	1.15	0.03	***
Wave x Everyday Discrimination Score	0.97	0.02		0.96	0.03	
Migrant status (non-migrant ref.)	0.25	0.08	***	0.36	0.16	*
Wave x Migrant Status	1.37	0.29		1.29	0.32	
Discrimination (Frequency-Summed) x Migrant	1.00	0.04		0.96	0.04	
Wave x Discrimination x Migrant	1.01	0.04		1.02	0.04	
Demographic Factors						
Age in Years				0.99	0.01	
Male Gender (Female ref.)				0.68	0.19	
Any English Usage (No English Usage)				0.80	0.20	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.79	0.48	*
Widowed, Separated, Divorced/Annulled, Other				1.90	0.61	*
Never Married				1.19	0.30	
High Isolation (Low ref.)				7.97	1.70	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.75	0.22	

Some College				0.71	0.19	
College Degree and Above				0.42	0.13	**
Currently Employed (Not Employed ref.)				0.74	0.16	
Constant	0.10	0.03	***	0.16	0.09	**

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.6 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave, Everyday Discrimination Score (Frequency-Summed), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2		
Variable	OR	SE	p-value	OR	SE	p-value
Wave	0.85	0.12		0.93	0.14	
Everyday Discrimination Score (Frequency-Summed)	1.19	0.04	***	1.15	0.04	***
Wave x Everyday Discrimination Score	1.00	0.02		1.00	0.02	
Migrant status (non-migrant ref.)	0.16	0.05	***	0.22	0.07	***
Wave x Migrant Status	1.21	0.25		1.19	0.25	
Discrimination (Frequency-Summed) x Migrant	1.01	0.04		0.99	0.04	
Wave x Discrimination x Migrant	1.00	0.04		1.01	0.04	
Demographic Factors						
Age in Years				0.98	0.01	+
Male Gender (Female ref.)				0.79	0.17	
Any English Usage (No English Usage)				0.90	0.22	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.50	0.38	
Widowed, Separated, Divorced/Annulled, Other				1.82	0.59	+
Never Married				1.28	0.28	
High Isolation (Low ref.)				14.44	2.84	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.55	0.16	*

Some College	0.54	0.14	*
College Degree and Above	0.30	0.09	***
Currently Employed (Not Employed ref.)	0.62	0.11	**

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.7 Weighted Mixed Model Regression of Psychological Distress on Survey Wave, Everyday Discrimination Score (Situation-Based), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.23	0.14	+	-0.12	0.13	
Everyday Discrimination (Situation-Based)	0.28	0.08	**	0.21	0.07	**
Wave x Everyday Discrimination (Situation-Based)	0.02	0.06		0.02	0.06	
Migrant status (non-migrant ref.)	-1.54	0.24	***	-1.22	0.21	***
Wave x Migrant	0.14	0.16		0.08	0.14	
Discrimination x Migrant	-0.04	0.10		-0.02	0.09	
Wave x Discrimination x Migrant	0.03	0.08		-0.03	0.07	
Demographic Factors						
Age in Years				-0.02	0.01	**
Male Gender (Female ref.)				-0.14	0.10	
Any English Usage (No English Usage)				-0.03	0.14	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.08	0.20	
Widowed, Separated, Divorced/Annulled, Other				0.18	0.33	
Never Married				-0.05	0.14	
High Isolation (Low ref.)				2.75	0.19	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.76	0.21	***
Some College				-0.86	0.20	***
College Degree and Above				-1.16	0.19	***

Currently Employed (Not Employed ref.)				-0.20	0.13	
Constant	6.45	0.22	***	7.63	0.38	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.02	0.07		1.70	0.06	
Residual	1.68	0.05		1.54	0.04	
Panel C: Model Fit						
AIC	31828.91			30369.23		
BIC	31891.75			30501.19		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.8 Weighted Mixed Model Binary Logistic Regression of Moderate or Severe Psychological Distress on Survey Wave, Everyday Discrimination Score (Situation-Based), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.97	0.18		1.05	0.23	
Everyday Discrimination Score (Situation Based)	1.51	0.15	***	1.58	0.17	**
Wave x Everyday Discrimination Score	0.92	0.06		0.88	0.07	
Migrant status (non-migrant ref.)	0.26	0.10	**	0.36	0.16	*
Wave x Migrant Status	1.21	0.34		1.23	0.37	
Discrimination (Situation-Based) x Migrant	0.98	0.12		0.91	0.14	
Wave x Discrimination x Migrant	1.10	0.12		1.12	0.13	
Demographic Factors						
Age in Years				0.99	0.01	
Male Gender (Female ref.)				0.74	0.20	
Any English Usage (No English Usage)				0.79	0.20	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.84	0.50	*
Widowed, Separated, Divorced/Annulled, Other				1.99	0.64	*
Never Married				1.20	0.30	
High Isolation (Low ref.)				8.03	1.76	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						

High School Graduate				0.70	0.20	
Some College				0.63	0.17	+
College Degree and Above				0.35	0.11	**
Currently Employed (Not Employed ref.)				0.73	0.15	
Constant	0.08	0.03	***	0.14	0.09	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.13.9 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave, Everyday Discrimination Score (Situation-Based), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.83	0.14		0.91	0.16	
Everyday Discrimination Score (Situation Based)	1.53	0.16	***	1.42	0.15	**
Wave x Everyday Discrimination Score	1.01	0.07		1.01	0.07	
Migrant status (non-migrant ref.)	0.16	0.06	***	0.21	0.08	***
Wave x Migrant Status	1.10	0.27		1.14	0.28	
Discrimination (Situation-Based) x Migrant	0.99	0.13		0.97	0.12	
Wave x Discrimination x Migrant	1.10	0.11		1.08	0.11	
Demographic Factors						
Age in Years				0.98	0.01	+
Male Gender (Female ref.)				0.85	0.19	
Any English Usage (No English Usage)				0.89	0.22	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.54	0.40	+
Widowed, Separated, Divorced/Annulled, Other				1.95	0.67	*
Never Married				1.29	0.29	
High Isolation (Low ref.)				15.01	3.04	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						

High School Graduate	0.52	0.15	*
Some College	0.49	0.13	**
College Degree and Above	0.25	0.07	***
Currently Employed (Not Employed ref.)	0.60	0.11	**

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.14.1 Weighted Mixed Model Regression of Sleep Disturbance on Survey Wave, Financial Strain, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.40	0.38		-0.04	0.42	
Financial Strain (Very low ref.)						
Low	-0.07	0.62		0.14	0.70	
Medium	-0.08	0.62		0.02	0.67	
High	1.21	0.75		1.12	0.80	
Wave x Financial Strain						
Wave x Low	0.28	0.42		-0.17	0.47	
Wave x Medium	0.42	0.40		-0.01	0.43	+
Wave x High	-0.32	0.53		-0.66	0.57	
Migrant status (non-migrant ref.)	-2.10	0.60	**	-1.05	0.65	
Wave x Migrant Status	-0.21	0.41		-0.51	0.43	
Financial Strain x Migrant Status						
Low x Migrant	0.16	0.67		-0.28	0.74	
Medium x Migrant	0.26	0.70		-0.09	0.74	
High x Migrant	0.36	1.39		0.27	1.30	
Wave x Financial Strain x Migrant Status						
Wave x Low x Migrant	0.10	0.47		0.52	0.51	
Wave x Medium x Migrant	0.51	0.60		0.67	0.58	
Wave x High x Migrant	-0.85	1.09		-1.39	1.04	
Demographic Factors						
Age in Years				-0.03	0.01	***
Male Gender (Female ref.)				-0.06	0.11	
Any English Usage (No English Usage)				-0.30	0.15	*
Social Factors						
Marital Status (Married ref.)						
Living-In				0.57	0.23	*

Widowed, Separated, Divorced/Annulled, Other				0.67	0.23	**
Never Married				0.05	0.17	
High Isolation (Low ref.)				1.07	0.15	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.11	0.19	
Some College				0.00	0.18	
College Degree and Above				-0.16	0.18	
Currently Employed (Not Employed ref.)				-0.23	0.15	
Health Factors						
Hours of Sleep				-0.34	0.04	***
General Poor Health				0.67	0.07	***
Constant	10.32	0.57	***	8.06	0.40	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.11	0.05		1.81	0.05	
Residual	1.89	0.04		1.80	0.04	
Panel C: Model Fit						
AIC	33366.08			32418.28		
BIC	33479.19			32613.07		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.14.2 Weighted Mixed Model Binary Logistic Regression of Moderate or Severe Sleep Disturbance on Survey Wave, Financial Strain, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	Model 1			Model 2		
Variable	OR	SE	p-value	OR	SE	p-value
Wave	1.00	0.32		1.14	0.40	
Financial Strain (Very low ref.)						
Low	1.85	0.79		2.01	1.04	
Medium	2.27	1.00	+	2.12	1.10	
High	5.19	2.52	**	5.94	3.44	**
Wave x Financial Strain						
Wave x Low	0.82	0.28		0.69	0.26	
Wave x Medium	0.81	0.29		0.70	0.27	
Wave x High	0.48	0.20	+	0.35	0.17	*
Migrant status (non-migrant ref.)	0.53	0.22		0.87	0.43	
Wave x Migrant Status	0.75	0.25		0.63	0.23	
Financial Strain x Migrant Status						
Low x Migrant	0.56	0.26		0.45	0.25	
Medium x Migrant	0.61	0.30		0.59	0.33	
High x Migrant	0.89	0.75		0.69	0.66	
Wave x Financial Strain x Migrant Status						
Wave x Low x Migrant	1.38	0.53		1.65	0.69	
Wave x Medium x Migrant	1.92	0.85		1.94	0.89	
Wave x High x Migrant	0.19	0.32		0.13	0.22	
Demographic Factors						
Age in Years				0.97	0.01	***
Male Gender (Female ref.)				1.00	0.15	
Any English Usage (No English Usage)				0.75	0.16	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.88	0.18	

Widowed, Separated, Divorced/Annulled, Other				1.24	0.28	
Never Married				0.93	0.16	
High Isolation (Low ref.)				2.64	0.41	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.81	0.15	
Some College				1.00	0.18	
College Degree and Above				0.73	0.14	+
Currently Employed (Not Employed ref.)				0.81	0.10	+
Health Factors						
Hours of Sleep				0.72	0.03	***
General Health				1.44	0.10	***
Constant	0.53	0.21	***	5.83	3.89	**

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.14.3 Weighted Mixed Model Ordinal Logistic Regression of Sleep Disturbance Severity on Survey Wave, Financial Strain, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.92	0.34		1.00	0.40	
Financial Strain (Very low ref.)						
Low	1.68	0.84		1.47	0.91	
Medium	1.89	0.98		1.45	0.91	
High	8.30	5.36	**	6.00	4.14	**
Wave x Financial Strain						
Wave x Low	0.89	0.36		0.81	0.35	
Wave x Medium	0.99	0.41		0.88	0.38	
Wave x High	0.43	0.21	+	0.36	0.19	*
Migrant status (non-migrant ref.)	0.26	0.13	**	0.46	0.28	
Wave x Migrant Status	0.67	0.27		0.61	0.26	
Financial Strain x Migrant Status						
Low x Migrant	0.64	0.35		0.59	0.39	
Medium x Migrant	0.82	0.48		0.80	0.54	
High x Migrant	0.36	0.42		0.35	0.40	
Wave x Financial Strain x Migrant Status						
Wave x Low x Migrant	1.40	0.64		1.57	0.74	
Wave x Medium x Migrant	1.76	1.00		1.81	1.00	
Wave x High x Migrant	1.57	1.59		0.87	0.82	
Demographic Factors						
Age in Years				0.97	0.01	**
Male Gender (Female ref.)				1.05	0.19	
Any English Usage (No English Usage)				0.72	0.16	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.09	0.26	

Widowed, Separated, Divorced/Annulled, Other	1.28	0.32	
Never Married	1.02	0.22	
High Isolation (Low ref.)	3.10	0.58	***
Socioeconomic Factors			
Educational Attainment (Less than high school ref.)			
High School Graduate	0.94	0.21	
Some College	1.10	0.24	
College Degree and Above	0.86	0.20	
Currently Employed (Not Employed ref.)	0.74	0.10	*
Health Factors			
Hours of Sleep	0.68	0.03	***
General Poor Health	1.60	0.12	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.1 Weighted Mixed Model Regression of Sleep Disturbance on Survey Wave, Everyday Discrimination Score (Chronicity-Calculated), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.1171	0.0961		-0.0944	0.1048	
Everyday Discrimination Score (Chronicity-Weighted)	0.0031	0.0008	***	0.0032	0.0008	***
Wave x Discrimination	-0.0009	0.0009		-0.0015	0.0009	
Migrant status (non-migrant ref.)	-2.1570	0.1729	***	-1.3351	0.1920	***
Wave x Migrant Status	-0.2476	0.1324	+	-0.1976	0.1320	
Discrimination x Migrant Status	0.0028	0.0015	+	0.0017	0.0014	
Wave x Discrimination x Migrant Status	-0.0008	0.0013		-0.0003	0.0012	
Demographic Factors						
Age in Years				-0.0241	0.0057	***
Male Gender (Female ref.)				-0.1240	0.1116	
Any English Usage (No English Usage)				-0.2729	0.1446	+
Social Factors						
Marital Status (Married ref.)						
Living-In				0.6008	0.2317	*
Widowed, Separated, Divorced/Annulled, Other				0.6724	0.2389	**
Never Married				0.0817	0.1628	
High Isolation (Low ref.)				0.9697	0.1482	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.0889	0.1829	

Some College				0.0368	0.1777	
College Degree and Above				-0.1108	0.1751	
Currently Employed (Not Employed ref.)				-0.2070	0.1472	
Health Factors						
Hours of Sleep				-0.3457	0.0379	***
General Poor Health				0.6734	0.0657	***
Constant	10.1854	0.1330	***	11.1251	0.5005	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.0940	0.0534		1.7965	0.0497	
Residual	1.8792	0.0465		1.7908	0.0450	
Panel C: Model Fit						
AIC	33293.77			32334.12		
BIC	33356.6			32478.64		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.14.2 Weighted Mixed Model Binary Logistic Regression of Moderate or Severe Sleep Disturbance on Survey Wave, Everyday Discrimination Score (Chronicity-Calculated), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects		**Model 1**			**Model 2**	
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.8025	0.0757	*	0.7843	0.0845	*
Everyday Discrimination Score (Chronicity-Weighted)	1.0028	0.0009	**	1.0029	0.0010	**
Wave x Discrimination	1.0002	0.0009		1.0000	0.0009	
Migrant status (non-migrant ref.)	0.2747	0.0471	***	0.4155	0.0847	***
Wave x Migrant Status	1.0745	0.1313		1.0687	0.1500	
Discrimination x Migrant Status	1.0011	0.0014		1.0007	0.0014	
Wave x Discrimination x Migrant Status	0.9985	0.0011		0.9983	0.0012	
Demographic Factors						
Age in Years				0.9735	0.0068	***
Male Gender (Female ref.)				0.9749	0.1482	
Any English Usage (No English Usage)				0.7674	0.1565	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.8880	0.1785	
Widowed, Separated, Divorced/Annulled, Other				1.2476	0.2974	
Never Married				0.9370	0.1722	
High Isolation (Low ref.)				2.2754	0.3617	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.8157	0.1468	

Some College			1.0055	0.1778	
College Degree and Above			0.7371	0.1344	+
Currently Employed (Not Employed ref.)			0.8132	0.0924	+
Health Factors					
Hours of Sleep			0.7178	0.0297	***
General Poor Health			1.4873	0.1093	***
Constant	0.8860	0.1265	8.1547	4.1986	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.3 Weighted Mixed Model Ordinal Logistic Regression of Sleep Disturbance Severity on Survey Wave, Everyday Discrimination Score (Chronicity-Calculated), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects		**Model 1**			**Model 2**	
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.8402	0.0881	*	0.8417	0.0912	
Everyday Discrimination Score (Chronicity-Weighted)	1.0033	0.0009	***	1.0033	0.0009	***
Wave x Discrimination	0.9995	0.0008		0.9991	0.0008	
Migrant status (non-migrant ref.)	0.1523	0.0353	***	0.2877	0.0738	***
Wave x Migrant Status	0.8654	0.1227		0.8899	0.1260	
Discrimination x Migrant Status	1.0015	0.0015		1.0007	0.0015	
Wave x Discrimination x Migrant Status	0.9991	0.0012		0.9991	0.0012	
Demographic Factors						
Age in Years				0.9772	0.0081	**
Male Gender (Female ref.)				1.0231	0.1816	
Any English Usage (No English Usage)				0.7212	0.1559	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.1447	0.2686	
Widowed, Separated, Divorced/Annulled, Other				1.3136	0.3396	
Never Married				1.0124	0.2248	
High Isolation (Low ref.)				2.7455	0.5170	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.9558	0.2014	

Some College	1.1205	0.2359	
College Degree and Above	0.8730	0.1913	
Currently Employed (Not Employed ref.)	0.7373	0.0951	*
Health Factors			
Hours of Sleep	0.6743	0.0314	***
General Poor Health	1.6448	0.1275	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.4 Weighted Mixed Model Regression of Sleep Disturbance on Survey Wave, Everyday Discrimination Score (Frequency-Summed), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.09	0.12		-0.07	0.12	
Everyday Discrimination Score (Frequency-Summed)	0.08	0.03	**	0.07	0.03	**
Wave x Discrimination	-0.01	0.03		-0.02	0.03	
Migrant status (non-migrant ref.)	-2.59	0.21	***	-1.74	0.23	***
Wave x Migrant Status	-0.09	0.16		-0.05	0.16	
Discrimination x Migrant Status	0.15	0.04	***	0.13	0.04	***
Wave x Discrimination x Migrant Status	-0.02	0.03		-0.02	0.03	
Demographic Factors						
Age in Years				-0.02	0.01	***
Male Gender (Female ref.)				-0.15	0.03	
Any English Usage (No English Usage)				-0.30	0.15	*
Social Factors						
Marital Status (Married ref.)						
Living-In				0.60	0.24	*
Widowed, Separated, Divorced/Annulled, Other				0.67	0.23	**
Never Married				0.07	0.16	
High Isolation (Low ref.)				0.93	0.15	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.12	0.18	
Some College				-0.04	0.18	
College Degree and Above				-0.20	0.18	
Currently Employed (Not Employed ref.)				-0.19	0.15	

Health Factors						
Hours of Sleep				-0.34	0.04	***
General Poor Health				0.64	0.07	***
Constant	10.03	0.16	***	11.09	0.50	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.04	0.04		1.77	0.05	
Residual	1.87	0.05		1.78	0.05	
Panel C: Model Fit						
AIC	33134.57			32224.42		
BIC	33197.41			32368.94		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.5 Weighted Mixed Model Binary Logistic Regression of Moderate or Severe Sleep Disturbance on Survey Wave, Everyday Discrimination Score (Frequency-Summed), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.79	0.10	*	0.78	0.11	+
Everyday Discrimination Score (Frequency-Summed)	1.08	0.03	**	1.08	0.03	*
Wave x Discrimination	1.02	0.02		1.01	0.02	
Migrant status (non-migrant ref.)	0.22	0.05	***	0.35	0.09	***
Wave x Migrant Status	1.21	0.19		1.20	0.20	
Discrimination x Migrant Status	1.07	0.04	*	1.06	0.04	
Wave x Discrimination x Migrant Status	0.97	0.03		0.96	0.03	
Demographic Factors						
Age in Years				0.98	0.01	**
Male Gender (Female ref.)				0.96	0.14	
Any English Usage (No English Usage)				0.75	0.15	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.91	0.18	
Widowed, Separated, Divorced/Annulled, Other				1.25	0.29	
Never Married				0.92	0.17	
High Isolation (Low ref.)				2.15	0.33	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.77	0.14	
Some College				0.92	0.16	
College Degree and Above				0.66	0.12	*

Currently Employed (Not Employed ref.)				0.80	0.03	*
Health Factors						
Hours of Sleep				0.72	0.03	***
General Poor Health				1.46	0.11	***
Constant	0.72	0.13	+	6.94	3.68	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.6 Weighted Mixed Model Regression of Sleep Disturbance Severity on Survey Wave, Everyday Discrimination Score (Frequency-Summed), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.86	0.11		0.87	0.11	
Everyday Discrimination Score (Frequency-Summed)	1.10	0.03	**	1.10	0.03	**
Wave x Discrimination	1.00	0.02		0.99	0.02	
Migrant status (non-migrant ref.)	0.12	0.04	***	0.24	0.08	***
Wave x Migrant Status	0.96	0.17		0.99	0.17	
Discrimination x Migrant Status	1.10	0.04	*	1.07	0.04	
Wave x Discrimination x Migrant Status	0.99	0.03		0.98	0.03	
Demographic Factors						
Age in Years				0.98	0.01	*
Male Gender (Female ref.)				1.01	0.18	
Any English Usage (No English Usage)				0.70	0.15	+
Social Factors						
Marital Status (Married ref.)						
Living-In				1.15	0.26	
Widowed, Separated, Divorced/Annulled, Other				1.31	0.32	
Never Married				0.98	0.22	
High Isolation (Low ref.)				2.55	0.47	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.91	0.19	
Some College				1.01	0.21	
College Degree and Above				0.78	0.17	

Currently Employed (Not Employed ref.)	0.73	0.09	*
Health Factors			
Hours of Sleep	0.68	0.03	***
General Poor Health	1.60	0.12	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.7 Weighted Mixed Model Regression of Sleep Disturbance on Survey Wave, Everyday Discrimination Score (Situation-Based), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.07	0.12		-0.07	0.13	
Everyday Discrimination Score (Situation-Based)	0.18	0.08	*	0.14	0.08	+
Wave x Discrimination	-0.04	0.06		-0.05	0.07	
Migrant status (non-migrant ref.)	-2.67	0.24	***	-1.88	0.25	***
Wave x Migrant Status	-0.08	0.17		-0.01	0.17	
Discrimination x Migrant Status	0.36	0.11	**	0.33	0.10	**
Wave x Discrimination x Migrant Status	0.00	0.09		-0.02	0.08	
Demographic Factors						
Age in Years				-0.03	0.01	***
Male Gender (Female ref.)				-0.10	0.11	
Any English Usage (No English Usage)				-0.26	0.15	+
Social Factors						
Marital Status (Married ref.)						
Living-In				0.59	0.24	*
Widowed, Separated, Divorced/Annulled, Other				0.69	0.23	**
Never Married				0.08	0.16	
High Isolation (Low ref.)				0.97	0.15	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.12	0.19	
Some College				-0.07	0.18	
College Degree and Above				-0.26	0.18	
Currently Employed (Not Employed ref.)				-0.20	0.15	

Health Factors						
Hours of Sleep				-0.34	0.04	***
General Poor Health				0.64	0.07	***
Constant	10.01	0.19	***	11.17	0.50	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.04	0.05		1.76	0.05	
Residual	1.87	0.05		1.78	0.05	
Panel C: Model Fit						
AIC	33167.25			32245.00		
BIC	33230.08			32389.52		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.8 Weighted Mixed Model Binary Logistic Regression of Moderate or Severe Sleep Disturbance on Survey Wave, Everyday Discrimination Score (Situation-Based), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.81	0.10	+	0.79	0.11	+
Everyday Discrimination Score (Situation-Based)	1.21	0.08	**	1.21	0.10	*
Wave x Discrimination	1.03	0.05		1.02	0.05	
Migrant status (non-migrant ref.)	0.23	0.05	***	0.35	0.09	***
Wave x Migrant Status	1.14	0.18		1.15	0.20	
Discrimination x Migrant Status	1.15	0.10	+	1.12	0.11	
Wave x Discrimination x Migrant Status	0.99	0.07		0.97	0.07	
Demographic Factors						
Age in Years				0.98	0.01	***
Male Gender (Female ref.)				1.01	0.15	
Any English Usage (No English Usage)				0.75	0.15	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.93	0.18	
Widowed, Separated, Divorced/Annulled, Other				1.29	0.30	
Never Married				0.93	0.17	
High Isolation (Low ref.)				2.26	0.34	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.75	0.14	
Some College				0.87	0.15	
College Degree and Above				0.61	0.11	**

Currently Employed (Not Employed ref.)				0.79	0.09	*
Health Factors						
Hours of Sleep				0.72	0.03	***
General Poor Health				1.46	0.11	***
Constant	0.67	0.13	*	6.37	3.30	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.15.9 Weighted Mixed Model Regression of Sleep Disturbance Severity on Survey Wave, Everyday Discrimination Score (Situation-Based), and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.89	0.12		0.88	0.11	
Everyday Discrimination Score (Situation-Based)	1.27	0.11	**	1.26	0.12	*
Wave x Discrimination	0.99	0.06		0.97	0.06	
Migrant status (non-migrant ref.)	0.11	0.04	***	0.22	0.08	***
Wave x Migrant Status	0.94	0.17		0.99	0.17	
Discrimination x Migrant Status	1.25	0.13	*	1.18	0.13	
Wave x Discrimination x Migrant Status	1.03	0.09		1.00	0.08	
Demographic Factors						
Age in Years				0.98	0.01	*
Male Gender (Female ref.)				1.06	0.18	
Any English Usage (No English Usage)				0.72	0.16	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.17	0.27	
Widowed, Separated, Divorced/Annulled, Other				1.34	0.33	
Never Married				0.98	0.22	
High Isolation (Low ref.)				2.63	0.48	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.88	0.19	
Some College				0.95	0.20	
College Degree and Above				0.70	0.16	
Currently Employed (Not Employed ref.)				0.72	0.10	*

Health Factors			
Hours of Sleep	0.68	0.03	***
General Poor Health	1.60	0.12	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.16.1 Weighted Zero Inflated Negative Binomial Logistic Regression of Baseline Decile-Calculated Allostatic Load on Social Resources and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1	
Panel A: Negative Binomial	**β**	**SE**
Social Resources	0.01	0.02
Migrant Status (non-migrant ref.)	-0.03	0.21
Social Resources x Migrant Status	-0.02	0.03
Demographic Factors		
Age in Years	0.02***	0.00
Male Gender (Female ref.)	0.11	0.08
English Use During Survey (No English ref.)	0.17	0.11
Social Factors		
Marital Status (Married ref.)		
Living-In	-0.11	0.11
Widowed, Separated, Divorced/Annulled	-0.10	0.12
Never Married	-0.14	0.09
High Social Isolation (Low ref.)	0.11	0.09
Socioeconomic Factors		
Educational Attainment (Less than high school ref.)		
High School Graduate	-0.18+	0.10
Some College	-0.16	0.10
College Degree and Above	-0.25*	0.10
Currently Employed (Not Currently Employed Ref.)	-0.13+	0.07
Health Behaviors		

Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.13+	0.07
Current Smoking Status (Never smoked ref.)		
Former Smoker	0.13+	0.08
Current Smoker	0.08	0.11
Constant	-0.25	0.25
Panel B: Zero Inflation	**β**	**SE**
Migrant Status (non-migrant ref.)	-0.30	0.21
Age in Years	-0.08***	0.01
Constant	1.25**	0.40

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.16.2 Weighted Poisson Regression of Baseline Quartile and Risk Calculated Allostatic Load on Social Resources and Migrant Status, Health of Philippine Emigrants Study (n = 1,633)

	Model 1 – Quartile Calculated Allostatic Load		Model 2 – Clinical Risk Calculated Allostatic Load	
VARIABLES	**β**	**SE**	**β**	**SE**
Social Resources	-0.00	(0.01)	-0.00	(0.01)
Migrant Status (non-migrant ref.)	-0.01	(0.14)	-0.07	(0.10)
Social Resources x Migrant Status	-0.00	(0.02)	0.00	(0.01)
Demographic Factors				
Age in Years	0.03***	(0.00)	0.02***	(0.00)
Male Gender (Female ref.)	0.20***	(0.05)	-0.03	(0.04)
English Use During Survey (No English ref.)	0.07	(0.08)	0.06	(0.06)
Social Factors				
Marital Status (Married ref.)				
Living-In	-0.06	(0.06)	-0.07	(0.04)
Widowed, Separated, Divorced/Annulled	-0.07	(0.08)	-0.18**	(0.06)
Never Married	-0.16**	(0.06)	-0.11**	(0.04)
High Social Isolation (Low ref.)	-0.02	(0.06)	-0.02	(0.04)
Socioeconomic Factors				
Educational Attainment (Less than high school ref.)				
High School Graduate	-0.10	(0.07)	-0.06	(0.05)
Some College	-0.06	(0.07)	-0.09+	(0.05)
College Degree and Above	-0.13+	(0.07)	-0.08+	(0.05)
Currently Employed (Not Currently Employed Ref.)	-0.09*	(0.05)	-0.06+	(0.03)
Health Behaviors				
Drank 1+ Alcoholic drink in past 30 days (Drank <1 alcohol drink in the past 30 days ref.)	0.02	(0.05)	0.03	(0.03)
Current Smoking Status (Never smoked ref.)				
Former Smoker	0.10+	(0.05)	0.10**	(0.04)
Current Smoker	0.04	(0.07)	0.11*	(0.05)
Constant	0.03	(0.15)	0.31**	(0.11)

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.17.1 Weighted Mixed Model Regression of Psychological Distress on Survey Wave, Social Resources, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.78	0.32	*	-0.50	0.29	+
Social Resources	-0.04	0.06		-0.02	0.05	
Wave x Social Resources	0.06	0.04		0.04	0.04	
Migrant status (non-migrant ref.)	-1.47	0.57	*	-1.28	0.45	**
Wave x Migrant Status	0.89	0.45	*	0.41	0.40	
Social Resources x Migrant Status	-0.03	0.07		-0.01	0.06	
Wave x Social Resources x Migrant Status	-0.10	0.05	+	-0.05	0.05	
Demographic Factors						
Age in Years				-0.02	0.01	***
Male Gender (Female ref.)				-0.11	0.11	
Any English Usage (No English Usage)				-0.03	0.14	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.07	0.20	
Widowed, Separated, Divorced/Annulled, Other				0.16	0.32	
Never Married				-0.06	0.14	
High Isolation (Low ref.)				2.81	0.20	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.76	0.21	***
Some College				-0.81	0.20	***
College Degree and Above				-1.12	0.19	***

Currently Employed (Not Employed ref.)					-0.19	0.13	
Constant	7.34	0.50	***		8.37	0.49	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**		**SE**	
Intercept	2.12	0.07		1.77		0.06	
Residual	1.68	0.06		1.54		0.04	
Panel C: Model Fit							
AIC	31972.09			30476.88			
BIC	32034.93			30608.84			

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.17.2 Weighted Mixed Model Binary Logistic Regression of Moderate or Severe Psychological Distress on Survey Wave, Social Resources, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.40	0.12	**	0.42	0.14	**
Social Resources	0.89	0.06	+	0.88	0.06	+
Wave x Social Resources	1.08	0.04	*	1.08	0.05	+
Migrant status (non-migrant ref.)	0.12	0.08	**	0.09	0.06	**
Wave x Migrant Status	3.54	1.91	*	3.49	2.03	*
Social Resources x Migrant Status	1.08	0.09		1.16	0.11	
Wave x Social Resources x Migrant Status	0.87	0.06	*	0.88	0.06	+
Demographic Factors						
Age in Years				0.98	0.01	*
Male Gender (Female ref.)				0.72	0.20	
Any English Usage (No English Usage)				0.79	0.19	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.66	0.42	*
Widowed, Separated, Divorced/Annulled, Other				1.89	0.57	*
Never Married				1.27	0.33	
High Isolation (Low ref.)				8.89	1.87	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.72	0.20	
Some College				0.75	0.20	
College Degree and Above				0.43	0.13	**
Currently Employed (Not Employed ref.)				0.76	0.16	

Constant			0.58	0.27			1.08	0.76

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.17.3 Weighted Mixed Model Ordinal Logistic Regression of Psychological Distress Severity on Survey Wave, Social Resources, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.38	0.13	**	0.48	0.16	*
Social Resources	0.94	0.07		0.94	0.06	
Wave x Social Resources	1.09	0.05	*	1.07	0.04	+
Migrant status (non-migrant ref.)	0.16	0.12	*	0.12	0.09	**
Wave x Migrant Status	3.55	1.86	*	2.60	1.31	+
Social Resources x Migrant Status	0.97	0.08		1.04	0.08	
Wave x Social Resources x Migrant Status	0.86	0.05	*	0.90	0.05	+
Demographic Factors						
Age in Years				0.97	0.01	**
Male Gender (Female ref.)				0.84	0.20	
Any English Usage (No English Usage)				0.89	0.23	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.46	0.39	
Widowed, Separated, Divorced/Annulled, Other				1.89	0.66	+
Never Married				1.36	0.32	
High Isolation (Low ref.)				18.52	3.76	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.49	0.14	*
Some College				0.52	0.15	*
College Degree and Above				0.27	0.08	***
Currently Employed (Not Employed ref.)				0.62	0.11	*

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.18.1 Weighted Mixed Model Regression of Sleep Disturbance on Survey Wave, Social Resources, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**β**	**SE**	**p-value**	**β**	**SE**	**p-value**
Wave	-0.59	0.33	+	-0.52	0.35	
Social Resources	-0.06	0.06		-0.05	0.06	
Wave x Social Resources	0.05	0.04		0.04	0.04	
Migrant status (non-migrant ref.)	-1.65	0.61	**	-1.22	0.57	*
Wave x Migrant Status	0.40	0.47		0.15	0.46	
Social Resources x Migrant Status	-0.05	0.07		-0.01	0.08	
Wave x Social Resources x Migrant Status	-0.08	0.05		-0.04	0.05	
Demographic Factors						
Age in Years				-0.03	0.01	***
Male Gender (Female ref.)				-0.06	0.11	
Any English Usage (No English Usage)				-0.29	0.15	+
Social Factors						
Marital Status (Married ref.)						
Living-In				0.59	0.24	*
Widowed, Separated, Divorced/Annulled, Other				0.69	0.23	**
Never Married				0.07	0.17	
High Isolation (Low ref.)				1.04	0.15	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				-0.17	0.19	
Some College				-0.06	0.18	
College Degree and Above				-0.21	0.18	
Currently Employed (Not Employed ref.)				-0.23	0.15	

Health Factors						
Hours of Sleep				-0.34	0.04	***
General Poor Health				0.67	0.07	***
Constant	10.87	0.48	***	11.88	0.68	***
Panel B: Random Effects	**Estimate**	**SE**		**Estimate**	**SE**	
Intercept	2.14	0.05		1.82	0.05	
Residual	1.89	0.05		1.80	0.04	
Panel C: Model Fit						
AIC	33390.22			32452.74		
BIC	33453.05			32597.26		

Note. + p < .10, *p < .05, **p < .01, ***p <.001

Table 6.18.2 Weighted Mixed Model Binary Logistic Regression of Sleep Disturbance Psychological Distress on Survey Wave, Social Resources, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.70	0.18		0.67	0.20	
Social Resources	0.99	0.05		0.99	0.05	
Wave x Social Resources	1.02	0.03		1.02	0.04	
Migrant status (non-migrant ref.)	0.33	0.16	*	0.42	0.21	+
Wave x Migrant Status	1.47	0.54		1.17	0.49	
Social Resources x Migrant Status	0.98	0.06		1.00	0.06	
Wave x Social Resources x Migrant Status	0.95	0.04		0.98	0.05	
Demographic Factors						
Age in Years				0.97	0.01	***
Male Gender (Female ref.)				1.02	0.16	
Any English Usage (No English Usage)				0.75	0.16	
Social Factors						
Marital Status (Married ref.)						
Living-In				0.90	0.19	
Widowed, Separated, Divorced/Annulled, Other				1.25	0.29	
Never Married				0.95	0.17	
High Isolation (Low ref.)				2.57	0.39	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.73	0.13	+
Some College				0.92	0.16	
College Degree and Above				0.66	0.12	*
Currently Employed (Not Employed ref.)				0.80	0.09	+

Health Factors					
Hours of Sleep			0.73	0.03	***
General Poor Health			1.48	0.11	***
Constant	1.19	0.46	10.79	6.97	***

Note. + p < .10, *p < .05, **p < .01, ***p <.001

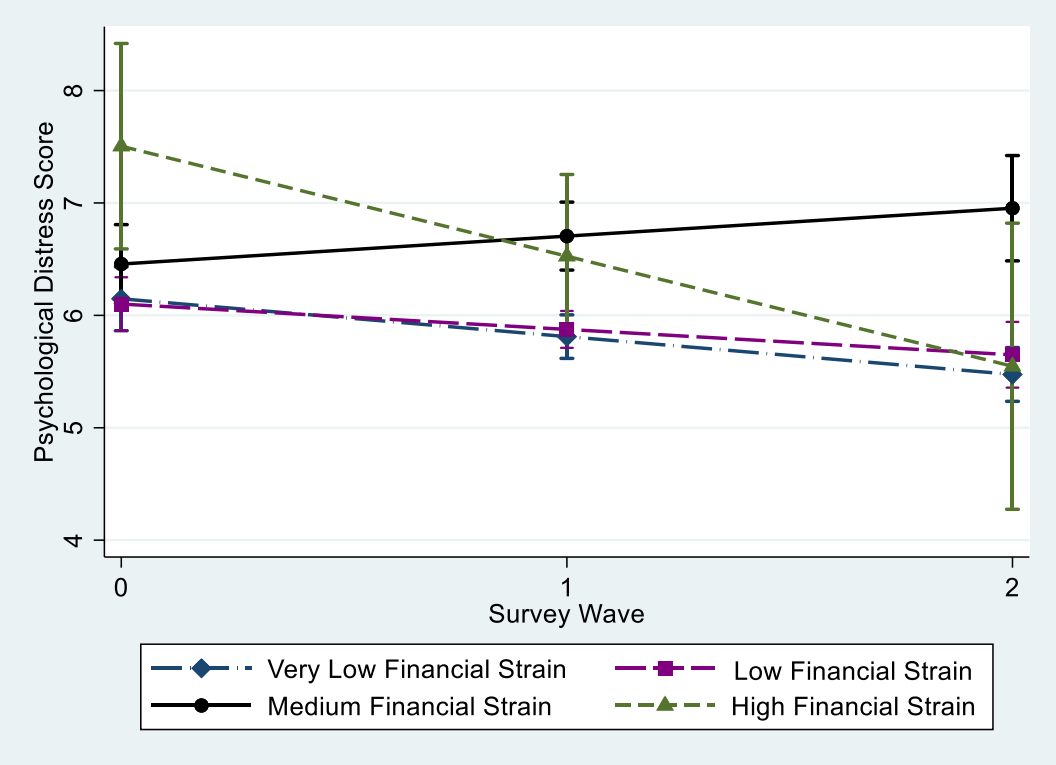
Table 6.18.3 Weighted Mixed Model Ordinal Logistic Regression of Sleep Disturbance Severity on Survey Wave, Social Resources, and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)

Panel A: Fixed Effects	**Model 1**			**Model 2**		
Variable	**OR**	**SE**	**p-value**	**OR**	**SE**	**p-value**
Wave	0.66	0.20		0.66	0.21	
Social Resources	0.99	0.06		0.99	0.06	
Wave x Social Resources	1.02	0.04		1.02	0.04	
Migrant status (non-migrant ref.)	0.20	0.11	**	0.30	0.17	*
Wave x Migrant Status	1.48	0.63		1.14	0.50	
Social Resources x Migrant Status	0.97	0.07		0.99	0.07	
Wave x Social Resources x Migrant Status	0.93	0.05		0.97	0.05	
Demographic Factors						
Age in Years				0.97	0.01	**
Male Gender (Female ref.)				1.08	0.20	
Any English Usage (No English Usage)				0.71	0.16	
Social Factors						
Marital Status (Married ref.)						
Living-In				1.13	0.27	
Widowed, Separated, Divorced/Annulled, Other				1.30	0.33	
Never Married				1.02	0.22	
High Isolation (Low ref.)				3.09	0.58	***
Socioeconomic Factors						
Educational Attainment (Less than high school ref.)						
High School Graduate				0.84	0.18	
Some College				0.99	0.22	
College Degree and Above				0.76	0.18	
Currently Employed (Not Employed ref.)				0.73	0.10	*

Health Factors			
Hours of Sleep	0.68	0.03	***
General Poor Health	1.64	0.13	***

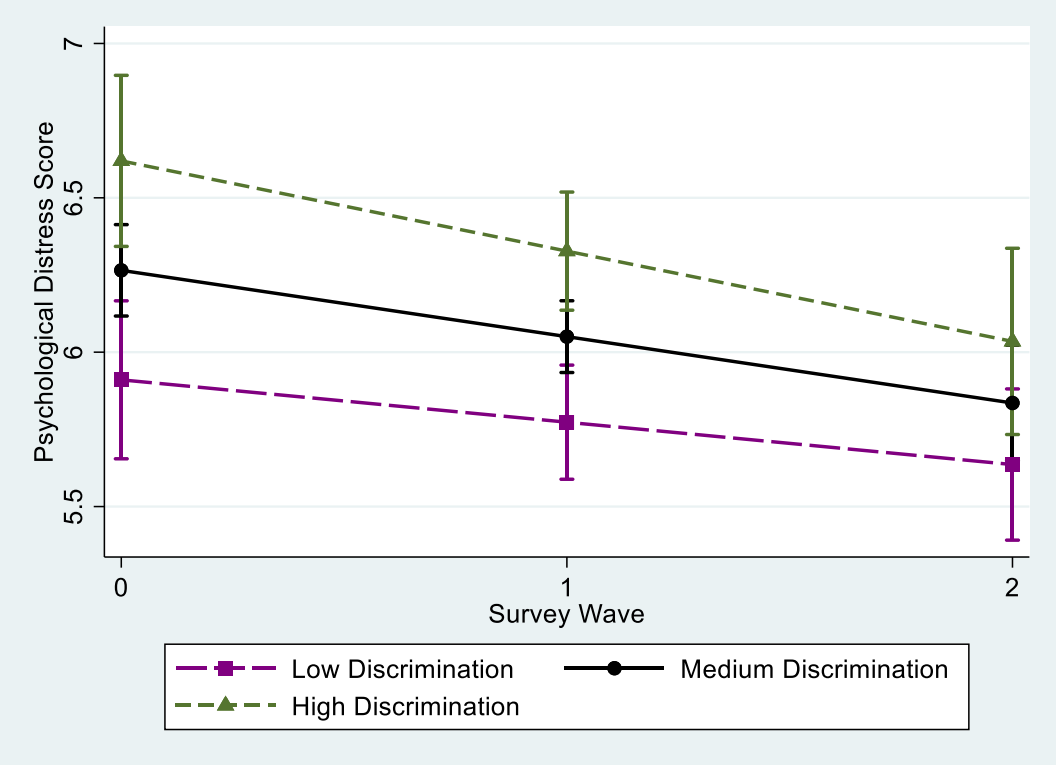
Note. + p < .10, *p < .05, **p < .01, ***p <.001

Figure 6.1 Psychological Distress Score Over Time by Level of Financial Strain, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



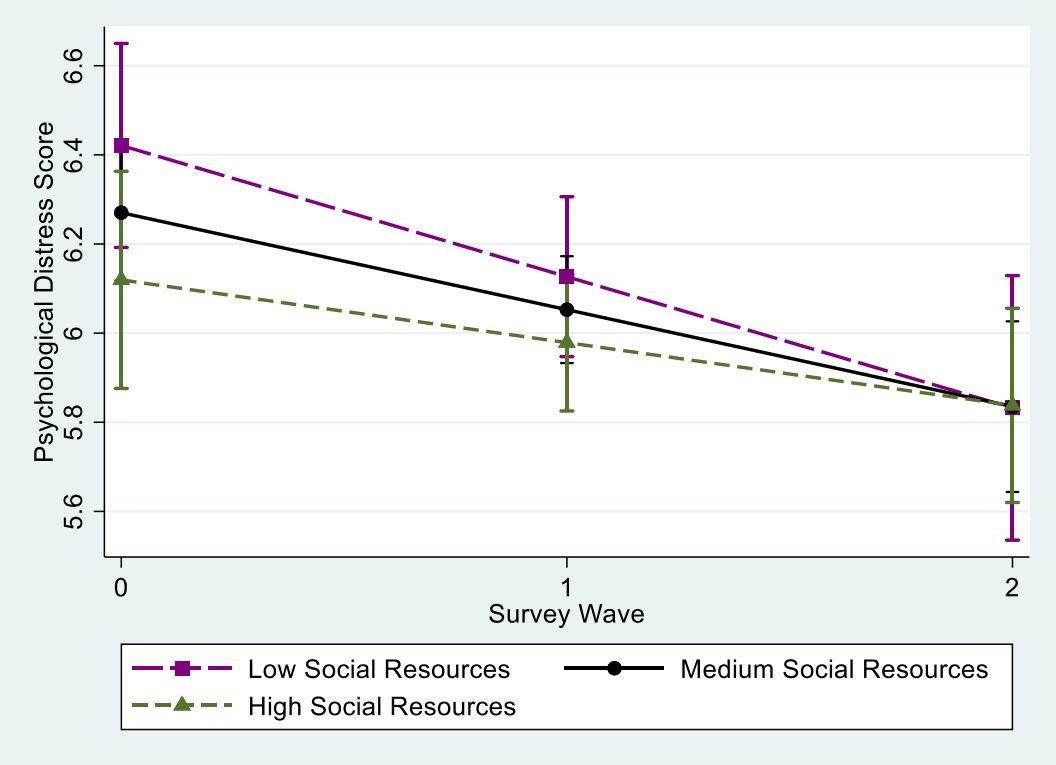
Note. Based on Table 6.4.1, adjusted for migrant status demographic factors.

Figure 6.2 Psychological Distress Score Over Time by Level of Chronicity Discrimination, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



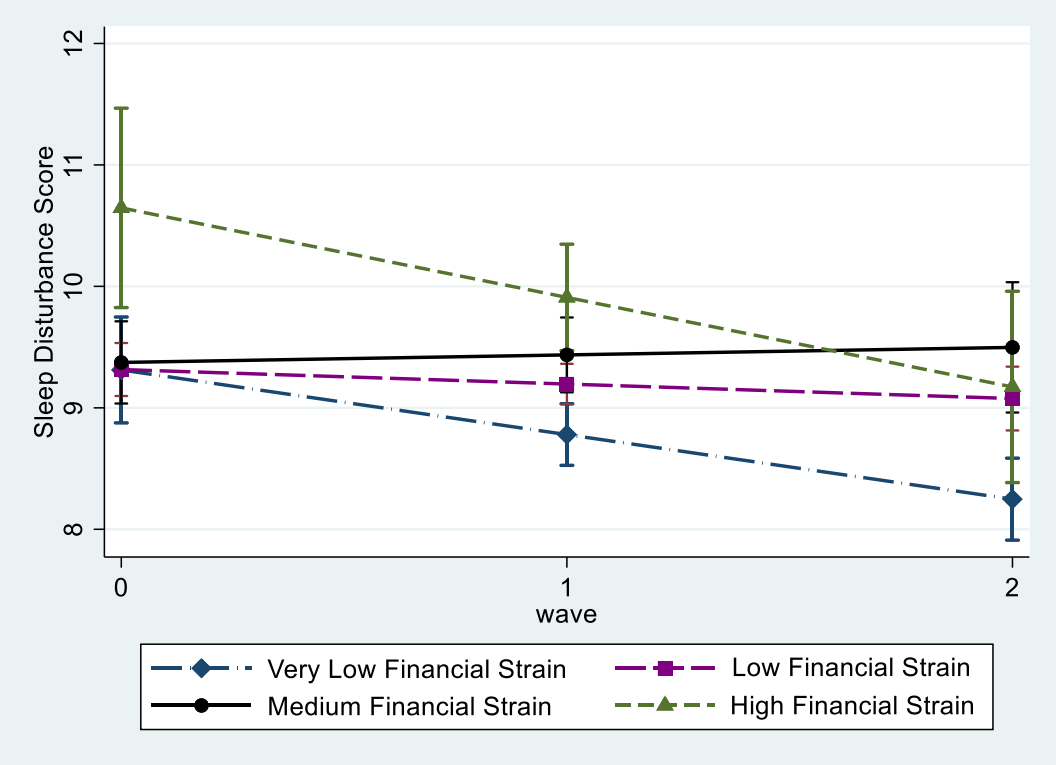
Note. Based on Table 6.5.1, adjusted for migrant status and demographic factors.

Figure 6.3 Psychological Distress Score Over Time by Level of Social Resources, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



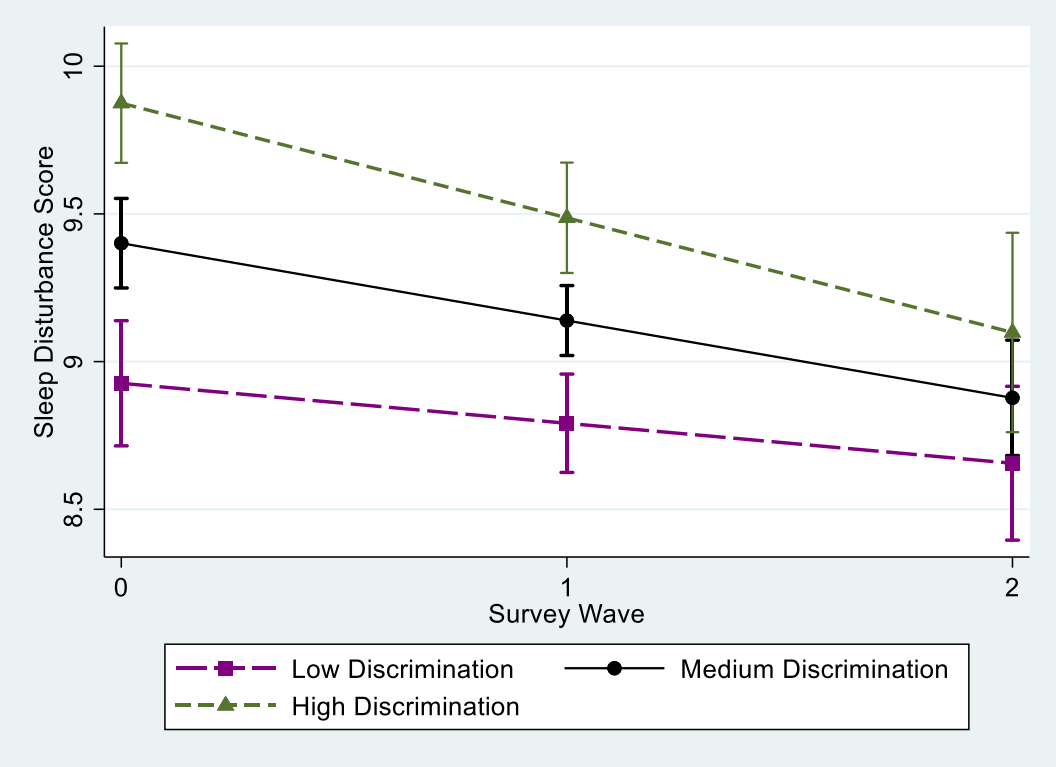
Note. Based on Table 6.6.1, adjusted for migrant status and demographic factors.

Figure 6.4 Sleep Disturbance Score Over Time by Level of Financial Strain, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



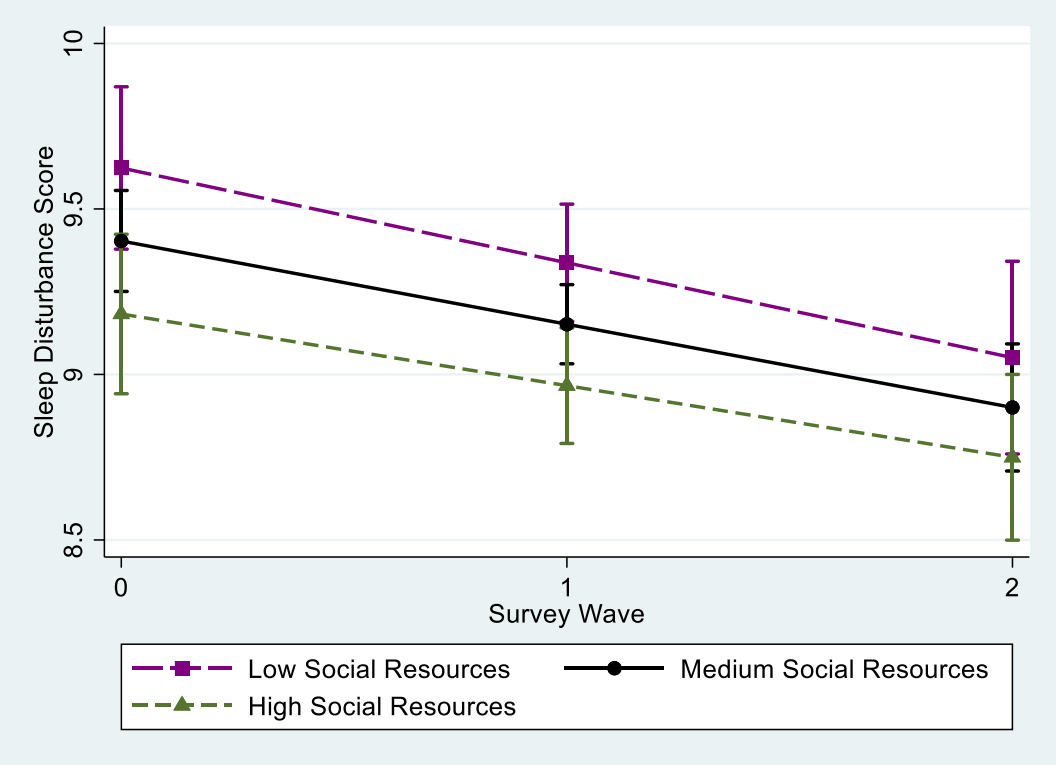
Note. Based on Table 6.7.1, adjusted for migrant status and demographic factors.

Figure 6.5 Sleep Disturbance Score Over Time by Level of Chronicity Discrimination, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



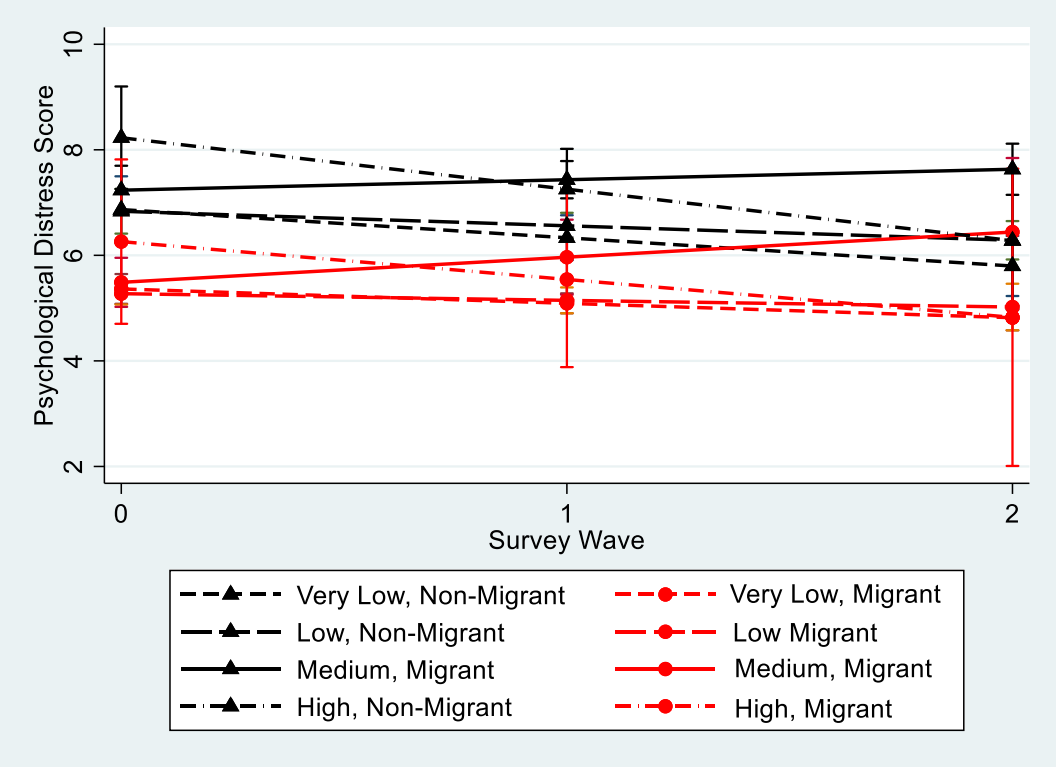
Note. Based on Table 6.8.1, adjusted for migrant status and demographic factors.

Figure 6.6 Sleep Disturbance Score Over Time by Level of Social Resources, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



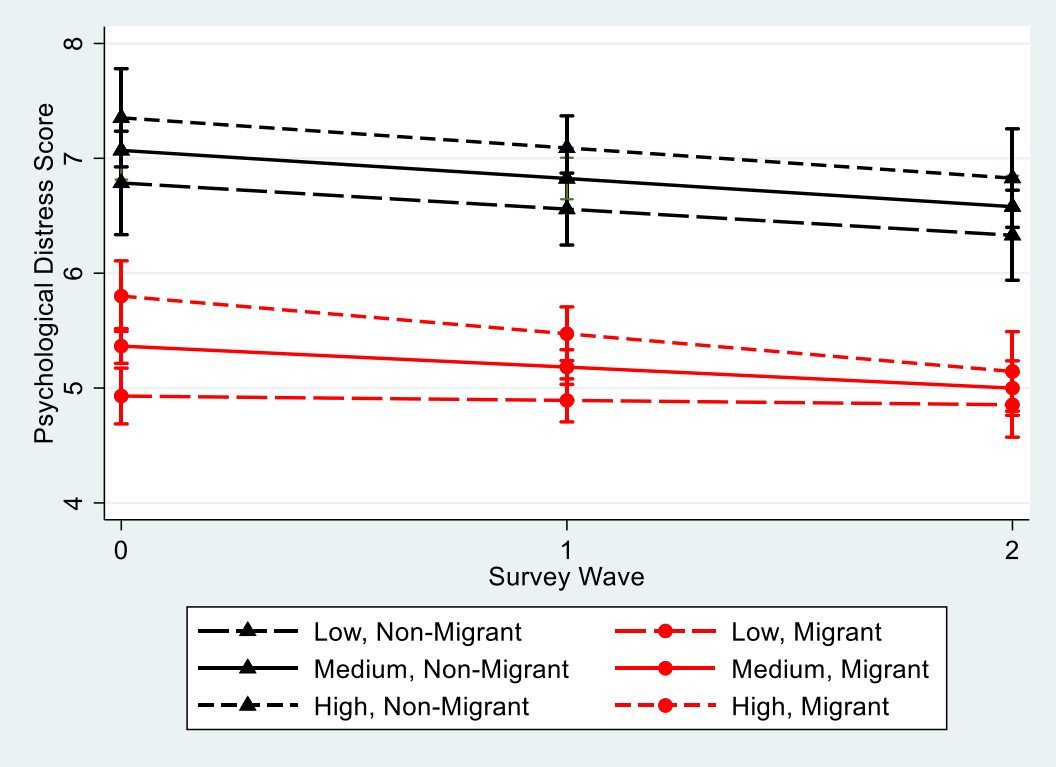
Note. Based on Table 6.9.1, adjusted for migrant status and demographic factors.

Figure 6.7 Psychological Distress Score Over Time by Level of Financial Strain and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



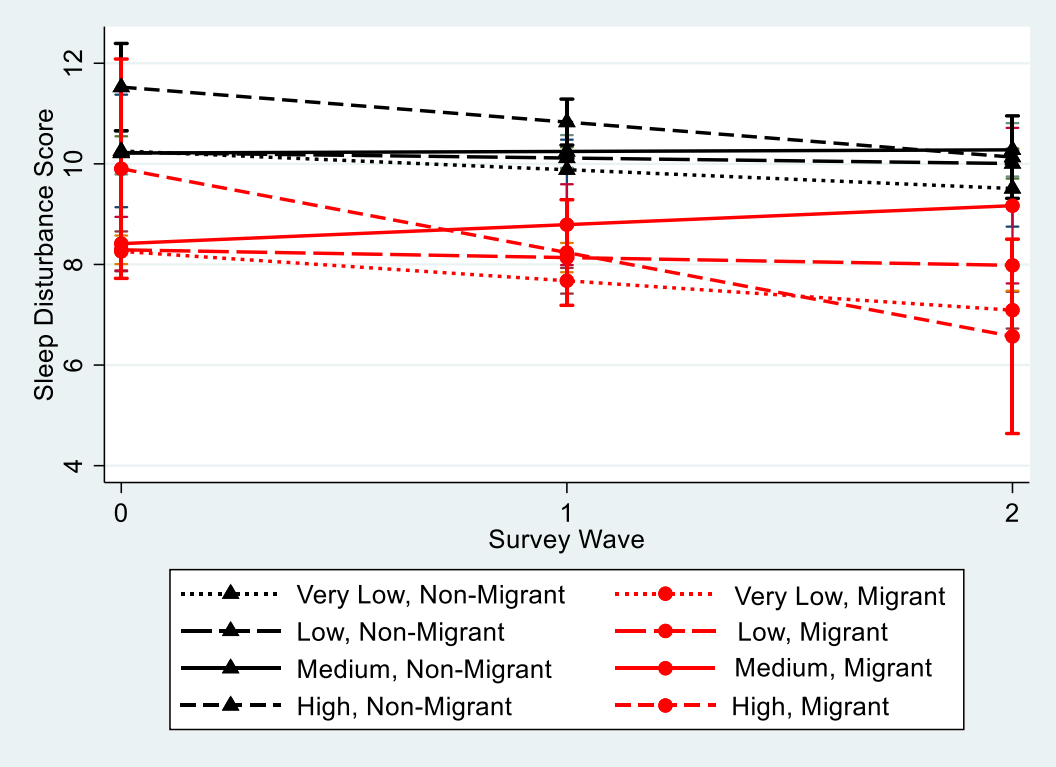
Note. Based on Table 6.12.1, adjusted for migrant status and demographic factors. Severity (e.g., "None to Slight") are representative of levels of psychological distress.

Figure 6.8 Psychological Distress Score Over Time by Level of Discrimination and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



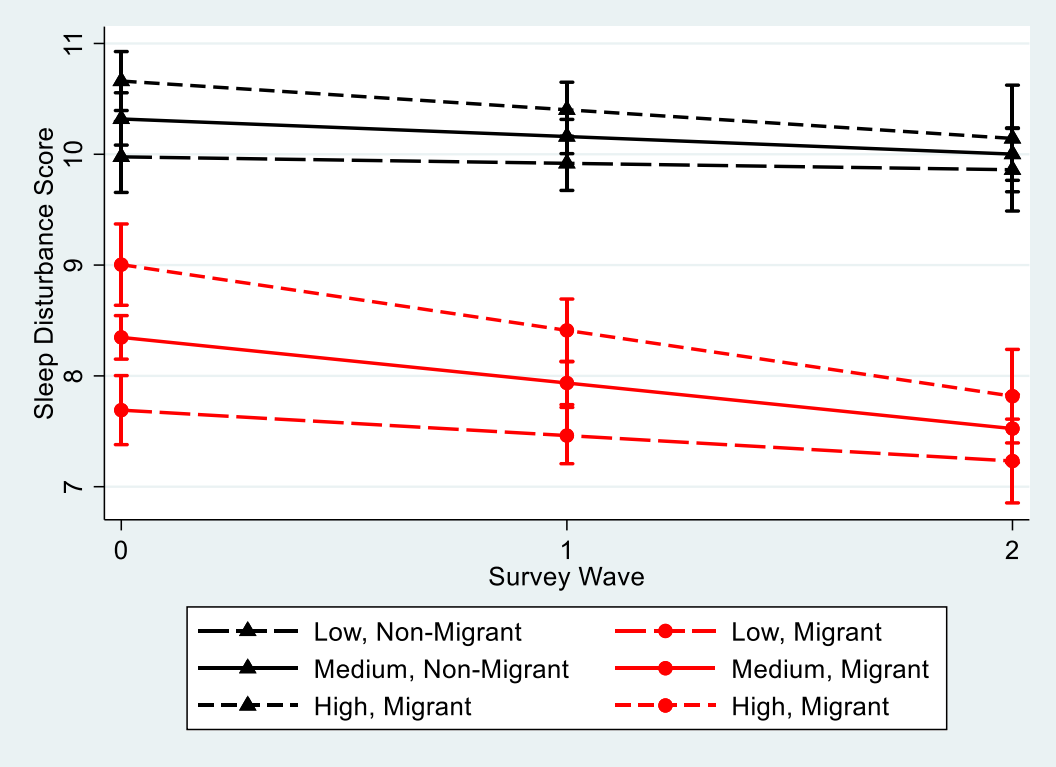
Based on Table 6.13.1, adjusted for migrant status and demographic factors. Levels (e.g., "Low") are representative of levels of discrimination.

Figure 6.9 Sleep Disturbance Score Over Time by Financial Strain and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



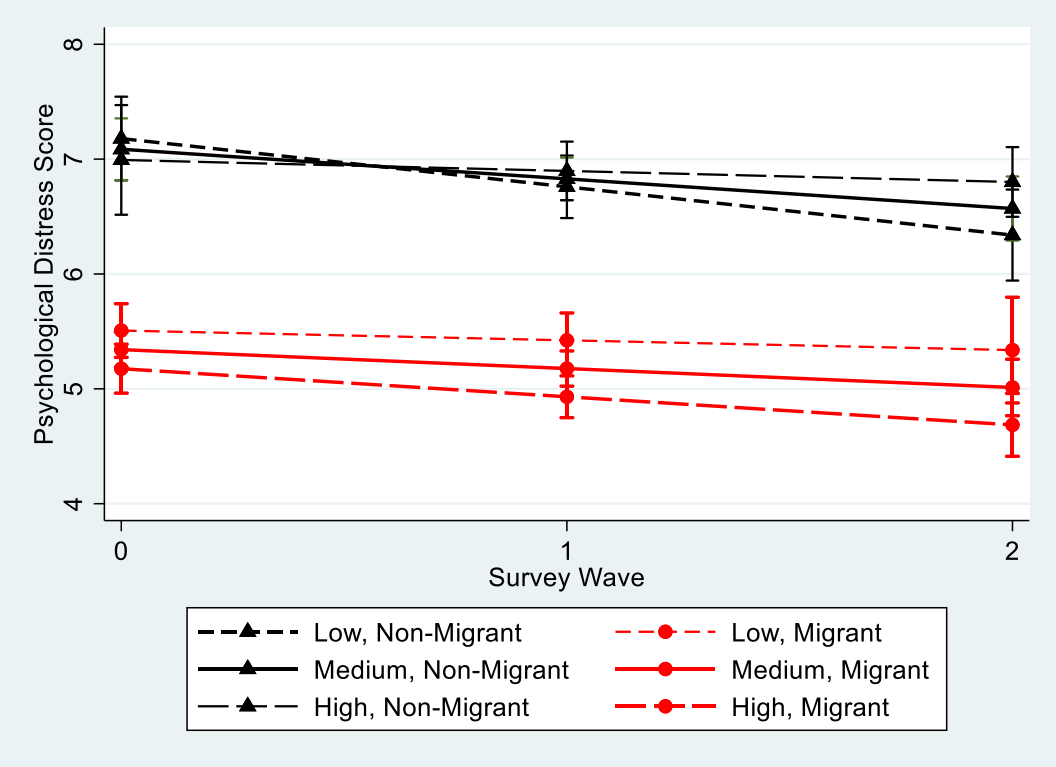
Note. Based on Table 6.14.1, adjusted for migrant status and demographic factors. Levels (e.g., "Very Low") are representative of levels of financial strain.

Figure 6.10 Sleep Disturbance Score Over Time by Level of Discrimination and Migrant Status Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



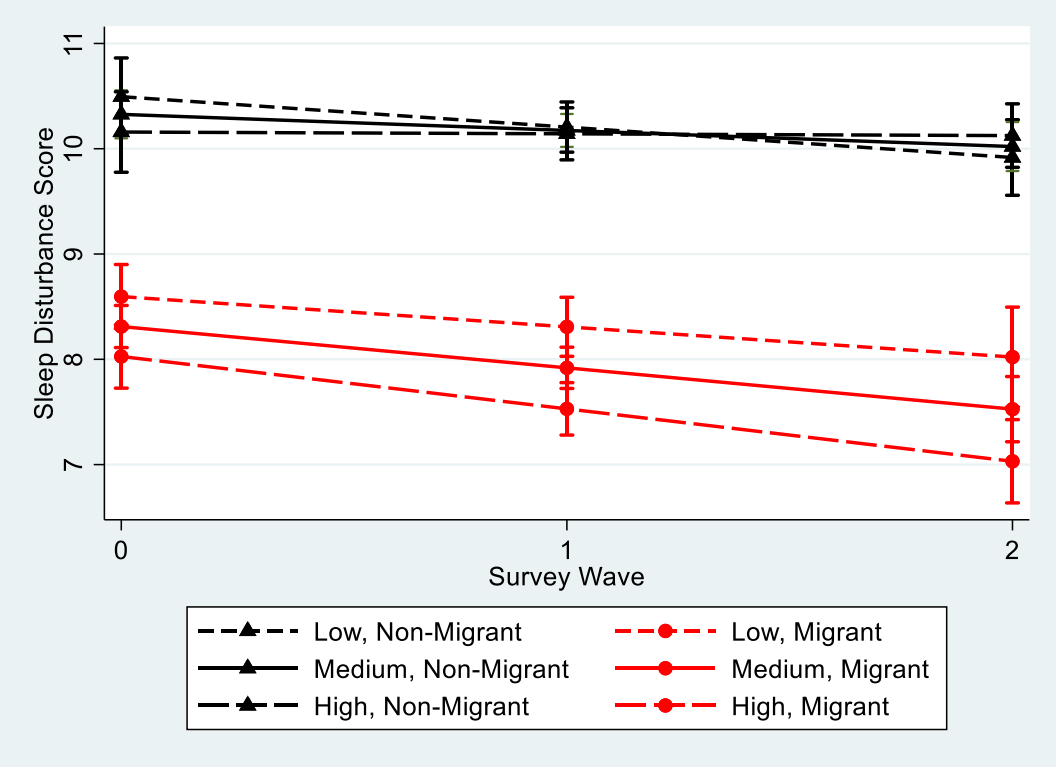
Note. Based on Table 6.15.1, adjusted for migrant status and demographic factors. Levels (e.g., "Low") are representative of levels of discrimination.

Figure 6.11 Psychological Distress Score Over Time by Level of Social Resources and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



Note. Based on Table 6.17.1, adjusted for migrant status and demographic factors. Levels (e.g., "Low") are representative of levels of social resources.

Figure 6.12 Sleep Disturbance Score Over Time by Level of Social Resources and Migrant Status, Health of Philippine Emigrants Study (n = 1,635 individuals, 3,958 observations)



Note. Based on Table 6.18.1, adjusted for migrant status and demographic factors. Levels (e.g., "Low") are representative of levels of social resources.

APPENDICIES

APPENDIX A. RETENTION ANALYSIS OF SAMPLE THROUGH 2-YEAR WAVE

INITIAL DIFFERENCES IN RETENTION AMONG FULL HoPES SAMPLE

At total of 1,999 individuals had fully completed the 1-year survey (**Table A.1**). There were statistically significant differences in some of the baseline variables based on completion of 1-year follow up. Fewer males and migrants completed both baseline and 1-year follow up compared to those who only completed baseline. With respect to education, more educated people (i.e. those with some college education and above) completed both baseline and 1-year survey compared to those who only completed baseline.

[Table A.1 about here]

At 2-year follow-up, 1,086 completed baseline, 1-year, and 2-year surveys (**Table A.2**). Male gender, migrant status, and educational attainment continued to be significantly associated with completion of baseline, 1-year, and 2-year waves. Fewer males completed all three waves compared to baseline only (38.1% vs. 30.6%). Significantly fewer migrants completed all three waves (32.4%) compared to those who only completed baseline (87.3%). Finally, there were differences by educational attainment such that those who only completed baseline were more educated compared to those who completed all three waves.

[Table A.2 about here]

FACTORS INFLUENCING RETENTION AMONG MIGRANTS

Additional analyses were conducted given the high correlation between migrant status and retention at 1-year and 2-year follow up. **Table A.3** presents an examination of possible demographic, health, socioeconomic, and migration factors that were hypothesized to be associated with retention at 1-year. For demographic factors, those who completed 1-year tended

to be younger on average at baseline and less male. With respect to health, migrants those who completed 1-year reported better self-rated health at baseline. There were no statistical differences with respect to allostatic load, emotional distress, sleep quality, and isolation between migrants who completed baseline only versus migrants who also completed 1-year.

[Table A.3 about here]

For socioeconomic factors, migrants who completed 1-year had higher levels of education overall compared to migrants who only completed baseline. Migrants who completed 1-year also had lower baseline financial strain compared to those who only completed baseline. However, these differences were only marginally significant.

For social factors, there were no differences in baseline everyday discrimination score nor social capital. However, for migration factors, those who completed 1-year were more likely to report migrating alone at baseline (39.8%). Over half of migrants who completed baseline only reported that they were migrating with another person. Finally, migrants who completed 1-year were more likely to have a job awaiting them in the U.S. compared to those who only completed baseline.

Table A.4 presents an examination of factors related to retention at 1-year and 2-year waves compared to those who only completed baseline. Similar to 1-year, migrants who completed 1-year and 2-year were younger at baseline and tended to be female. Moreover, migrants who completed all waves reported better self-rated health and were more educated at baseline compared to those who only completed baseline. Finally, with respect to migration factors, those who completed all waves tended to migrate alone.

[Table A.4 about here]

I used these factors that were significantly associated with retention at 1-year and 2-year to examine a series of multivariable binary logistic regressions to identify which factors most contributed to retention. **Table A.5** presents the results for retention at 1-year while **Table A.6** presents the results for retention at 1-year and 2-year. In the full model (Model 3), increased age in years, male gender, and migrating with another person were all significantly associated with lower odds of retention, accounting for all other factors in the model. Moreover, having a college degree or above was significantly associated with higher odds of retention compared to those with less than a high school education. Finally, fair/poor self-rated health were associated with marginally lower odds of retention.

[Table A.5 about here]

At 2-year, male gender (relative to female gender), migrating with someone else, and fair/poor self-rated health at baseline were associated with lower odds of retention. Greater educational attainment was associated with higher odds of retention.

[Table A.6 about here]

CREATION OF INVERSE PROBABILITY WEIGHTS

After collecting baseline data, HoPES created a set of survey weights intended to make the sample representative of recent Philippine migrants to the U.S. (de Castro et al. 2019; Gee et al. 2018). These weights were based on the age, sex, and educational distribution (any college vs. none) of Philippine emigrants in the 2015 American Community Survey, ages 21 to 59 years old. However, given the significant attrition of the migrant sample compared to the non-migrant sample since baseline, new weights were created using inverse probability weighting (IPW). IPW allows for data to be reweighted based on factors related to attrition and the main independent variable of interest (Cole and Hernán 2008; Seaman and White 2013). Those who experienced attrition in the sample are upweighted while those who did not experience attrition

are downweighted (Cole and Hernán 2008). A stabilized IPW was created in the following steps. First, a logit model was used to calculate the probability of censorship (i.e. attrition) at each wave based on the following baseline factors: migrant status, age, education, and general health. Second, I determine the probability that migrant status, the main exposure of this study, predicted censorship. Next, I calculated weight for censors and non-censors separately using the probabilities determined in the previous steps. Finally, I multiplied the weight for censors and non-censors to create a final stabilized weight. A separate weight was created for each follow up weight (i.e., 1-year and 2-year). These stabilized IPW were combined with original sampling weights to create a set of analysis weights for longitudinal analyses. Thus, baseline weights were used while 1-year and 2-year weights utilized weights created from IPW methods.

Table A.1 Distribution of Sample by Participation in 1-Year Follow-Up, Full Sample (n = 1637)

	Baseline Only (n=436)	Baseline and 1-Year (n=1199)	p-value between Baseline and 1-Year
Factor	% (n) or Mean (SD)	% (n) or Mean (SD)	
Baseline Age in Years	37.4 (0.6)	36.2 (11.3)	.0531
% Male	37.8 (165)	31.4 (376)	.014
% Migrant	89.2 (390)	36.98 (442)	< .001
Educational Attainment			.006
% Less than high school	11.4 (50)	11.4 (137)	
% High school graduate	23.3 (102)	17.7 (212)	
% Some college	21.3 (93)	28.9 (347)	
% College degree and above	43.9 (192)	42.0 (504)	

Note: Numbers may not sum to 1637 due to missing data (e.g. age)

Table A.2 Distribution of Sample by Participation in both 1-Year and 2-Year Follow-Up (n = 1635)

	Baseline Only (n=549)	Baseline, 1-Year and 2-Year (n=1086)	p-value between Baseline and 1-Year/2-Year Follow-Up
Factor	% (n) or Mean (SD)	% (n) or Mean (SD)	
Baseline Age in Years	36.6 (12.0)	36.5 (11.3)	.8944
% Male	38.1 (209)	30.6 (332)	.002
% Migrant	87.3 (480)	32.4 (352)	< .001
Educational Attainment			.002
% Less than high school	10.7 (59)	11.8 (128)	
% High school graduate	22.2 (122)	17.7 (192)	
% Some college	21.5 (118)	29.6 (322)	
% College degree and above	54.6 (251)	40.9 (445)	

Note: Numbers may not sum to 1637 due to missing data (e.g. age)

Table A.3 Baseline Factors Associated with Migrant Retention at 1-Year Follow-Up (n=832)

	Completed Baseline Only (n=390)	Completed Baseline and 1-Year (n=442)	p-value
Baseline Factor	% (n) or Mean (SD)	% (n) or Mean (SD)	
Demographic Factors			
Age in Years	37.7 (12.2)	34.5 (10.8)	< .001
Male Gender	38.5% (150)	30.3% (134)	.013
Health Factors			
Self-Rated Fair/Poor Health	31.8% (124)	22.0% (97)	.001
Mean Allostatic Load (Decile)	1.0 (1.4)	1.0 (1.3)	.368
Mean Allostatic Load (Quartile)	2.7 (2.3)	2.5 (2.4)	.400
Mean Emotional Distress Score (Summation)	5.3 (2.3)	5.2 (2.3)	.625
Depression/Psychological Distress			.559
None to Slight	84.1% (328)	86.0% (380)	
Mild	11.3% (44)	9.0% (40)	
Moderate	4.6% (18)	5.0% (22)	
Mean Sleep Quality	8.2 (2.8)	8.5 (3.2)	.172
Sometimes/Often/Always Isolated	10.3 (40)	8.8 (39)	.482
Socioeconomic Factors			
Educational Attainment			< .001
Less than high school	11.5% (45)	4.5% (20)	
High school graduate	24.4% (95)	17.2% (76)	
Some college	20.3% (79)	17.4% (77)	
College degree and above	43.8% (171)	60.9% (269)	
Financial Strain			.097
Some to considerable difficulty in meeting expenses	19.7% (77)	15.4% (68)	
Just enough to pay expenses, with on difficulty	56.2% (219)	55.0% (243)	
There is enough money, with money leftover	24.1% (94)	29.6% (131)	
Social Factors			
Mean Discrimination Score (Mean Calculated)	0.8 (0.8)	0.8 (0.8)	.578

Mean Discrimination Score (Summed)	3.8 (4.0)	4.0 (4.1)	.578
Mean Social Capital	8.1 (2.4)	7.9 (2.4)	.148
Migration Factors			
Migrating with another person	51.5% (201)	39.8% (176)	.001
Mean Preparation Score	2.0 (1.0)	2.0 (1.1)	.928
Has Job Awaiting in U.S.	5.6% (22)	9.7% (43)	.028

Note: Numbers may not sum to 1637 due to missing data (e.g. age)

Table A.4 Baseline Factors Associated with Migration Retention at 1-Year and 2-Year Follow-Up (n=832)

	Completed Baseline Only (n=480)	Completed Baseline, 1-Year and 2-Year (n=352)	p-value
Factor	% (n) or Mean (SD)	% (n) or Mean (SD)	
Demographic Factors			
Age in Years	36.9 (12.2)	34.6 (10.6)	.005
Male Gender	38.5% (185)	28.1% (99)	.002
Health Factors			
Self-Rated Fair/Poor Health	30.8% (148)	20.7% (73)	.001
Mean Allostatic Load (Decile)	1.1 (1.4)	0.9 (1.3)	.103
Mean Allostatic Load (Quartile)	2.7 (2.3)	2.5 (2.4)	.284
Mean Emotional Distress Score (Summation)	5.4 (2.4)	5.2 (2.2)	.190
Depression/Psychological Distress			.333
None to Slight	83.5% (401)	87.2% (307)	
Mild	11.0% (53)	8.8% (31)	
Moderate	5.4% (26)	4.0% (14)	
Mean Sleep Quality	8.4 (2.9)	8.4 (3.2)	.988
Sometimes/Often/Always Isolated	10.0% (48)	8.8% (31)	.562
Socioeconomic Factors			
Educational Attainment			< .001
Less than high school	10.8% (52)	3.7% (13)	
High school graduate	23.3% (112)	16.8% (59)	
Some college	19.8% (79)	17.3% (61)	
College degree and above	46.0% (221)	62.2% (219)	
Financial Strain			.434
Some to considerable difficulty in meeting expenses	18.5% (89)	15.9% (56)	
Just enough to pay expenses, with on difficulty	55.8% (268)	55.1% (194)	
There is enough money, with money leftover	25.6% (123)	29.0% (102)	
Social Factors			
Mean Discrimination Score (Mean Calculated)	0.8 (0.8)	0.8 (0.8)	.965

Mean Discrimination Score (Summed)	3.9 (4.0)	3.9 (4.0)	.965
Mean Social Capital	8.1 (2.4)	7.9 (2.3)	.427
Migration Factors			
Migrating with another person	49.8% (239)	39.2% (138)	.002
Mean Preparation Score	2.0 (1.0)	2.0 (1.2)	.986
Has Job Awaiting in U.S.	6.9% (33)	9.1 (32)	.239

Note: Numbers may not sum to 1637 due to missing data (e.g. age)

Table A.5 Multivariable Regression of Factors Associated with Retention in 1-Year Sample Among Migrants, Health of Philippine Emigrants Study (HoPES) (n=832)

	Model 1		Model 2		Model 3	
Variables	OR	95% CI	OR	95% CI	OR	95% CI
Age in Years	0.98**	0.97, 0.99	0.98**	0.97, 1.00	0.98*	0.97, 1.00
Male Gender (Female Ref.)	0.72*	0.54, 0.97	0.71*	0.53, 0.96	0.73*	0.54, 0.98
Educational Attainment (Less than high school ref.)						
High school graduate	1.51	0.81, 2.81	1.61	0.86, 3.03	1.61	0.86, 3.03
Some College	1.66	0.88, 3.16	1.73+	0.90, 3.30	1.66	0.87, 3.18
College Degree and Above	2.81***	1.57, 5.03	2.84***	1.58, 5.10	2.70***	1.50, 4.87
Job Awaiting in U.S. ("No" ref.)			1.81*	1.03, 3.16	1.75+	1.00, 3.06
Migrating with Another Person (Alone ref.)			0.69**	0.52, 0.91	0.69**	0.52, 0.91
Fair/Poor Self-Rated Health (Good/Very Good/Excellent ref.)					0.74+	0.54, 1.03
Constant	1.22	0.55, 2.70	1.28	0.57, 2.88	1.38	0.61, 3.12
Observations	832		832		832	

Note. + p <. 10, * p < .05, ** p < .01, *** p < .001

Table A.6 Multivariable Regression of Factors Associated with Retention in Both 1-Year and 2-Year Sample Among Migrants, Health of Philippine Emigrants Study (HoPES) (n=832)

	Model 1		Model 2		Model 3	
Variables	OR	95% CI	OR	Variables	OR	95% CI
Age in Years	0.99+	0.98, 1.00	0.99	0.98, 1.00	0.99	0.98, 1.00
Male Gender (Female Ref.)	0.64**	0.48, 0.87	0.64**	0.47, 0.87	0.65**	0.48, 0.89
Educational Attainment (Less than high school ref.)						
High school graduate	1.92+	0.95, 3.86	1.99+	0.98, 4.03	1.99+	0.98, 4.02
Some College	2.18*	1.06, 4.45	2.21*	1.08, 4.54	2.11*	1.03, 4.34
College Degree and Above	3.44***	1.79, 6.64	3.44***	1.78, 6.65	3.24***	1.67, 6.28
Job Awaiting in U.S. ("No" ref.)			1.33	0.78, 2.27	1.28	0.75, 2.19
Migrating with Another Person (Alone ref.)			0.70*	0.53, 0.94	0.70*	0.52, 0.94
Fair/Poor Self-Rated Health (Good/Very Good/Excellent ref.)					0.70*	0.50, 0.99
Constant	0.48+	0.20, 1.15	0.52	0.22, 1.23	0.57	0.24, 1.36
Observations	832		832		832	

Note. + p <. 10, * p < .05, ** p < .01, *** p < .001.

REFERENCES

Abraido-Lanza, Ana F, Bruce P Dohrenwend, Daisy S Ng-Mak, and J Blake Turner. 1999. "The Latino mortality paradox: a test of the" salmon bias" and healthy migrant hypotheses." *Am J Public Health* 89(10):1543-48.

Abraído-Lanza, Ana F., Maria T. Chao, and Karen R. Flórez. 2005. "Do healthy behaviors decline with greater acculturation?: Implications for the Latino mortality paradox." *Social Science & Medicine* 61(6):1243-55.

Acevedo-Garcia, Dolores, Emma V. Sanchez-Vaznaugh, Edna A. Viruell-Fuentes, and Joanna Almeida. 2012. "Integrating social epidemiology into immigrant health research: A cross-national framework." *Social Science & Medicine* 75(12):2060-68.

Agoncillo, Teodoro A, and Oscar M Alfonso. 1969. *History of the Filipino people*: Malaya Books.

Akresh, Ilana Redstone. 2008. "Occupational Trajectories of Legal US Immigrants: Downgrading and Recovery." *Population and Development Review* 34(3):435-56.

Akresh, Ilana Redstone, and Reanne Frank. 2008. "Health selection among new immigrants." *American Journal of Public Health* 98(11):2058-64.

Alba, Richard, and Victor Nee. 1997. "Rethinking Assimilation Theory for a New Era of Immigration." *International Migration Review* 31(4):826-74.

Alegría, Margarita, Kiara Álvarez, and Karissa DiMarzio. 2017. "Immigration and Mental Health." *Current Epidemiology Reports* 4(2):145-55.

Alidu, L., and E. A. Grunfeld. 2018. "A systematic review of acculturation, obesity and health behaviours among migrants to high-income countries." *Psychology & Health* 33(6):724-45.

Allen, Amani M., Marilyn D. Thomas, Eli K. Michaels, Alexis N. Reeves, Uche Okoye, Melisa M. Price, Rebecca E. Hasson, S. Leonard Syme, and David H. Chae. 2019. "Racial discrimination, educational attainment, and biological dysregulation among midlife African American women." *Psychoneuroendocrinology* 99:225-35.

Allen, Chenoa D, Clea A McNeely, and John G Orme. 2016. "Self-rated health across race, ethnicity, and immigration status for US adolescents and young adults." *Journal of Adolescent Health* 58(1):47-56.

Alviar, Sthefany, and Alicia del Prado. 2022. "“You should pray about it”: Exploring mental health and help-seeking in Filipino American Catholics." *Asian American Journal of Psychology* 13(1):97-111.

Amtmann, Dagmar, Jiseon Kim, Hyewon Chung, Alyssa M. Bamer, Robert L. Askew, Salene Wu, Karon F. Cook, and Kurt L. Johnson. 2014. "Comparing CESD-10, PHQ-9, and PROMIS depression instruments in individuals with multiple sclerosis." *Rehabilitation Psychology* 59(2):220-29.

Aranda, María P., and Karen D. Lincoln. 2011. "Financial Strain, Negative Interaction, Coping Styles, and Mental Health Among Low-Income Latinos." *Race and Social Problems* 3(4):280-97.

Arega, M., D. W. Linggonegoro, E. C. Dee, and J. Torous. 2022. "Financial Worry and Psychological Distress Among Immigrants in the United States, 2013-2018." *J Psychiatr Pract* 28(2):117-29.

Arenas, Erika. 2008. "Health selectivity of internal migrants in Mexico: Evidence from the Mexican Family Life Survey." *UCLA CCPR Population Working Papers*.

Arenas, Erika, Noreen Goldman, Anne R. Pebley, and Graciela Teruel. 2015. "Return Migration to Mexico: Does Health Matter?" *Demography* 52(6):1853-68.

Asad, Asad L., and Matthew Clair. 2018. "Racialized legal status as a social determinant of health." *Social Science & Medicine* 199:19-28.

Bacong, Adrian. 2020a. "A Threshold Effect? The Association Between Educational Attainment and Resting Pulse Rate." *Public Health Review* 3(2).

Bacong, Adrian, Anna Hing, Brittany N Morey, Catherine Crespi, Maria Midea M Kabamalan, Nanette R Lee, May C Wang, A B De Castro, and G. C. Gee. Under Review. "Health Selection on Self-Rated Health and the Healthy Migrant Effect: Baseline and 1-Year Results from the Health of Philippine Emigrants Study."

Bacong, Adrian Matias. 2020b. "Heterogeneity in the Association of Citizenship Status on Self-Rated Health Among Asians in California." *Journal of Immigrant and Minority Health*.

—. 2021. "Heterogeneity in the Association of Citizenship Status on Self-Rated Health Among Asians in California." *Journal of Immigrant and Minority Health* 23(1):121-36.

Bacong, Adrian Matias, and Cecilia Menjívar. 2021. "Recasting the Immigrant Health Paradox Through Intersections of Legal Status and Race." *Journal of Immigrant and Minority Health* 23(5):1092-104.

Bacong, Adrian, and Heeju Sohn. 2020. "Disentangling contributions of demographic, family, and socioeconomic factors on associations of immigration status and health in the United States." *J Epidemiol Community Health*:jech-2020-214245.

—. 2021. "Disentangling contributions of demographic, family, and socioeconomic factors on associations of immigration status and health in the United States." *Journal of Epidemiology and Community Health* 75(6):587-92.

Barr, D. A. 2017. "The Childhood Roots of Cardiovascular Disease Disparities." *Mayo Clin Proc* 92(9):1415-21.

Bayangos, Veronica, and Karel Jansen. 2011. "Remittances and Competitiveness: The Case of the Philippines." *World Development* 39(10):1834-46.

Beccuti, Guglielmo, and Silvana Pannain. 2011. "Sleep and obesity." *Current Opinion in Clinical Nutrition & Metabolic Care* 14(4).

Becker, Gay. 2003. "Cultural Expressions of Bodily Awareness Among Chronically Ill Filipino Americans." *The Annals of Family Medicine* 1(2):113-18.

Beydoun, M. A., H. A. Beydoun, N. Mode, G. A. Dore, J. A. Canas, S. M. Eid, and A. B. Zonderman. 2016. "Racial disparities in adult all-cause and cause-specific mortality among us adults: mediating and moderating factors." *BMC Public Health* 16(1):1113.

Bird, C. E., T. Seeman, J. J. Escarce, R. Basurto-Davila, B. K. Finch, T. Dubowitz, M. Heron, L. Hale, S. S. Merkin, M. Weden, and N. Lurie. 2010. "Neighbourhood socioeconomic status and biological 'wear and tear' in a nationally representative sample of US adults." *J Epidemiol Community Health* 64(10):860-5.

Bloemraad, Irene. 2017. "Does Citizenship Matter?" in *The Oxford Handbook of Citizenship*.

Boen, C. E., and R. A. Hummer. 2019a. "Longer-but Harder-Lives?: The Hispanic Health Paradox and the Social Determinants of Racial, Ethnic, and Immigrant-Native Health Disparities from Midlife through Late Life." *J Health Soc Behav* 60(4):434-52.

Boen, Courtney E., and Robert A. Hummer. 2019b. "Longer—but Harder—Lives?: The Hispanic Health Paradox and the Social Determinants of Racial, Ethnic, and Immigrant–Native Health Disparities from Midlife through Late Life." *J Health Soc Behav* 0(0).

Bonilla-Silva, Eduardo. 2004. "From bi-racial to tri-racial: Towards a new system of racial stratification in the USA." *Ethnic and Racial Studies* 27(6):931-50.

Borrell, L. N., F. J. Dallo, and N. Nguyen. 2010. "Racial/ethnic disparities in all-cause mortality in U.S. adults: the effect of allostatic load." *Public Health Rep* 125(6):810-6.

Bos, V., A. E. Kunst, J. Garssen, and J. P. Mackenbach. 2007. "Duration of residence was not consistently related to immigrant mortality." *J Clin Epidemiol* 60(6):585-92.

Bostean, Georgiana. 2013. "Does Selective Migration Explain the Hispanic Paradox? A Comparative Analysis of Mexicans in the U.S. and Mexico." *Journal of Immigrant and Minority Health* 15(3):624-35.

Budiman, Abby. 2020. "Key findings about U.S. immigrants." in *Immigrant & Migration*. Washington D.C., USA: Pew Research Center.

—. 2021. "Filipinos in the U.S. Fact Sheet." edited by Pew Research Center. Washington D.C., USA: Pew Research Center.

Caballero, Benjamin. 2007. "The Global Epidemic of Obesity: An Overview." *Epidemiologic Reviews* 29(1):1-5.

Callaghan, Timothy, David J. Washburn, Katharine Nimmons, Delia Duchicela, Anoop Gurram, and James Burdine. 2019. "Immigrant health access in Texas: policy, rhetoric, and fear in the Trump era." *BMC Health Services Research* 19(1):342.

Cao, Jing, Brian T. Steffen, Weihua Guan, Alan T. Remaley, Joseph P. McConnell, Vikram Palamalai, and Michael Y. Tsai. 2018. "A comparison of three apolipoprotein B methods and their associations with incident coronary heart disease risk over a 12-year follow-up period: The Multi-Ethnic Study of Atherosclerosis." *Journal of Clinical Lipidology* 12(2):300-04.

Castañeda, Heide, Seth M. Holmes, Daniel S. Madrigal, Maria-Elena DeTrinidad Young, Naomi Beyeler, and James Quesada. 2015. "Immigration as a Social Determinant of Health." *Annual Review of Public Health* 36(1):375-92.

Cedillo, Yenni E., Brenda Bertrand, Elizabeth Baker, Andrea L. Cherrington, T. Mark Beasley, and José R. Fernández. 2021. "Assimilation, Acculturation, and Allostatic Load in U.S.- and Foreign-Born Hispanics." *Journal of Immigrant and Minority Health* 23(1):35-44.

Centers for Disease Control and Prevention. 2017. "Short Sleep Duration Among U.S. Adults." in *Sleep and Sleep Disorders*. Atlanta, GA: Centers for Disease Control and Prevention.

Chen, X., S. Redline, A. E. Shields, D. R. Williams, and M. A. Williams. 2014. "Associations of allostatic load with sleep apnea, insomnia, short sleep duration, and other sleep disturbances: findings from the National Health and Nutrition Examination Survey 2005 to 2008." *Ann Epidemiol* 24(8):612-9.

Cheong, Pauline Hope, Rosalind Edwards, Harry Goulbourne, and John Solomos. 2007. "Immigration, social cohesion and social capital: A critical review." *Critical Social Policy* 27(1):24-49.

Choi, J. Y. 2009. "Contextual effects on health care access among immigrants: lessons from three ethnic communities in Hawaii." *Soc Sci Med* 69(8):1261-71.

Choi, Shinwoo, Suzie Weng, Hyejoon Park, and Yeongbin Kim. 2020. "Effects of Asian immigrants' group membership in the association between perceived racial discrimination and psychological well-being: the interplay of immigrants' generational status, age, and ethnic subgroup." *Journal of Ethnic & Cultural Diversity in Social Work* 29(1-3):114-35.

Cohen, Elizabeth F. 2015. "The Political Economy of Immigrant Time: Rights, Citizenship, and Temporariness in the Post-1965 Era." *Polity* 47(3):337-51.

Cohen, Jeffrey H. 2011. "Migration, remittances, and household strategies." *Annual Review of Anthropology* 40:103-14.

Cole, Stephen R., and Miguel A. Hernán. 2008. "Constructing Inverse Probability Weights for Marginal Structural Models." *American Journal of Epidemiology* 168(6):656-64.

Commission on Filipinos Overseas. 2019. "2017 CFO Statistics on Philippine International Migration." Pp. 1-97. Manila, Philippines: Commission on Filipinos Overseas.

Commodore-Mensah, Yvonne, Elizabeth Selvin, Jonathan Aboagye, Ruth-Alma Turkson-Ocran, Ximin Li, Cheryl Dennison Himmelfarb, Rexford S. Ahima, and Lisa A. Cooper. 2018. "Hypertension, overweight/obesity, and diabetes among immigrants in the United States: an analysis of the 2010–2016 National Health Interview Survey." *BMC Public Health* 18(1):773.

Costa, Daniel. 2020. "Temporary Migrant Workers or Immigrants? The Question for U.S. Labor Migration." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 6(3):18-44.

Creighton, Mathew J., Noreen Goldman, Anne R. Pebley, and Chang Y. Chung. 2012. "Durational and generational differences in Mexican immigrant obesity: Is acculturation the explanation?" *Social Science & Medicine* 75(2):300-10.

de Castro, A B, Anna K Hing, Nanette R Lee, Maria Midea M Kabamalan, Karen Llave, Catherine M Crespi, May Wang, and Gilbert Gee. 2019. "Cohort profile: the Health of Philippine Emigrants Study (HoPES) to examine the health impacts of international migration from the Philippines to the USA." *BMJ Open* 9(11):e032966.

Derose, K. P., J. J. Escarce, and N. Lurie. 2007. "Immigrants and health care: sources of vulnerability." *Health Aff (Millwood)* 26(5):1258-68.

Derose, Kathryn Pitkin , Benjamin W Bahney, Nicole Lurie, and José J Escarce. 2009. "Immigrants and health care access, quality, and cost." *Medical Care Research and Review* 66(4):355-408.

Diaz, Christina J, Stephanie M Koning, and Ana P Martinez-Donate. 2016. "Moving beyond salmon bias: Mexican return migration and health selection." *Demography* 53(6):2005-30.

Diaz, Christina J., Liwen Zeng, and Ana P. Martinez-Donate. 2018. "Investigating Health Selection Within Mexico and Across the US Border." *Population Research and Policy Review* 37(2):181-204.

Disney, Lindsey. 2021. "The Impact of Employment on Immigrant Mental Health: Results from a National Survey." *Social Work* 66(2):93-100.

Doamekpor, L. A., and G. Y. Dinwiddie. 2015. "Allostatic load in foreign-born and US-born blacks: evidence from the 2001-2010 National Health and Nutrition Examination Survey." *Am J Public Health* 105(3):591-7.

Duncan, Dustin T, Ichiro Kawachi, and Susan Redline. 2019. *The social epidemiology of sleep*: Oxford University Press.

Duru, O. K., N. T. Harawa, D. Kermah, and K. C. Norris. 2012. "Allostatic load burden and racial disparities in mortality." *J Natl Med Assoc* 104(1-2):89-95.

Eckstein, Susan. 2010. "Immigration, remittances, and transnational social capital formation: a Cuban case study." *Ethnic and Racial Studies* 33(9):1648-67.

Ertel, Karen A., Lisa F. Berkman, and Orfeu M. Buxton. 2011. "Socioeconomic Status, Occupational Characteristics, and Sleep Duration in African/Caribbean Immigrants and US White Health Care Workers." *Sleep* 34(4):509-18.

Esses, Victoria M. 2021. "Prejudice and Discrimination Toward Immigrants." *Annual Review of Psychology* 72(1):503-31.

Feliciano, Cynthia. 2005. "Educational selectivity in U.S. Immigration: How do immigrants compare to those left behind?" *Demography* 42(1):131-52.

—. 2020. "Immigrant Selectivity Effects on Health, Labor Market, and Educational Outcomes." *Annual Review of Sociology* 46(1):null.

Ferguson, Gail M, Steve P Tran, Shawn N Mendez, and Fons JR Van De Vijver. 2017. "Remote acculturation: Conceptualization, measurement, and implications for health outcomes." *Oxford handbook of acculturation and health*:157-73.

Ferguson, Gail M., and Marc H. Bornstein. 2012. "Remote acculturation: The "Americanization" of Jamaican Islanders." *International Journal of Behavioral Development* 36(3):167-77.

—. 2015. "Remote acculturation of early adolescents in Jamaica towards European American culture: A replication and extension." *International Journal of Intercultural Relations* 45:24-35.

Filion, Nicole, Andrew Fenelon, and Michel Boudreaux. 2018. "Immigration, citizenship, and the mental health of adolescents." *PLOS ONE* 13(5):e0196859.

Finch, Brian Karl, and William A. Vega. 2003. "Acculturation Stress, Social Support, and Self-Rated Health Among Latinos in California." *J Immigr Health* 5(3):109-17.

Floras, John S. 2014. "Sleep apnea and cardiovascular risk." *Journal of Cardiology* 63(1):3-8.

Frank, Reanne, Erick Axxe, Coralia Balasca, and Melissa Rodriguez. 2019. "Advancing the Field of Immigration and Health." Pp. 1-14 in *Immigration and Health*: Emerald Publishing Limited.

Freeman, Daniel, Bryony Sheaves, Guy M. Goodwin, Ly-Mee Yu, Alecia Nickless, Paul J. Harrison, Richard Emsley, Annemarie I. Luik, Russell G. Foster, Vanashree Wadekar, Christopher Hinds, Andrew Gumley, Ray Jones, Stafford Lightman, Steve Jones, Richard Bentall, Peter Kinderman, Georgina Rowse, Traolach Brugha, Mark Blagrove, Alice M. Gregory, Leanne Fleming, Elaine Walklet, Cris Glazebrook, E. Bethan Davies, Chris Hollis, Gillian Haddock, Bev John, Mark Coulson, David Fowler, Katherine Pugh, John Cape, Peter Moseley, Gary Brown, Claire Hughes, Marc Obonsawin, Sian Coker, Edward Watkins, Matthias Schwannauer, Kenneth MacMahon, A. Niroshan Siriwardena, and Colin A. Espie. 2017. "The effects of improving sleep on mental health (OASIS): a randomised controlled trial with mediation analysis." *The Lancet Psychiatry* 4(10):749-58.

Fuller-Thomson, Esme, Andrea M. Noack, and Usha George. 2011. "Health Decline Among Recent Immigrants to Canada: Findings From a Nationally-representative Longitudinal Survey." *Canadian Journal of Public Health* 102(4):273-80.

Gans, Herbert J. 1997. "Toward a reconciliation of “assimilation” and “pluralism”: The interplay of acculturation and ethnic retention." *International migration review* 31(4):875-92.

Gao, L., M. J. Penning, Z. Wu, S. J. Sterrett, and S. Li. 2020. "Internal Migration and the Health of Middle-Aged and Older Persons in China: The Healthy Migrant Effect Reconsidered." *Res Aging*:164027520958760.

Gee, G. C., A. B. de Castro, Catherine Crespi, May Wang, Anna Hing, Adrian Bacong, and Karen Llave. 2019. "Pre-acculturation as a risk factor for obesity: Findings from the Health of Philippine Emigrants Study (HoPES)." *SSM - Population Health*:100482.

Gee, G. C., Brittany N. Morey, Katrina M. Walsemann, Annie Ro, and David T. Takeuchi. 2016. "Citizenship as Privilege and Social Identity:Implications for Psychological Distress." *American Behavioral Scientist* 60(5-6):680-704.

Gee, Gilbert C, AB de Castro, Catherine M Crespi, May C Wang, Karen Llave, Eleanor Brindle, Nanette R Lee, Maria Midea M Kabamalan, and Anna K Hing. 2018. "Health of Philippine Emigrants Study (HoPES): study design and rationale." *BMC public health* 18(1):771.

Gee, Gilbert C., and Chandra L. Ford. 2011. "STRUCTURAL RACISM AND HEALTH INEQUITIES: Old Issues, New Directions." *Du Bois Review: Social Science Research on Race* 8(1):115-32.

Gee, Gilbert C., Katrina M. Walsemann, and David T. Takeuchi. 2010. "English Proficiency and Language Preference: Testing the Equivalence of Two Measures." *American Journal of Public Health* 100(3):563-69.

Gelatt, Julia. 2020. "Do Employer-Sponsored Immigrants Fare Better in Labor Markets Than Family-Sponsored Immigrants?" *RSF: The Russell Sage Foundation Journal of the Social Sciences* 6(3):70-93.

Geronimus, Arline T., Margaret Hicken, Danya Keene, and John Bound. 2006. "“Weathering” and Age Patterns of Allostatic Load Scores Among Blacks and Whites in the United States." *American Journal of Public Health* 96(5):826-33.

Giuntella, O. 2016. "The Hispanic health paradox: New evidence from longitudinal data on second and third-generation birth outcomes." *SSM Popul Health* 2:84-89.

Glazer, Nathan. 1993. "Is assimilation dead?" *The annals of the American academy of political and social science* 530(1):122-36.

Goldman, Noreen. 2016. "Will the Latino Mortality Advantage Endure?" *Research on Aging* 38(3):263-82.

Goldman, Noreen, Anne R. Pebley, Mathew J. Creighton, Graciela M. Teruel, Luis N. Rubalcava, and Chang Chung. 2014. "The Consequences of Migration to the United States for Short-Term Changes in the Health of Mexican Immigrants." *Demography* 51(4):1159-73.

Gong, Fang, Jun Xu, Kaori Fujishiro, and David T. Takeuchi. 2011. "A life course perspective on migration and mental health among Asian immigrants: The role of human agency." *Social Science & Medicine* 73(11):1618-26.

Gordon, Milton M. 1961. "Assimilation in America: Theory and reality." *Daedalus* 90(2):263-85.

—. 1964. *Assimilation in American life*: Oxford University Press.

Green, A. R., Q. Ngo-Metzger, A. T. Legedza, M. P. Massagli, R. S. Phillips, and L. I. Iezzoni. 2005. "Interpreter services, language concordance, and health care quality. Experiences of Asian Americans with limited English proficiency." *J Gen Intern Med* 20(11):1050-6.

Gubernskaya, Z., F. D. Bean, and J. Van Hook. 2013. "(Un)Healthy immigrant citizens: naturalization and activity limitations in older age." *J Health Soc Behav* 54(4):427-43.

Guitierrez, Armand. 2018a. "Mediated remittances: transnational economic contributions from second-generation Filipino Americans." *Global Networks* 18(3):523-40.

—. 2018b. "Mediated remittances: transnational economic contributions from second-generation Filipino Americans." *Global Networks* 18(3):500-17.

Gutierrez, Armand. 2018a. "The determinants of remittances among second-generation Mexican- and Filipino-Americans." *Ethnic and Racial Studies*:1-21.

—. 2018b. "A family affair: how and why second-generation Filipino-Americans engage in transnational social and economic connections." *Ethnic and Racial Studies* 41(2):229-47.

Hale, L., and E. Rivero-Fuentes. 2011. "Negative acculturation in sleep duration among Mexican immigrants and Mexican Americans." *J Immigr Minor Health* 13(2):402-7.

Hamilton, Erin R., Jo Mhairi Hale, and Robin Savinar. 2018. "Immigrant Legal Status and Health: Legal Status Disparities in Chronic Conditions and Musculoskeletal Pain Among Mexican-Born Farm Workers in the United States." *Demography* 56(1):1-24.

Hamilton, Tod G., and Robert A. Hummer. 2011. "Immigration and the health of U.S. black adults: Does country of origin matter?" *Social Science & Medicine* 73(10):1551-60.

Hatzenbuehler, Mark L., Jo C. Phelan, and Bruce G. Link. 2013. "Stigma as a Fundamental Cause of Population Health Inequalities." *American Journal of Public Health* 103(5):813-21.

Hernán, Miguel A, Sonia Hernández-Díaz, and James M Robins. 2004. "A structural approach to selection bias." *Epidemiology*:615-25.

Hernán, Miguel Ángel, Babette Brumback, and James M Robins. 2000. "Marginal structural models to estimate the causal effect of zidovudine on the survival of HIV-positive men." *Epidemiology*:561-70.

Im, Eun-Ok, Young Ko, Eunice Chee, and Wonshik Chee. 2017. "Immigration transition and sleep-related symptoms experienced during menopausal transition." *Women & Health* 57(1):69-87.

Jaacks, Lindsay M., Stefanie Vandevijvere, An Pan, Craig J. McGowan, Chelsea Wallace, Fumiaki Imamura, Dariush Mozaffarian, Boyd Swinburn, and Majid Ezzati. 2019. "The obesity transition: stages of the global epidemic." *The Lancet Diabetes & Endocrinology* 7(3):231-40.

Jackson, C. L., F. B. Hu, S. Redline, D. R. Williams, J. Mattei, and I. Kawachi. 2014. "Racial/ethnic disparities in short sleep duration by occupation: the contribution of immigrant status." *Soc Sci Med* 118:71-9.

Jasso, Guillermina. 2011. "Migration and stratification." *Social Science Research* 40(5):1292-336.

John, Dolly A., A. B. de Castro, Diane P. Martin, Bonnie Duran, and David T. Takeuchi. 2012. "Does an immigrant health paradox exist among Asian Americans? Associations of nativity and occupational class with self-rated health and mental disorders." *Social Science & Medicine* 75(12):2085-98.

Jones, Mark, Gita D. Mishra, and Annette Dobson. 2015. "Analytical results in longitudinal studies depended on target of inference and assumed mechanism of attrition." *Journal of Clinical Epidemiology* 68(10):1165-75.

Juárez, Sol Pía, and Bárbara A. Revuelta-Eugercios. 2016. "Exploring the 'Healthy Migrant Paradox' in Sweden. A Cross Sectional Study Focused on Perinatal Outcomes." *J Immigr Minor Health* 18(1):42-50.

Juster, R. P., and S. Lupien. 2012. "A sex- and gender-based analysis of allostatic load and physical complaints." *Gend Med* 9(6):511-23.

Kaestner, Robert, Jay A Pearson, Danya Keene, and Arline T Geronimus. 2009. "Stress, allostatic load, and health of Mexican immigrants." *Social science quarterly* 90(5):1089-111.

Kahn, Joan R., and Leonard I. Pearlin. 2006. "Financial Strain over the Life Course and Health among Older Adults." *Journal of Health and Social Behavior* 47(1):17-31.

Kawada, Tomoyuki. 2011. "Noise and Health—Sleep Disturbance in Adults." *Journal of Occupational Health* 53(6):413-16.

Kim, Sangmi, Wenhui Zhang, Victoria Pak, Jasmine Ko Aqua, Vicki Stover Hertzberg, Chandler M Spahr, George M. Slavich, and Jinbing Bai. 2021. "How stress, discrimination, acculturation and the gut microbiome affect depression, anxiety and sleep among Chinese and Korean immigrants in the USA: a cross-sectional pilot study protocol." *BMJ Open* 11(7):e047281.

Klompmaker, Jochem O., Gerard Hoek, Lizan D. Bloemsma, Alet H. Wijga, Carolien van den Brink, Bert Brunekreef, Erik Lebret, Ulrike Gehring, and Nicole A. H. Janssen. 2019. "Associations of combined exposures to surrounding green, air pollution and traffic noise on mental health." *Environment International* 129:525-37.

Kroenke, Kurt, Zhangsheng Yu, Jingwei Wu, Jacob Kean, and Patrick O. Monahan. 2014. "Operating Characteristics of PROMIS Four-Item Depression and Anxiety Scales in Primary Care Patients with Chronic Pain." *Pain Medicine* 15(11):1892-901.

Langellier, Brent A., Paul J. Fleming, Jessie B. Kemmick Pintor, and Jim P. Stimpson. 2020. "Allostatic Load Among U.S.- and Foreign-Born Whites, Blacks, and Latinx." *American Journal of Preventive Medicine.*

Lee, Shaun Wen Huey, Khuen Yen Ng, and Weng Khong Chin. 2017. "The impact of sleep amount and sleep quality on glycemic control in type 2 diabetes: A systematic review and meta-analysis." *Sleep Medicine Reviews* 31:91-101.

Lee, Sunghee, Hoang Anh Nguyen, and Jennifer Tsui. 2011. "Interview Language: A Proxy Measure for Acculturation Among Asian Americans in a Population-Based Survey." *J Immigr Minor Health* 13(2):244-52.

Lee, Sunmin, Allison H. O'Neill, Emily S. Ihara, and David H. Chae. 2013. "Change in Self-Reported Health Status among Immigrants in the United States: Associations with Measures of Acculturation." *PLoS One* 8(10):e76494.

Lee, Sunmin, Soomin Ryu, Grace E Lee, Ichiro Kawachi, Brittany N Morey, and Natalie Slopen. 2021. "The Association of Acculturative Stress with Self-reported Sleep Disturbance and Sleep Duration among Asian Americans." *Sleep*.

Lee, Sunmin, Natalie Slopen, and Seo Young Hong. 2019. "Sleep Among Immigrants: Does Acculturation Matter?" Pp. 453 in *The Social Epidemiology of Sleep*, edited by Dustin T Duncan, Ichiro Kawachi, and Susan Redline. New York, NY: Oxford University Press.

León-Pérez, Gabriela. 2019. "Internal migration and the health of Indigenous Mexicans: A longitudinal study." *SSM - Population Health* 8:100407.

Li, Miao, and James G. Anderson. 2016. "Pre-migration Trauma Exposure and Psychological Distress for Asian American Immigrants: Linking the Pre- and Post-migration Contexts." *Journal of Immigrant and Minority Health* 18(4):728-39.

Li, Peter S. 2004. "Social capital and economic outcomes for immigrants and ethnic minorities." *Journal of International Migration and Integration/Revue de l'integration et de la migration internationale* 5(2):171-90.

Lim, Yin Cheng, Victor C W Hoe, Azlan Darus, and Nirmala Bhoo-Pathy. 2018. "Association between night-shift work, sleep quality and metabolic syndrome." *Occupational and Environmental Medicine* 75(10):716-23.

Link, Bruce G, and Jo Phelan. 1995. "Social conditions as fundamental causes of disease." *Journal of Health and Social Behavior*:80-94.

Liu, Jianghong, Tina Wu, Qisijing Liu, Shaowei Wu, and Jiu-Chiuan Chen. 2020. "Air pollution exposure and adverse sleep health across the life course: A systematic review." *Environmental Pollution* 262:114263.

Logan, J. G., and D. J. Barksdale. 2008. "Allostasis and allostatic load: expanding the discourse on stress and cardiovascular disease." *J Clin Nurs* 17(7b):201-8.

Lommel, Lisa L., and Jyu-Lin Chen. 2016. "The Relationship Between Self-Rated Health and Acculturation in Hispanic and Asian Adult Immigrants: A Systematic Review." *Journal of Immigrant and Minority Health* 18(2):468-78.

Lopez-Class, Maria, Felipe González Castro, and Amelie G. Ramirez. 2011. "Conceptions of acculturation: A review and statement of critical issues." *Social Science & Medicine* 72(9):1555-62.

Lu, Y., and L. Qin. 2014. "Healthy migrant and salmon bias hypotheses: a study of health and internal migration in China." *Soc Sci Med* 102:41-8.

Lu, Yao. 2008. "Test of the 'healthy migrant hypothesis': A longitudinal analysis of health selectivity of internal migration in Indonesia." *Social Science & Medicine* 67(8):1331-39.

Luyster, Faith S., Patrick J. Strollo, Jr., Phyllis C. Zee, and James K. Walsh. 2012. "Sleep: A Health Imperative." *Sleep* 35(6):727-34.

Lynn L. Farrales, Gwen E. Chapman. 1999. "FILIPINO WOMEN LIVING IN CANADA: CONSTRUCTING MEANINGS OF BODY, FOOD, AND HEALTH." *Health Care for Women International* 20(2):179-94.

Ma, Hongbao, and Kuan-Jiunn Shieh. 2006. "Cholesterol and human health." *The Journal of American Science* 2(1):46-50.

Maglalang, Dale, A. Butch de Castro, Gilbert Gee, Erika L. Sabbath, Thanh V. Tran, and David T. Takeuchi. 2020. "Associations of Sociodemographic Factors With Health-Related Social Networks Among Premigration Filipinos." *Social Work in Public Health*:1-10.

Mair, C. A., M. P. Cutchin, and M. Kristen Peek. 2011. "Allostatic load in an environmental riskscape: the role of stressors and gender." *Health Place* 17(4):978-87.

Manalo-Pedro, Erin, and May Sudhinaraset. 2022. "Deferred depression? Mediation analysis of Deferred Action for Childhood Arrivals and immigration enforcement among Undocumented Asian and Pacific Islander students." *SSM - Population Health* 17:101008.

Markides, K. S., and S. Rote. 2019. "The Healthy Immigrant Effect and Aging in the United States and Other Western Countries." *Gerontologist* 59(2):205-14.

Markides, K.S., and Jeannine Coreil. 1986. "The health of Hispanics in the southwestern United States: an epidemiologic paradox." *Public health reports* 101(3):253.

Markides, K.S., and Sunshine Rote. 2015. "Immigrant Health Paradox." in *Emerging Trends in the Social and Behavioral Sciences*: John Wiley & Sons, Inc.

Markides, Kyriakos S, and Sunshine Rote. 2018. "The Healthy Immigrant Effect and Aging in the United States and Other Western Countries." *Gerontologist* 59(2):205-14.

Martinez-Miller, Erline E, Aric A Prather, Whitney R Robinson, Christy L Avery, Yang C Yang, Mary N Haan, and Allison E Aiello. 2018. "US acculturation and poor sleep among an intergenerational cohort of adult Latinos in Sacramento, California." *Sleep* 42(3).

Martinez, Omar, Elwin Wu, Theo Sandfort, Brian Dodge, Alex Carballo-Dieguez, Rogeiro Pinto, Scott Rhodes, Eva Moya, and Silvia Chavez-Baray. 2015. "Evaluating the Impact of Immigration Policies on Health Status Among Undocumented Immigrants: A Systematic Review." *Journal of Immigrant and Minority Health* 17(3):947-70.

McClure, Heather H., J. Josh Snodgrass, Charles R. Martinez, Erica C. Squires, Roberto A. Jiménez, Laura E. Isiordia, J. Mark Eddy, Thomas W. McDade, and Jeon Small. 2015. "Stress, Place, and Allostatic Load Among Mexican Immigrant Farmworkers in Oregon." *J Immigr Minor Health* 17(5):1518-25.

McEWEN, BRUCE S. 1998. "Stress, Adaptation, and Disease: Allostasis and Allostatic Load." *Annals of the New York Academy of Sciences* 840(1):33-44.

Meier-Ewert, Hans K, Paul M Ridker, Nader Rifai, Meredith M Regan, Nick J Price, David F Dinges, and Janet M Mullington. 2004. "Effect of sleep loss on C-Reactive protein, an inflammatory marker of cardiovascular risk." *Journal of the American College of Cardiology* 43(4):678-83.

Michaels, Eli, Marilyn Thomas, Alexis Reeves, Melisa Price, Rebecca Hasson, David Chae, and Amani Allen. 2019. "Coding the Everyday Discrimination Scale: implications for exposure assessment and associations with hypertension and depression among a cross

section of mid-life African American women." *Journal of Epidemiology and Community Health* 73(6):577-84.

Miller, Hailey N., Sarah LaFave, Lea Marineau, Janna Stephens, and Roland J. Thorpe. 2021. "The impact of discrimination on allostatic load in adults: An integrative review of literature." *Journal of Psychosomatic Research* 146:110434.

Minnesota Population Center. 2020. "Integrated Public Use Microdata Series, Internrational: Version 7.3 [2010 Census of Population and Housing]." edited by Philippine Statistics Authority. Minneapolis, MN: IPUMS International.

Morey, Brittany N. 2018. "Mechanisms by Which Anti-Immigrant Stigma Exacerbates Racial/Ethnic Health Disparities." *American Journal of Public Health* 108(4):460-63.

Morey, Brittany N., Adrian Matias Bacong, Anna K. Hing, A. B. de Castro, and Gilbert C. Gee. 2020a. "Heterogeneity in Migrant Health Selection: The Role of Immigrant Visas." *Journal of Health and Social Behavior* 63(3).

—. 2020b. "Heterogeneity in Migrant Health Selection: The Role of Immigrant Visas." *J Health Soc Behav* 61(3):359-76.

—. 2020c. "Heterogeneity in Migrant Health Selection: The Role of Immigrant Visas." *Journal of Health and Social Behavior* 0(0).

Morey, Brittany N., San Juanita García, Tanya Nieri, Tim A. Bruckner, and Bruce G. Link. 2021a. "Symbolic disempowerment and Donald Trump's 2016 presidential election: Mental health responses among Latinx and white populations." *Social Science & Medicine* 289:114417.

Morey, Brittany N., Gilbert C. Gee, Peter Muennig, and Mark L. Hatzenbuehler. 2018. "Community-level prejudice and mortality among immigrant groups." *Social Science & Medicine* 199:56-66.

Morey, Brittany N., Gilbert C. Gee, Salma Shariff-Marco, Juan Yang, Laura Allen, and Scarlett Lin Gomez. 2020d. "Ethnic enclaves, discrimination, and stress among Asian American women: Differences by nativity and time in the United States." *Cultural Diversity and Ethnic Minority Psychology* 26(4):460-71.

Morey, Brittany N., Connie Valencia, Hye Won Park, and Sunmin Lee. 2021b. "The central role of social support in the health of Chinese and Korean American immigrants." *Social Science & Medicine* 284:114229.

Mossakowski, Krysia N. 2007. "Are immigrants healthier? The case of depression among Filipino Americans." *Social Psychology Quarterly* 70(3):290-304.

National Academies of Sciences, Engineering, Medicine, and Committee on Population. 2016. *The integration of immigrants into American society*: National Academies Press.

National Institute of Mental Health. 2022. "Mental Illness." Bethesda, MD: National Institutes of Health.

Nee, Victor, and Richard Alba. 2012. "Rethinking assimilation theory for a new era of immigration." Pp. 49-80 in *The new immigration*: Routledge.

Nehring, SM, A Goyal, P Bansal, and BC Patel. 2020. "C Reactive Protein (CRP)." in *StatPearls*. Treasure Island, FL: StatPearls Publishing.

Ngai, Mae M. 2003. "The strange career of the illegal alien: Immigration restriction and deportation policy in the United States, 1921–1965." *Law and History Review* 21(1):69-108.

Norredam, M., C. Agyemang, O. K. Hoejbjerg Hansen, J. H. Petersen, S. Byberg, A. Krasnik, and A. E. Kunst. 2014. "Duration of residence and disease occurrence among refugees and family reunited immigrants: test of the 'healthy migrant effect' hypothesis." *Trop Med Int Health* 19(8):958-67.

Obinna, Denise N. 2014. "The challenges of American legal permanent residency for family-and employment-based petitioners." *Migration and Development* 3(2):272-84.

Obinna, Denise N. 2020. "Wait-times, visa queues and uncertainty: the barriers to American legal migration." *Migration and Development* 9(3):390-410.

Office of Disease Prevention and Health Promotion. 2020. "Healthy People 2030 Framework." in *Healthy People 2030*, edited by U.S. Department of Health and Human Services. Washington D.C.

Okafor, Maria-Theresa C., Olivia D. Carter-Pokras, and Min Zhan. 2014. "Greater Dietary Acculturation (Dietary Change) Is Associated With Poorer Current Self-Rated Health Among African Immigrant Adults." *Journal of Nutrition Education and Behavior* 46(4):226-35.

Orrenius, Pia M., and Madeline Zavodny. 2020. "Help Wanted: Employer Demand for Less-Skilled Temporary Foreign Worker Visas in an Era of Declining Unauthorized Immigration." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 6(3):45-67.

Ortega, Alexander N., Ryan M. McKenna, Jessie Kemmick Pintor, Brent A. Langellier, Dylan H. Roby, Nadereh Pourat, Arturo Vargas Bustamante, and Steven P. Wallace. 2018. "Health Care Access and Physical and Behavioral Health Among Undocumented Latinos in California." *Medical Care* Publish Ahead of Print.

Palloni, Alberto, and Elizabeth Arias. 2004. "Paradox lost: Explaining the hispanic adult mortality advantage." *Demography* 41(3):385-415.

Panchang, Sarita, Hilary Dowdy, Rachel Kimbro, and Bridget Gorman. 2016. "Self-rated health, gender, and acculturative stress among immigrants in the U.S.: New roles for social support." *International Journal of Intercultural Relations* 55:120-32.

Parente, V., L. Hale, and T. Palermo. 2013. "Association between breast cancer and allostatic load by race: National Health and Nutrition Examination Survey 1999-2008." *Psychooncology* 22(3):621-8.

Park, Chorong, Tanya M. Spruill, Mark J. Butler, Simona C. Kwon, Nancy S. Redeker, Rida Gharzeddine, and Robin Whittemore. 2020. "Gender Differences in Acculturative Stress and Habitual Sleep Duration in Korean American Immigrants." *Journal of Immigrant and Minority Health* 22(4):736-45.

Peek, M. K., M. P. Cutchin, J. J. Salinas, K. M. Sheffield, K. Eschbach, R. P. Stowe, and J. S. Goodwin. 2010. "Allostatic load among non-Hispanic Whites, non-Hispanic Blacks, and people of Mexican origin: effects of ethnicity, nativity, and acculturation." *Am J Public Health* 100(5):940-6.

Phelan, Jo C., Bruce G. Link, and Parisa Tehranifar. 2010. "Social Conditions as Fundamental Causes of Health Inequalities: Theory, Evidence, and Policy Implications." *Journal of Health and Social Behavior* 51(1_suppl):S28-S40.

Pilkonis, Paul A., Lan Yu, Nathan E. Dodds, Kelly L. Johnston, Catherine C. Maihoefer, and Suzanne M. Lawrence. 2014. "Validation of the depression item bank from the Patient-Reported Outcomes Measurement Information System (PROMIS®) in a three-month observational study." *Journal of Psychiatric Research* 56:112-19.

Portes, A, and Min Zhou. 1993. "The new second generation: segmented assimilation and its variants." *The Annals of the American Academy of Political and Social Science* 530:74-96.

Rahe, Corinna, Maria Eszter Czira, Henning Teismann, and Klaus Berger. 2015. "Associations between poor sleep quality and different measures of obesity." *Sleep Medicine* 16(10):1225-28.

Ramírez, A. Susana, Tanya Golash-Boza, Jennifer B. Unger, and Lourdes Baezconde-Garbanati. 2018. "Questioning the Dietary Acculturation Paradox: A Mixed-Methods Study of the Relationship between Food and Ethnic Identity in a Group of Mexican-American Women." *Journal of the Academy of Nutrition and Dietetics* 118(3):431-39.

Ratha, Dilip. 2005. "Workers' remittances: an important and stable source of external development finance." *Remittances: development impact and future prospects*:19-51.

Ravenstein, Ernst Georg. 1885. "The laws of migration." *Journal of the statistical society of London* 48(2):167-235.

Riley, Alicia R. 2020. "Advancing the study of health inequality: Fundamental causes as systems of exposure." *SSM - Population Health* 10:100555.

Riosmena, Fernando, Bethany G. Everett, Richard G. Rogers, and Jeff A. Dennis. 2015. "Negative Acculturation and Nothing More? Cumulative Disadvantage and Mortality during the Immigrant Adaptation Process among Latinos in the United States." *International Migration Review* 49(2):443-78.

Riosmena, Fernando, Randall Kuhn, and Warren C. Jochem. 2017. "Explaining the Immigrant Health Advantage: Self-selection and Protection in Health-Related Factors Among Five

Major National-Origin Immigrant Groups in the United States." *Demography* 54(1):175-200.

Riosmena, Fernando, Rebeca Wong, and Alberto Palloni. 2013. "Migration selection, protection, and acculturation in health: a binational perspective on older adults." *Demography* 50(3):1039-64.

Ro, Annie. 2014. "The Longer You Stay, the Worse Your Health? A Critical Review of the Negative Acculturation Theory among Asian Immigrants." *International Journal of Environmental Research and Public Health* 11(8):8038.

Ro, Annie, Nancy L Fleischer, and Bridgette Blebu. 2016. "An examination of health selection among US immigrants using multi-national data." *Social Science & Medicine* 158:114-21.

Ro, Annie, Arline Geronimus, John Bound, Derek Griffith, and Gilbert Gee. 2015. "Cohort and Duration Patterns Among Asian Immigrants: Comparing Trends in Obesity and Self-Rated Health." *Biodemography and Social Biology* 61(1):65-80.

Ro, Annie, and Jennifer Van Hook. 2021. "Comparing immigration status and health patterns between Latinos and Asians: Evidence from the Survey of Income and Program Participation." *PLOS ONE* 16(2):e0246239.

Robertson, T., and E. Watts. 2016. "The importance of age, sex and place in understanding socioeconomic inequalities in allostatic load: Evidence from the Scottish Health Survey (2008-2011)." *BMC Public Health* 16:126.

Rodriguez, Robyn M. 2002. "Migrant heroes: Nationalism, citizenship and the politics of Filipino migrant labor." *Citizenship Studies* 6(3):341-56.

Rodriguez, Robyn Magalit. 2010. *Migrants for export: How the Philippine state brokers labor to the world*: U of Minnesota Press.

Rubalcava, L. N., G. M. Teruel, D. Thomas, and N. Goldman. 2008a. "The healthy migrant effect: new findings from the Mexican Family Life Survey." *Am J Public Health* 98(1):78-84.

Rubalcava, Luis N., Graciela M. Teruel, Duncan Thomas, and Noreen Goldman. 2008b. "The Healthy Migrant Effect: New Findings From the Mexican Family Life Survey." *American Journal of Public Health* 98(1):78-84.

Ruiz, John M., Heidi A. Hamann, Matthias R. Mehl, and Mary-Frances O'Connor. 2016. "The Hispanic health paradox: From epidemiological phenomenon to contribution opportunities for psychological science." *Group Processes & Intergroup Relations* 19(4):462-76.

Ryan, Louise, Gerard Leavey, Anne Golden, Robert Blizard, and Michael King. 2006. "Depression in Irish migrants living in London: case-control study." *British Journal of Psychiatry* 188(6):560-66.

Saarela, J., and F. Finnäs. 2008. "Internal migration and mortality: the case of Finland." *Environ Health Insights* 2:1-12.

Sabado-Liwag, Melanie D. , Erin Manalo-Pedro, Roy Taggueg, Adrian M. Bacong, Alexander C. Adia, Donna Demanarig, Jake Ryann Sumibcay, Claire Valderama-Wallace, Carlos Irwin A. Oronce, Rick Bonus, and Ninez A. Ponce. 2022. "Addressing The Interlocking Impact Of Colonialism And Racism On Filipinx/a/o American Health Inequities." *Health Affairs* 41(2):289-95.

Salas-Wright, Christopher P., Njeri Kagotho, and Michael G. Vaughn. 2014. "Mood, anxiety, and personality disorders among first and second-generation immigrants to the United States." *Psychiatry Research* 220(3):1028-36.

Sangalang, Cindy C., David Becerra, Felicia M. Mitchell, Stephanie Lechuga-Peña, Kristina Lopez, and Isok Kim. 2019. "Trauma, Post-Migration Stress, and Mental Health: A Comparative Analysis of Refugees and Immigrants in the United States." *Journal of Immigrant and Minority Health* 21(5):909-19.

Sano, Y., R. Antabe, E. Kyeremeh, E. Kwon, and J. Amoyaw. 2019a. "Immigration as a social determinant of troubled sleep in Canada: some evidence from the Canadian Community Health Survey-Mental Health." *Sleep Health* 5(2):135-40.

Sano, Yujiro, Roger Antabe, Emmanuel Kyeremeh, Eugena Kwon, and Jonathan Amoyaw. 2019b. "Immigration as a social determinant of troubled sleep in Canada: some evidence from the Canadian Community Health Survey–Mental Health." *Sleep Health* 5(2):135-40.

Sass, Victoria, Nicole Kravitz-Wirtz, Steven M. Karceski, Anjum Hajat, Kyle Crowder, and David Takeuchi. 2017. "The effects of air pollution on individual psychological distress." *Health & Place* 48:72-79.

Schalet, Benjamin D., Paul A. Pilkonis, Lan Yu, Nathan Dodds, Kelly L. Johnston, Susan Yount, William Riley, and David Cella. 2016. "Clinical validity of PROMIS Depression, Anxiety, and Anger across diverse clinical samples." *Journal of Clinical Epidemiology* 73:119-27.

Schumann, Maria, Marleen Bug, Katja Kajikhina, Carmen Koschollek, Susanne Bartig, Thomas Lampert, and Claudia Santos-Hövener. 2020. "The concept of acculturation in

epidemiological research among migrant populations: A systematic review." *SSM - Population Health* 10:100539-39.

Seaman, Shaun R, and Ian R White. 2013. "Review of inverse probability weighting for dealing with missing data." *Statistical Methods in Medical Research* 22(3):278-95.

Seeman, Teresa E., Bruce S. McEwen, John W. Rowe, and Burton H. Singer. 2001. "Allostatic load as a marker of cumulative biological risk: MacArthur studies of successful aging." *Proceedings of the National Academy of Sciences* 98(8):4770-75.

Seicean, Sinziana, Duncan Neuhauser, Kingman Strohl, and Susan Redline. 2011. "An Exploration of Differences in Sleep Characteristics between Mexico-born US Immigrants and Other Americans to Address the Hispanic Paradox." *Sleep* 34(8):1021-31.

Semyonov, Moshe, and Anastasia Gorodzeisky. 2008. "Labor Migration, Remittances and Economic Well-being of Households in the Philippines." *Population Research and Policy Review* 27(5):619.

Serafica, Reimund C., Susan H. Lane, and Clementina D. Ceria-Ulep. 2013. "Dietary Acculturation and Predictors of Anthropometric Indicators Among Filipino Americans." *SAGE Open* 3(3):2158244013495543.

Setia, Maninder Singh, Amelie Quesnel-Vallee, Michal Abrahamowicz, Pierre Tousignant, and John Lynch. 2011. "Access to health-care in Canadian immigrants: a longitudinal study of the National Population Health Survey." *Health & Social Care in the Community* 19(1):70-79.

Silverstein, Paul A. 2004. *Algeria in France: Transpolitics, race, and nation*: Indiana University Press.

Simich, Laura, Hayley Hamilton, and B. Khamisa Baya. 2006. "Mental Distress, Economic Hardship and Expectations of Life in Canada among Sudanese Newcomers." *Transcultural Psychiatry* 43(3):418-44.

Singh, Shipra, Amy Jo Schulz, Harold W Neighbors, and Derek M Griffith. 2017. "Interactive effect of immigration-related factors with legal and discrimination acculturative stress in predicting depression among Asian American immigrants." *Community mental health journal* 53(6):638-46.

Slopen, Natalie, Tené T. Lewis, and David R. Williams. 2016. "Discrimination and sleep: a systematic review." *Sleep Medicine* 18:88-95.

Sohn, Heeju, and Adrian Matias Bacong. 2021. "Selection, experience, and disadvantage: Examining sources of health inequalities among naturalized US citizens." *SSM - Population Health* 15:100895.

Speciale, Anna Maria, and Enrique Regidor. 2011. "Understanding the Universality of the Immigrant Health Paradox: The Spanish Perspective." *Journal of immigrant and minority health* 13(3):518-25.

Stark, Oded, and David E Bloom. 1985. "The new economics of labor migration." *The american Economic review* 75(2):173-78.

Steinmann, Jan-Philip. 2019. "The paradox of integration: why do higher educated new immigrants perceive more discrimination in Germany?" *Journal of Ethnic and Migration Studies* 45(9):1377-400.

Sternthal, Michelle J., Natalie Slopen, and David R. Williams. 2011. "RACIAL DISPARITIES IN HEALTH: How Much Does Stress Really Matter?" *Du Bois Review: Social Science Research on Race* 8(1):95-113.

Sudhinaraset, May, Irving Ling, Tu My To, Jason Melo, and Thu Quach. 2017. "Dreams deferred: Contextualizing the health and psychosocial needs of undocumented Asian and Pacific Islander young adults in Northern California." *Social Science & Medicine* 184:144-52.

Taylor, Edward J. 1999. "The new economics of labour migration and the role of remittances in the migration process." *International migration* 37(1):63-88.

Tegegne, Mesay A. 2018. "Linguistic Integration and Immigrant Health: The Longitudinal Effects of Interethnic Social Capital." *J Health Soc Behav* 59(2):215-30.

The World Bank. 2022. "Personal remittances, received (% of GDP) - Philippines."

Tomfohr, L. M., M. A. Pung, and J. E. Dimsdale. 2016. "Mediators of the relationship between race and allostatic load in African and White Americans." *Health Psychol* 35(4):322-32.

Torres, Lucas, Mark W. Driscoll, and Maria Voell. 2012. "Discrimination, acculturation, acculturative stress, and Latino psychological distress: a moderated mediational model." *Cultural diversity & ethnic minority psychology* 18(1):17-25.

Tuggle, Alexandra C., Jeffrey H. Cohen, and Douglas E. Crews. 2018. "Stress, migration, and allostatic load: a model based on Mexican migrants in Columbus, Ohio." *Journal of Physiological Anthropology* 37(1):28.

Turra, Cassio M., and Irma T. Elo. 2008. "The Impact of Salmon Bias on the Hispanic Mortality Advantage: New Evidence from Social Security Data." *Population Research and Policy Review* 27(5):515.

Twisk, Jos, Michiel de Boer, Wieke de Vente, and Martijn Heymans. 2013. "Multiple imputation of missing values was not necessary before performing a longitudinal mixed-model analysis." *Journal of Clinical Epidemiology* 66(9):1022-28.

U.S. Department of Homeland Security. 2017. "2016 Yearbook of Immigration Statistics." Washington, D. C.: U.S. Department of Homeland Security, Office of Immigration Statistics.

U.S. Department of State - Bureau of Consular Affairs. 2022. "Directory of Visa Categories." Washington D.C., USA: U.S. Department of State.

United States Deparment of State Bureau of Consular Affairs. 2021. "Visa Bulletin for October 2021."

—. 2022. "Immigrant Visa Process." Washington D.C., USA.

Upchurch, D. M., J. Stein, G. A. Greendale, L. Chyu, C. H. Tseng, M. H. Huang, T. T. Lewis, H. M. Kravitz, and T. Seeman. 2015. "A Longitudinal Investigation of Race, Socioeconomic Status, and Psychosocial Mediators of Allostatic Load in Midlife Women: Findings From the Study of Women's Health Across the Nation." *Psychosom Med* 77(4):402-12.

Van Der Gaag, Martin, and Tom A. B. Snijders. 2005. "The Resource Generator: social capital quantification with concrete items." *Social Networks* 27(1):1-29.

Van Natta, Meredith, Nancy J Burkeb, Irene H Yen, Mark D Fleming, Christoph L Hanssmann, Maryani Palupy Rasidjan, and Janet K Shim. 2018. "Stratified citizenship, stratified health: Examining latinx legal status in the US healthcare safety net." *Social Science & Medicine*.

Vang, Zoua M., and Yvonne Chang. 2019. "Immigrants' Experiences of Everyday Discrimination in Canada: Unpacking the Contributions of Assimilation, Race, and Early Socialization." *International Migration Review* 53(2):602-31.

Vargas, Persephone, and Leo-Felix Jurado. 2016. "Dietary Acculturation among Filipino Americans." *International Journal of Environmental Research and Public Health* 13(1):16.

Villarroel, N., and L. Artazcoz. 2017. "Immigration and Sleep Problems in a Southern European Country: Do Immigrants Get the Best Sleep?" *Behav Med* 43(4):233-41.

Viruell-Fuentes, Edna A, Jeffrey D Morenoff, David R Williams, and James S House. 2011. "Language of interview, self-rated health, and the other Latino health puzzle." *Am J Public Health* 101(7):1306-13.

Viruell-Fuentes, Edna A., Patricia Y. Miranda, and Sawsan Abdulrahim. 2012. "More than culture: Structural racism, intersectionality theory, and immigrant health." *Social Science & Medicine* 75(12):2099-106.

Wallace, M., E. Harville, K. Theall, L. Webber, W. Chen, and G. Berenson. 2013. "Neighborhood poverty, allostatic load, and birth outcomes in African American and white women: findings from the Bogalusa Heart Study." *Health Place* 24:260-6.

Wallace, Steven P., and Maria Elena de Trinidad Young. 2018. "Immigration Versus Immigrant: The Cycle of Anti-Immigrant Policies." *American Journal of Public Health* 108(4):436-37.

Walsemann, Katrina M, Jennifer A Ailshire, and Gilbert C Gee. 2016. "Student loans and racial disparities in self-reported sleep duration: evidence from a nationally representative sample of US young adults." *Journal of Epidemiology and Community Health* 70(1):42-48.

Wang, Julia Shu-Huah, and Neeraj Kaushal. 2011. "Health and Mental Health Effects of Local Immigration Enforcement." *International Migration Review* 0(0):0197918318791978.

—. 2019. "Health and Mental Health Effects of Local Immigration Enforcement." *International Migration Review* 53(4):970-1001.

Warth, Jacqueline, Marie-Therese Puth, Judith Tillmann, Johannes Porz, Ulrike Zier, Klaus Weckbecker, and Eva Münster. 2019. "Over-indebtedness and its association with sleep and sleep medication use." *BMC public health* 19(1):957.

Waters, Mary C. 1994. "Ethnic and racial identities of second-generation black immigrants in New York City." *International Migration Review* 28(4):795-820.

Waters, Mary C, and Tomás R Jiménez. 2005. "Assessing immigrant assimilation: New empirical and theoretical challenges." *Annu. Rev. Sociol.* 31:105-25.

Whelton, Paul K., Robert M. Carey, Wilbert S. Aronow, Donald E. Casey, Karen J. Collins, Cheryl Dennison Himmelfarb, Sondra M. DePalma, Samuel Gidding, Kenneth A. Jamerson, Daniel W. Jones, Eric J. MacLaughlin, Paul Muntner, Bruce Ovbiagele, Sidney C. Smith, Crystal C. Spencer, Randall S. Stafford, Sandra J. Taler, Randal J. Thomas, Kim A. Williams, Jeff D. Williamson, and Jackson T. Wright. 2018. "2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults." *Journal of the American College of Cardiology* 71(19):e127.

Wickrama, K. A., C. W. O'Neal, and T. K. Lee. 2016. "The Health Impact of Upward Mobility: Does Socioeconomic Attainment Make Youth More Vulnerable to Stressful Circumstances?" *J Youth Adolesc* 45(2):271-85.

Williams, David R., Yan Yu, James S. Jackson, and Norman B. Anderson. 1997. "Racial Differences in Physical and Mental Health:Socio-economic Status, Stress and Discrimination." *Journal of Health Psychology* 2(3):335-51.

Wodtke, Geoffrey T., David J. Harding, and Felix Elwert. 2011. "Neighborhood Effects in Temporal Perspective:The Impact of Long-Term Exposure to Concentrated Disadvantage on High School Graduation." *American Sociological Review* 76(5):713-36.

World Health Organization. 2000. *Obesity: preventing and managing the global epidemic*: World Health Organization.

—. 2008. "Waist Circumference and Waist-Hip Ratio." Pp. 1-47, edited by World Health Organization. Geneva, Switzerland: World Health Organization.

Xiao, Qian, Gilbert Gee, Rena R. Jones, Peng Jia, Peter James, and Lauren Hale. 2020. "Cross-sectional association between outdoor artificial light at night and sleep duration in middle-to-older aged adults: The NIH-AARP Diet and Health Study." *Environmental Research* 180:108823.

Yang, Dean, and Claudia Martinez. 2006. "Remittances and poverty in migrants' home areas: Evidence from the Philippines." *International migration, remittances and the brain drain* (3).

Yip, Tiffany, Gilbert C. Gee, and David T. Takeuchi. 2008. "Racial discrimination and psychological distress: The impact of ethnic identity and age among immigrant and United States-born Asian adults." *Dev Psychol* 44(3):787-800.

Young, Maria-Elena De Trinidad, and Anne R. Pebley. 2017. "Legal Status, Time in the USA, and the Well-Being of Latinos in Los Angeles." *Journal of Urban Health* 94(6):764-75.

Yu, Lan, Daniel J. Buysse, Anne Germain, Douglas E. Moul, Angela Stover, Nathan E. Dodds, Kelly L. Johnston, and Paul A. Pilkonis. 2012. "Development of Short Forms From the PROMIS™ Sleep Disturbance and Sleep-Related Impairment Item Banks." *Behavioral Sleep Medicine* 10(1):6-24.

Zhou, Min, and Carl L Bankston III. 1994. "Social capital and the adaptation of the second generation: The case of Vietnamese youth in New Orleans." *International migration review* 28(4):821-45.

Zhou, Min, and Alejandro Portes. 2012. "The new second generation: Segmented assimilation and its variants." Pp. 99-116 in *The New Immigration*: Routledge.

Zhou, Min, and Yang Sao Xiong. 2005. "The multifaceted American experiences of the children of Asian immigrants: Lessons for segmented assimilation." *Ethnic and Racial Studies* 28(6):1119-52.