

Deconstructing Immigrant Illegality: A Mixed-Methods Investigation of Stress and Health among Undocumented College Students

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Abstract

Research has established that being undocumented is a risk factor for mental and physical health conditions. Much of this work emphasizes undocumented immigrants' chronic stress, yet key questions about pathways to health remain. The mere state of being undocumented is viewed as a general stressor, without considering actual levels of stress or identifying dimensions of documentation status that contribute to overall stress levels. Drawing on surveys and interviews with undocumented students at the University of California, we uncover the everyday manifestations of four dimensions of immigrant "illegality": academic concerns, future concerns, financial concerns, and deportation concerns, and their association with reported stress levels and self-rated health. Survey data establish undocumented students' high levels of stress and poorer health, in comparison to previous research on other national samples. In a structural equation model, we found academic and future concerns to be significantly associated with higher stress, which was in turn, associated with poorer self-rated health. Financial concerns were not associated with higher perceived stress but were directly associated with poorer self-rated health. Notably, deportation concerns did not have any significant independent associations with stress or health. We use our qualitative data to identify specific stressors embedded within these four dimensions. Our findings inform understandings of the health risks arising from documentation status.

Keywords

Documentation status, illegality, stress, mixed-methods, college students

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The United States is home to approximately 11 million undocumented immigrants, making up a quarter of the immigrant population and 3.5% of the total U.S. population (Passel and Cohn 2015). A growing body of research has established that documentation status is a social determinant of health and that undocumented status is a risk factor associated with poorer mental and physical health outcomes (Hacker et al. 2011; Sullivan and Rehm 2005; Vargas Bustamante et al. 2012). Much of this work conceptualizes the health consequences of documentation status through the stress and health framework, emphasizing the chronic stress produced by living as an undocumented immigrant. However, few studies have explicitly modeled the connection between stress and health among undocumented immigrants; instead they assume a mediating pathway exists. Furthermore, we have yet to identify if aspects of documentation status contribute more or less to overall stress levels. This health literature is disconnected from the growing scholarship on the socio-legal production of immigrant illegality, which identifies multiple dimensions of documentation status.

Following Takeuchi's (2016) directive to look to immigration literature to improve the study of immigrant health, we draw on conceptualizations of immigrant illegality to explore stress and health pathways among undocumented students. Theories of immigrant illegality shift focus away from individual-level documentation status to explore how laws and policies make undocumented immigrants' everyday actions "illegal." It establishes that laws produce an undocumented immigrant category and make it a consequential source of social stratification by limiting everyday actions (Menjívar and Kanstroom 2014). This work disentangles how laws and policies produce exclusion by documentation status, often by limiting access to formal employment, creating

deportation risks, restricting spatial mobility, and regulating access to higher education. Thinking about these as distinct aspects of illegality enables us to better model pathways been undocumented status, stress, and health.

Additionally, the existing health literature has not considered heterogeneity within the undocumented immigrant population. In contrast, the immigration literature argues that the various dimensions of illegality are experienced and activated differently across groups and situations (Abrego 2014; Enriquez 2017a, Forthcoming; Golash-Boza and Hondagneu-Sotelo 2013). Thus, more focused examinations of specific undocumented groups can expand our theoretical understanding of general health outcome pathways by identifying which dimensions of illegality are salient and when. Drawing on survey and interview data with 1.5 generation undocumented students at the University of California, we uncover the everyday manifestations of four dimensions of illegality – academic concerns, future concerns, financial concerns, and deportation concerns – and their association with stress and health.

Conceptualizing Illegality for 1.5 Generation Undocumented Immigrants

Over two million undocumented immigrants are 1.5 generation undocumented youth and young adults who entered the United States under the age of 16 (Batalova et al. 2017). They compose a unique group of undocumented immigrants who have a distinct experience of illegality due to their migration journey, acculturation, access to education, and the implementation of laws that view them as more deserving of relief (Abrego 2011; Olivas 2012). Previous research on 1.5 generation undocumented youth and students suggests that they experience four potentially salient dimensions of illegality: deportation threats, limited employment, constrained educational access, and uncertain futures.

First, undocumented individuals are deportable because they do not have permission to be in the country. Deportability, or the potential to experience deportation, sustains immigrant illegality by increasing fear and hypervigilance in everyday life (De Genova 2002). Internal immigration enforcement practices have expanded dramatically since the mid-2000s so that minor interactions with police, such as through routine traffic stops, raise deportation risk (Armenta 2017). Fears of interacting with these immigration enforcement mechanisms can lead undocumented immigrants to limit their social participation – staying close to home, avoiding driving without a license, and not spending time in public spaces (Hagan et al. 2011; Menjívar 2011).

Second, undocumented immigrants are denied access to valid work authorization, which prevents them from obtaining formal employment. Limited work on 1.5 generation undocumented Latina/o young adults suggests that they tend to be limited to working in the service industry, including restaurants, customer service and office work; some also work in more traditional undocumented immigrant jobs including in factories, as housekeepers and nannies, and in construction and landscaping (Cho 2017; Gonzales 2016). Unauthorized employment creates socioeconomic instability by limiting access to well-paid and stable work, contributing to lower incomes than their documented counterparts, and increasing risk of workplace violations (Bernhardt et al. 2013; Hall et al. 2010; Orrenius and Zavodny 2015).

Third, undocumented youth face barriers to pursuing higher education. Their access to higher education institutions is determined by state laws dictating in-state college tuition rates, state-funded financial aid, and enrollment eligibility (Abrego 2008; Diaz-Strong et al. 2011; Flores 2010). California, where this study took place, has

increased the accessibility of higher education by enabling undocumented students to pay in-state tuition rates since 2002 and providing state-funded financial aid since 2013.

Despite integrative policies, undocumented youth still struggle with access and retention in higher education due to their limited social and economic capital and the compounding disadvantage of their raced, classed, and gendered social locations (Enriquez 2011, 2017b; Gonzales 2010; Terriquez 2015). Those who manage to enroll in higher education face restricted access to educational opportunities on campus, experience immigration status related microaggressions, and report institutional neglect and limited educational belonging (Enriquez et al. Forthcoming; Teranishi et al. 2015).

These three dimensions of illegality produce a fourth dimension – feelings of uncertainty about their future. Many undocumented youth struggle with the decision to pursue and later persist in higher education because they see little opportunity to use their bachelor’s degree for obtaining career-related employment and economic mobility (Abrego 2006; Enriquez 2017b). Indeed, Gonzales (2016) shows that undocumented college graduates tend to have similar jobs to their undocumented peers who did not complete high school or did not pursue higher education. Further, when undocumented young adults think about the possibility of their deportation, they feel uncertain about their ability to adapt to life and pursue mobility in the country of origin (Enriquez 2016).

Importantly, research on immigrant illegality highlights how the consequences of documentation status are dependent on the broader policy context and how laws draw distinctions between sub-groups of undocumented immigrants who may be seen as more or less deserving of rights and opportunities. Particularly relevant to our study is the Deferred Action for Childhood Arrivals (DACA) Program. President Barack Obama

initiated the DACA program in 2012 to allow select 1.5 generation undocumented youth and young adults to apply for temporary protection from deportation and a work permit allowing legal employment (USCIS 2017). This program effectively transformed the consequences of illegality for this select group of undocumented young adults. DACA recipients moved into better jobs, had higher incomes, accessed financial accounts, bought cars and houses, pursued education, and had better psychological wellness (Capps et al. 2017; Gonzales et al. 2014; Patler and Laster Pirtle 2017). Given the myriad of benefits, DACA recipients worried about the continuation of the program if Donald Trump won the 2016 Presidential election and fulfilled his campaign promise to end the program as soon as he was inaugurated. While this did not immediately occur, the program was rescinded in September 2017 and, at the time of writing, was partially and temporarily reinstated due to lawsuits. Our data span two time periods – during the 2016 Presidential campaign season and the months after President Trump’s inauguration when DACA was still in place – allowing us to explore how the shifting nature of illegality can impact stress and health pathways.

Immigrant Illegality in the Context of Health

The socio-legal forces that make undocumented status consequential provide a useful framework to conceptualize various pathways between documentation status, stress, and health and identify which, if any, are determinants of adverse health outcomes among this population. We propose that each of the four identified dimensions of immigrant illegality can act on health indirectly and/or directly. Our conceptual model illustrating the proposed pathways between the four dimensions of immigrant illegality, stress, and health status is provided in Figure 1. The indirect pathways assume that each

dimension can increase stress levels, in turn compromising health; the negative health impacts of stress are well-established and operate via behavioral, psychological, and physiological pathways (Schneiderman et al. 2005). The direct pathways propose that each dimension possess unique health risks, apart from increasing one's stress level.

For example, the threat of deportation poses a unique health barrier to undocumented immigrants and can compromise health. In general, stress can indirectly affect health as a chronic stressor that produces physical wear and tear on the body (McEwen 2004). Alternatively, deportation threats can directly impact health by leading immigrants to limit their interaction with social and health care services. Existing research shows that both pathways are plausible: Novak et al. (2017) found significantly lower birth weight among Latino women in Iowa after a major immigration enforcement raid, suggesting that the raid and resulting fall-out initiated stress processes in utero and/or limited access to prenatal care, which in turn negatively impacted birth weight. Hacker et al. (2011) found that increased immigration enforcement activities fed a fear of deportation as well as lowered health care utilization.

Research in other populations suggests that the other three dimensions of illegality can also have indirect and direct effects. Financial strain is a known chronic stressor that not only generates harmful physiological processes, but can give rise to negative psychosocial states that bear on well-being and general health status (Prentice et al. 2017). Financial strain can also directly impact health by reducing access to health-promoting resources, such as a nutritious diet (Angel et al. 2003). Academic demands are a commonly-cited source of stress among college students (Ross et al. 1999). Among a sample of undergraduates, higher levels of stress were associated with poorer self-

reported health status and poorer health behaviors, such as diet (Hudd et al. 2000).

Finally, the fear of the future can contribute to general stress and anxiety, but can also have a direct bearing on health by reducing engagement in self-care or preventive health behaviors (Consedine et al. 2004).

Data and Methods

This study draws from the Undocumented Student Equity Project, a collaboration among undocumented and allied undergraduates, graduate students, and faculty that examines the experiences of undocumented college students to develop equitable educational practices. The first phase of the study included a quantitative survey of undocumented students at nine University of California undergraduate campuses in spring 2016. The second phase, conducted in 2017 at one University of California campus, focused on mental health needs of undocumented students. All study activities and related data analysis received IRB approval from the University of California, Irvine.

We take a mixed-methods approach that integrates survey data with qualitative interview data. We first used the quantitative data to construct a structural equation model to test the associations among four dimensions of illegality (treated as latent constructs), stress, and self-rated health. We then used the qualitative data to analyze how students experienced each dimension and further interpret our quantitative findings.

Our data straddle a consequential historical period spanning a shifting context of illegality. The quantitative data was collected before the 2016 Presidential election and the qualitative data after President Trump was inaugurated. This signaled a strong shift in the socio-legal context that has made undocumented status even more consequential. We compare our quantitative and qualitative results to consider the robustness of the

associations among dimensions of illegality, stress, and general health status as immigration policies change.

Quantitative Data and Analysis

An online 125-question survey was distributed to undocumented undergraduate students across nine UC campuses from May-June 2016. The survey included questions about their educational experiences, concerns arising from their documentation status, and general well-being assessments. Most were original items that were pilot tested to ensure face validity. The survey was administered via SurveyMonkey with an estimated completion time of 20-30 minutes. Participants had to self-identify as undocumented and be a currently enrolled undergraduate student at a UC campus. We employed a targeted recruitment strategy through email list-servs managed by each campus' undocumented student services staff, undocumented student organizations' email and Facebook groups, and snowball sampling. Respondents were emailed a \$10 electronic gift card after completing the survey. After cleaning the data to remove invalid cases (e.g, uncompleted surveys, ineligible respondents, suspected fabricated responses), we were left with a sample of 508. Our final sample is comprised of approximately 15% of each campus' estimated undocumented student population.

Measures: Latent Constructs

Academic: There were four items for this latent construct. Respondents were asked "how frequently have the following occurred in the past year because you were dealing with or thinking dealing with or thinking about an issue related to your or a family members' immigration status": 1) "missed class," 2) "was distracted in class," 3) "lost needed study hours," and 4) "did poorly on an exam." For each scenario, responses

ranged from 1-5, representing never, at few times a year, about once a month, about once a week, or daily.

Fear of the Future: There were three items for this latent construct. Respondents were asked their level of agreement with two statements on post-graduate life: “Thinking about life after graduation gives me anxiety” and “I worry about whether I will be able to use my degree after graduation.” Responses for each item ranged from 1-5, representing strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. Respondents were also asked how much they agreed with the statement: “I am worried about the possible discontinuation of DACA.” The range and coding were the same as the preceding items.

Financial Strain: There were four items for this latent construct. Respondents were asked their level of agreement with four statements about financial strain: “I have had difficulty paying rent in the past year,” “In the past year I have worried that I might not have a place to live,” “I have to work to make ends meet,” and “I am concerned that I will not be able to finance my college education.” Each response ranged from 1-5, representing strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree.

Deportation: There were four items for this latent construct. Respondents were asked to rate “how frequently they thought about the following people’s deportation:” 1) “your own deportation,” 2) “your parent(s) deportation,” 3) “friends and extended family members’ deportation,” and 4) “members of the undocumented community in general.” Each response ranged 0-4, representing never, at few times a year, about once a month, about once a week, or daily.

Measures: Outcomes

Stress: We used Cohen's Perceived Stress Scale which consists of 10 statements of various feelings and thoughts corresponding to the past month (Cohen et al. 1983). For example, respondents were asked, "In the last month, how often have you felt that you were unable to control the important things in your life?" and "In the last month, how often have you felt nervous and 'stressed'?". Students rated their agreement with each statement on a scale of 1-4 (Cronbach's alpha=0.83). The responses were summed across all scale items, resulting in a stress score that ranged from 0-40.

Self-Rated Health: We measured self-rated health with a single question: "Would you say that in general your health is excellent, very good, good, fair, or poor." This measure is widely used in the public health literature and in national, large-scale data sets (Meyer et al. 2014; Finch and Vega 2003) and has been predictive of objective health measures (Schnittker and Bacak 2014). We treated this as a continuous measure with a score of 1 for poor and 5 for excellent.

Measures: Covariates

In the structural model, we include four variables as controls in the path between stress and self-rated health: gender (male vs. female), age, ethnicity (Latino vs. non-Latino), and being a DACA recipient (DACA vs. no DACA).

Analysis

We utilized structural equation models (SEMs) to test our research question. This was an ideal approach because SEMs enabled us to model the four dimensions of illegality as latent, or underlying, constructs. A structural equation approach minimizes

measurement error of the latent constructs and considers multiple equations among the latent factors, stress, and self-rated health simultaneously (Bollen and Noble 2011).

We began with a measurement model, in which we estimated the four latent factors by each of the corresponding survey items described above. We then constructed a structural model, which included the measurement model as well as the hypothesized paths among the four latent constructs and our outcomes, stress and self-rated health. We tested the significance of the indirect pathways using a Wald test of the non-linear combination of coefficients. We also included a direct path between each of the latent constructs and health. We included four exogenous control variables in the association between stress and self-rated health: gender, age, Latino, being a DACA recipient in the structural model.

To estimate our models, we used maximum likelihood estimation with missing values (full-information maximum likelihood). In this approach, missing values are retained in the model estimation and are assumed to be missing at random (MAR) with joint normality of all variables. To assess model fit, we used the guidelines of a χ^2 /degrees of freedom ≤ 3 index, root mean square of approximation (RMSEA) ≤ 0.08 , and confirmatory fit index (CFI) ≥ 0.90 for both our measurement and structural models. We conducted our analysis using Stata 13 and all coefficients were standardized.

Qualitative Data and Analysis

Qualitative interviews were conducted from March to July 2017 with undocumented students on one UC campus to facilitate entrée. Two of the authors and an additional research team member were interviewers and all had previous experience

conducting interviews on sensitive topics. Participants were recruited from survey respondents who volunteered to be contacted for future research and new volunteers identified through research personnel's personal networks and the list-serv operated by undocumented student services staff. We recruited through these different methods to ensure that we included students with varying experiences. Participants were interviewed at a place of their choosing on campus; most were conducted in private office space available to research personnel. Interviews followed a semi-structured interview guide that addressed overall mental health and wellbeing, stress, formal and informal coping strategies, and the impact on their educational experiences.

Questions most relevant to our analysis here included: How would you describe your current stress level? Where does your stress come from? Which stressors have the most impact on your mental health and well-being? Are any of your stressors related to your immigration status? Participants were encouraged to speak about any type of stressors and interviewers later probed for unmentioned stressors identified by the prior literature, including threats to DACA, financial strain, deportation threats, and the political climate under President Trump. Participants were also asked to reflect on select statements from the Cohen's Perceived Stress Scale that were highly endorsed by survey respondents. Interviewers were encouraged to share their own subjective knowledge and experiences to foster trustworthiness. Interviews lasted an average of one hour and participants received \$20 as compensation.

We interviewed 30 self-identified undocumented students (See Table 1). We intentionally interviewed almost equal numbers of men and women (women=53%) as well as Latino and Asian American Pacific Islanders (Latinos=53%). The majority were

DACA recipients (77%), as would be expected given that those enrolled in higher education are more likely to meet program requirements, be able to document their continued presence in the U.S., and have the resources and confidence to apply.

Interviews were recorded, transcribed, and coded in HyperRESEARCH for inductive analysis. There were three coders; one primary coder trained the other two and they resolved discrepancies as they arose. We conducted open coding to identify key themes, including stress indicators and types of stressors. After coding was complete, we reviewed the specific stressor codes and found that they reflected larger dimensions of illegality. Frequency reports were used to minimize subjective bias in analyzing the codes. Our quantitative analysis independently confirmed the salience of the four dimensions of illegality identified in the literature and for our quantitative data analysis. We compared across gender, racial/ethnic background, and DACA protection to assess whether there were differences in the sources of manifestations of stress.

Quantitative Results

Descriptive Results

Table 1 provides a descriptive overview of our sample (n=508). The majority of our sample are Latina women (81% Latino, 71% female). Institutional data on undocumented students at one UC campus suggest that we oversampled Latinas/os and women, by approximately by 10% points. This is likely driven by the fact that women are more likely to respond to surveys (Smith 2008; Porter and Whitcomb 2005) and that non-Latina/o undocumented immigrants are less likely to be open about their immigration status (Enriquez Forthcoming; Sudhinaraset et al. 2017). The mean age of respondents was 20.8 years and a vast majority were DACA recipients (85%). The mean perceived

stress score was 20.8 (SD=6.0). This PSS score is considerably higher than others from national, large-scale studies. For instance, the 2009 eNation survey surveyed a probability sample representative of the US population; White adults scored an average of 15.70, Latino adults scored an average of 17.00 and young adults aged 18-25 scored an average of 16.78 (Cohen and Janicki-Deverts 2012). A one-sample t-test confirmed that the stress scores among our survey sample was significantly higher than this national sample of young adults ($t=14.62$, $p<.001$)

Our survey respondents also reported poor health. A substantially greater proportion of respondents reported poor or fair health (34%) than very good or excellent health (23%). While the proportion of fair/poor health is comparable to other national estimates for Latinos, it is significantly higher than national figures for young adults. In the 2007 Behavioral Risk Factor Surveillance System survey, 30% of Latino adults reported fair/poor health, but this figure included adults of all ages. Among all young adults aged 18-24, only 10% reported fair/poor self-rated health (Tsai et al. 2010), which was significantly lower than among our survey respondents in a one-sample t-test ($t=11.35$, $p<.001$).

Distribution of Measured Items

Table 2 provides detailed information on the measured items for the latent constructs. Over 25% of the respondents said they were distracted in class or lost needed study hours because of their immigration status once a week or more. Missing class and poor exam performance were less common. A vast majority of the respondents (83%) agreed that life after graduation gave them anxiety. There was strong endorsement for all four of the financial concern items; over 50% of all respondents agreed or strongly agreed

with each item. The item with the highest proportion of agreement was the statement of working to make ends meet. Finally, of the four deportation questions, respondents reported thinking less about their own deportation than the deportation of their parents or the larger undocumented community. Only 6% reported thinking about their deportation daily, compared to 20% who thought about their parents' deportation daily.

Bivariate Correlations

Table 3 provides Spearman correlations coefficients among all measured variables. As expected, the highest correlations were among the items measuring the same latent constructs. The stress score had the highest correlations with the future concern items pertaining to life after graduation ($\rho=0.36$, $p<.001$; $\rho=0.32$, $p<.001$). Self-rated health had the strongest correlation with stress score ($\rho=-0.28$, $p<.001$).

Structural Equation Model

Measurement Model. We first constructed a measurement model to ensure that the various indicators were appropriate for our latent constructs. We loaded each of the corresponding items on its respective latent construct and allowed correlations among the four latent constructs. For example, each of the four fear of deportation items was loaded onto the latent deportation concerns variable. We allowed correlations between the errors terms of fear of deportation for self and fear of deportation for family and between missing class and losing needed study hours based on a postestimation modification index and theoretical justification. Our fit statistics indicated an acceptable fit. The corresponding chi-square statistic for a likelihood ratio test comparing our model to a saturated model was under the $p<.05$ threshold ($\chi^2(82)=144.6$), but the ratio of the chi-

square statistic to the number of degrees of freedom was under 3 ($\chi^2/df=1.8$) (Schermelleh-Engel and Moosbrugger 2003). Other measures also indicated acceptable model fit: RMSEA=0.04 (95% CI: 0.03-0.05), CFI=0.98. The CFI represents the specified model's degrees of improvement over a model without any paths or latent variables. The RMSEA index assesses the extent to which the covariance structure specified in the model matches the covariance structure observed in the data.

Structural Model. We then constructed a full structural equation model to evaluate the hypothesized pathway. This model included the items in the measurement model detailed above plus indirect paths between each of the four latent constructs, stress, and self-rated health and direct paths between each of the four latent constructs and self-rated health. We included our four control variables for the association between stress and self-rated health. This model had 21 observed variables and 148 degrees of freedom. The model estimated the error terms for each of the indicators for the latent factors, stress score, and health. The variance of the four control variables (male, age, Latino, DACA) and four latent variables were fixed to 1. All four latent variables were allowed to covary with one another. Each of the four control variables were allowed to covary with one another and with each of latent factors. We additionally allowed the errors terms between fear of deportation for self and fear of deportation for family and between missing class and losing needed study hours to correlate. The overall model fit was acceptable: $\chi^2/df(372.98/148)=2.5$; RMSEA=0.06 (95% CI = 0.048-0.062); CFI=0.94.

Figure 2 displays the results of our model. For parsimony, we do not show the covariates and report significant paths only. Among the four significant indicators of academic concerns, lost study hours had the highest factor loading ($\beta=0.93$), followed by being distracted in class ($\beta=0.83$). There was a wide range in the loading values for fear of the future. Worry about using one's college degree had the highest value ($\beta=0.69$) and worry about the future of DACA was the lowest ($\beta=0.38$). The relatively low loading of the DACA measure was surprising, but it may be due to the low variability of this measure; the vast majority of respondents reported being worried or very worried about the future of DACA. Each of the four areas of financial concern loaded significantly onto the latent financial concerns factor. The two indicators with the highest loadings were difficulty paying rent and worry about affording college ($\beta=0.80$ and $\beta=0.82$, respectively). Finally, each of the four sources of deportation worry significantly loaded onto the deportation concerns construct, with factor loadings between 0.70 and 0.86. Deportation fear for friends and extended family and for parents had the highest factor loadings ($\beta=0.86$ and $\beta=0.80$, respectively).

When examining the associations between each of the latent constructs and stress score, we find that only two of the four dimensions of illegality were significantly associated with higher stress: academic concerns and future concern ($\beta=0.24$, $\beta=0.46$ respectively, $p<.001$) (Figure 2). One standard deviation increase in academic concerns or financial concerns resulted in an increase of 0.24 or 0.46, respectively, of one standard deviation of the stress score. The coefficient for fear of the future was nearly double that of academic concerns, indicating that this had a stronger association with raising stress score. Deportation concerns and financial concerns did not have a significant independent

relationship with stress once accounting for the other latent factors. While we do not show the covariates in Figure 2, men had significantly lower stress scores than women and those with DACA had lower stress than those without. Age and ethnicity were not significantly associated with stress.

Associations with Self-Rated Health. Increasing stress was significantly associated with poorer self-rated health ($\beta=-0.19$, $p<.05$). The indirect pathway between academic concerns, stress, and self-rated health was significant ($\beta =-.05$, $p<.05$), as was the indirect pathway between future concerns, stress, and self-rated health ($\beta =-.14$, $p<.05$). The only illegality dimension that had a significant direct association with self-rated health was financial concerns ($\beta=-0.16$, $p<.05$). Taken together, the results suggest that academic concerns and fear of the future negatively impact health, but do so by increasing stress. Financial concerns do not increase stress level, but they do directly impact health, possibly by limiting resources. Finally, deportation concerns do not seem to impact either stress or health when other dimensions of illegality are taken into account. Men reported better self-rated health than women; there were no other significant differences across the other three covariates.

Sensitivity Checks. We ran sensitivity checks with maximum likelihood models with complete case analysis only ($n=475$) found similar results as the current models that include missing data. We also considered individual SEMs by gender, ethnicity (Latino vs. non-Latino), and DACA protection. The overall model fit of these stratified models did not improve, (Gender: RMSEA=0.06, CFI=0.92; Latino: RMSEA=0.06, CFI=0.932; DACA: RMSEA=0.06, CFI=0.92) suggesting few differences in these associations by

gender, ethnicity, or DACA protection. In particular, the results for students with and without DACA protections were qualitatively similar (results available upon request).

Qualitative Results

Students readily acknowledged their high levels of stress during the interviews.

They easily described how they knew they were stressed:

Angie: I have this anxiety feeling. And I feel like there's just a million things I need to get done in a day. ... I would get sick right before a big midterm or a big final or something, ... I've noticed in the last couple of weeks, a lot of headaches. And a lot of wanting to plan but not accomplishing everything.

Bryan: I feel super heavy. *Physically heavy?* Yeah. Really heavy. Super—really down, really negative, really cranky. I get really tense. I can't sleep. Or it might be 3:00 in the morning and I'm just not tired and then you wait. But then in the morning, ... [I] don't want to get up. Sometimes, how do I explain it? *Is it physically hard to move and everything seems hard?* It's such a— I feel logged. Paralyzed. Not fully but it's really hard, really heavy to move.

The consensus amongst students interviewed was that stress indicators fell into four broad categories: inability to concentrate, inability to complete tasks and fulfill responsibilities, emotional instability, and physical pain. Their accounts suggest that stress emerges frequently and piles up as students try to keep up with the demands of their college education. Further, their comments foreshadow implications for their overall health, as the stress leads to negative health consequences such as irregular sleeping patterns, frequent and persistent colds, and recurrent headaches. Their limited time means that healthful activities, like eating well and exercising, are also cut from busy schedules.

When asked about their sources of stress, participants often spoke initially about the academic stress of being a college student – keeping up with reading, writing papers, studying for mid-terms and finals, and balancing class with other commitments. As

Cristina noted, “It's usually when I get behind on work and stuff. That's when I start feeling stressed.” However, digging under these generalized sources of stress revealed that their documentation status magnified their risk for general college-student stress. For example, Anthony suggested that documentation status also creates unique forms of stress by producing a sense of uncertainty: “I'm just overthinking all these things, things that haven't even happened or things that are not even happening.”

Students identified academics, fears about their future, financial concerns, and deportation threats as stressors. These themes independently echo the four dimensions of illegality identified in the larger illegality literature and reflect the constructs in our model. Here we identify specific stressors embedded within these four dimensions and explore how they may have changed over time due to policy changes.

Academic Stressors

Our quantitative results identified academic distraction as having a highly significant association with elevated stress. Students' cited common concerns about assignment deadlines, exams, or grades and suggested that these academic stressors emerge at the intersection of their documentation status and academic responsibilities. Specifically, their undocumented status limits their material resources and takes a psychological toll, which then informs their stress about their academic performance.

Undocumented status feed academic stress by disrupting students' ability to prepare for and engage in classes, thus endangering their performance. Bryan shared that he was struggling in one of his classes because he was “dead broke” and unable to buy a required book that cost \$100. He had tried to make do with the library's reserve copy, “but they have the two hours only [policy].” By the middle of the term, it seemed likely

that he would fail the class and at the end of the term he was still fighting a petition to drop the course. He felt that the situation with this one class made “it really difficult, especially when you're trying to focus on the other classes.” In addition to these material limitations, his undocumented status created psychological barriers to studying as much as he would like: “Depression sometimes. Again, it gets to that feeling where you're just like, ... I should be working on this. And you start just beating yourself up over it but you're not doing anything and it's kind of just like, I don't know, I feel paralyzed sometimes.” Sometimes these feelings were so overwhelming that he would miss class. Bryan’s case is a severe example but gives a clear sense of how undocumented status creates both material and psychological barriers that can feed common academic stressors.

Other students discussed a similar pattern and pointed to a variety of ways their undocumented status initiated these academic stresses. Dan shared that one’s immigration case could initiate stress: “I had an immigration case and that thing was denied. And my family had some problems with the house back home with the legal— ... I had a bunch of research papers due and hadn't even started. ... I just kind of crashed.” In this case, he had missed class several times throughout the quarter to meet with his lawyer and appear in immigration court for the hearing of his case. This left him financially and emotionally depleted and academically behind when he found out that he had been denied legal status. Cristina shared that she did not have DACA and this restricted her employment options and took time away from her academics: “I have a job in LA so they pay me cash. ... So, I feel like driving from here to LA twice a week really takes away from my studying time. But then again, I wouldn't be able to find any other job.” Alondra shared that her

undocumented status fueled her commitment to get good grades: “I don't really have many other options. I feel like school is my biggest chance.” Referencing immigration policies like the federal DREAM Act where legalization hinges on the attainment of higher education, Alondra faced increased academic pressure and stress.

The election increased the saliency of immigration status and its role in fostering academic stress. Anti-immigrant sentiments expressed during and after the 2016 election became common classroom discussions. For Eliaseo, this heightened his discomfort in academic spaces and reduced his motivation to participate in class:

Constantly bringing it up in every single classroom. ... Knowing that everyone else is about to discuss something that is so personal to you, without really any care for that. I think that's where it was [emotionally] violent. ... I was in a few discussion [sections] where I was just really uncomfortable and wanted to be distant.

Others, like Angie, lost academic motivation as she questioned the purpose of her education in the midst of an uncertain political future.

That was a bit overwhelming when he [Trump] came in. ... It was worrying and so I didn't pay as much attention in class and I was just kind of like, “Well, when is this [DACA] gonna be over?” ... And it kind of did hold me back because it kind of held down the motivation that I had to study. ... Because I'm like, what if I'm not even going to be able to come back next quarter? What's the point of finishing?

While academic concerns were stressors even before the inauguration of President Trump, students' experiences suggest that their immigration stressors will likely proliferate and intensify their academic stress in this new political era.

Fear of the Future Stressors

Our quantitative results identified fear of the future as having the strongest contribution to students' overall stress score. In interviews, students' fears of the future

centered their (in)ability to obtain employment and pursue a career after graduation.

Ultimately, these concerns stemmed from students' tenuous access to legal employment, which hindered their ability to make concrete future plans, in turn, feeding their stress.

DACA recipients were frequently concerned about the possibility that the program could be rescinded and they would lose their work authorization and would be unable to obtain formal employment. Karina, a junior, explained how this created stress:

Right now with graduating and not knowing what's going to happen after that, especially if DACA is removed, because I can't get a job. So it's scary to think I might have to go back to my country and continue from there. And it's pretty much like a foreign place. ... The future is very, very scary.

How often are you having those thoughts about post graduation?

A lot. Especially now because it's almost my last year. ... And once I hit next year, I don't know what I'm gonna do. I want to keep on going to grad school or look for a job when I can but if DACA goes away. You don't know.

Later in the interview she continued to share how these feelings of legal uncertainty kept her from being able to plan for the future. She concludes, "It's just like a huge blur" and that she spends time "thinking of alternatives" and contingency plans. Other DACA recipients spoke specifically about uncertainty in relation to their pursuing desired careers, accessing post-graduate education, considering "self-deportation," and paying back loans that they received from the university. Some even worried that employers would not accept valid work permits even if DACA remained in place.

Students who did not have DACA also expressed fear about the future because they did not have employment authorization and had little hope for formal employment. Dan, also a junior, shared how not having DACA fuels his stress: "I just have stress about uncertainty. Like what will I do after college? What will I do right now? I can't really get much opportunities. A lot of things need social security [numbers]. And I just feel like,

not less than [others], but I'm not fulfilling my fullest potential. So I get stressed out and anxious about that.” He shared that he had been “hoping on DACA” when it was announced in 2014 that he would meet the revised requirements. This version was stalled in judicial proceedings, and he now planned, “to finish school and just see what's up.”

Donald Trump’s election and inauguration further amplified these stressors and students became more preoccupied with their precarious future, including the potential rescission of the DACA program and growing anti-immigrant policies. Sunny aspired to attend medical school and had always worried that she would not be able to, even with DACA:

I know I've read somewhere around undocumented students going into med school, they don't usually accept them because our future is very uncertain because of our status. So they usually don't want a student that has a very uncertain future. ... They usually think of accepting students as an investment.

Even prior to the 2016 Presidential election, students recognized the precarious nature of their temporary DACA protection. However, the election amplified these concerns and Sunny concluded, “With Trump being president ... they're not sure if they [medical students and doctors] can get their license later and things like that.”

Financial Stressors

Our quantitative results did not reveal a significant association between financial concerns and overall stress level. State and institutional financial aid policies ensured that students were insulated from severe financial stress connected to funding their higher education. Previous research identified the cost of higher education as a chronic stressor for undocumented students as they paid for their tuition, fees, and educational expenses out of pocket (Terriquez 2015). However, Californian undocumented students are now

eligible for state-funded financial aid through the California DREAM Act. Further, the University of California provides institutional aid to meet students' full need, regardless of immigration status. As a result, the students we spoke to were receiving the same level of need-based financial aid as their low-income citizen peers, which may have minimized the independent effect of financial dimensions of illegality on stress levels.

Despite financial aid, many students still struggled to cover remaining educational costs, including books, food, and on-campus housing. This type of financial strain was often discussed in conjunction with academic stressors, suggesting that the null association with stress in the quantitative findings may also have been attributable to the connection between these dimensions. Rebecca gave an example: "I haven't been able to finish paying my October rent. ... I've had to choose between buying books and buying food. ... It just stresses me out. ... Because I feel like if I don't own a book, that impacts my grades and I feel like I do worse." Others discussed crowded living conditions, which can limit their access to quiet study space or restful sleep.

Finally, we found a significant direct association between financial strain and poor self-rated health. The interviews suggested this association may be driven by material barriers that limit students' ability to engage in health-promoting activities, like healthy eating habits. For example, Bryan reported substantial financial instability because he did not have family financial support and did not qualify for DACA. While this raised many issues, he explained that this instability manifested on an everyday level as food insecurity: "This quarter ... I was broke half the time and I didn't have— as a college student, you don't [even] have time to make yourself cereal. Cereal or a cup of noodles. ... There was times I didn't eat. I would eat at breakfast in the morning and not eat till

7:00 or 8:00 o'clock at night.” While healthcare costs could also explain the direct association, we suspect this may be less relevant for our population, as all students received health insurance through the University’s required student insurance program.

Deportation Stressors

Notably, deportation concerns did not have any significant independent associations with stress or health in the structural equation model. When discussing deportation-related stressors, most students focused on threats to their parents and other family members safety before their own. Yet, after the election of President Trump, students began to express increased concerns about deportation, suggesting this may become a more salient dimension in the future.

Other research has suggested that 1.5-generation undocumented youth and young adults are less likely than first generation adults to be preoccupied with their deportability due to the protective social and spatial locations they occupy (Abrego 2011; Enriquez and Millán 2017). As 1.5-generation students in California who were attending a prestigious university, participants felt insulated from deportation threats and did not perceive their own deportability as a salient stressor. Julian answered a question about if he thinks about deportation: “Not really. I feel that there really isn't a reason I would be in that situation. I'm a good student, I'm a good person, I stay out of trouble, I follow all the laws and everything.” Like most students, Julian reasoned that his various social locations ensured that he had a low likelihood of coming into contact with immigration enforcement officials. Other students similarly concluded that the likelihood of them being targets or having ICE agents or Border Patrol coming to campus was low.

Students believed that their parents and other undocumented family members faced a higher risk of deportation. Calvin explain how this contributed to his stress:

For my family for sure. I could say I'm not too worried [for myself] but I'm definitely worried about, in particular my grandma. Because she's at home all the time by herself. If somebody knocks on the door, she will just open the door and let somebody in and they could just sweep the area. And she doesn't speak a word of English. So if she was taken, there's no way she could call. ... So I'm just really worried of her.

Aware of recent immigration raids in his hometown, Calvin was preoccupied with the possibility that his undocumented grandmother and other family members could be detained and/or deported. In many cases, students perceived undocumented adults as having a higher risk of interacting with police and/or immigration enforcement officials because of their less protected social locations. However, these stressors were fleeting in that they were triggered by events – news about immigration raids and checkpoints, or family members not quickly answering phone calls; the less persistent nature of these stressors perhaps explains their lack of independent effect on stress and health.

However, changing deportation policies during the Trump administration increased concerns about family members' deportability and raised new questions about their own deportation risk. Around the time of our interviews, President Trump had revised immigration enforcement protocols to remove priority enforcement categories so that all undocumented immigrants were targets. Further, news coverage highlighted increased raids and rising deportation statistics. In light of this, students reported more frequently thought about their deportability. Bryan, a student without DACA, and Sandra, a DACA recipient, reflected on how recent news about deportations created stress:

Bryan: They're deporting even people that have DACA, people that shouldn't be deported, people that are not even in priority. So, it's like, everyone's fair game.

Sandra: I don't have a criminal background. I shouldn't be worried about getting picked up. But we know, and you probably know, that dreamers have been detained recently with no criminal backgrounds whatsoever. So that's mainly the source of my anxiety and stress.

While students still worried more about their parents and other undocumented adults, shifting deportation policies reminded them that they may not be immune to this threat. This suggests that deportation may become a more salient stressor if deportation threats continue to increase.

Conclusion

In this mixed methods analysis, we built a theory-driven model of immigrant illegality, levels of perceived stress, and self-rated health among 1.5 generation undocumented college students in California. This group was highly stressed, reporting stress levels that were strikingly elevated compared to other national samples. Furthermore, their self-rated health was much poorer than expected, given their age and education levels. Previous research would suggest that documentation status is a general stressor that contributes to these poorer health outcomes. However, we found that four dimensions of illegality each had a unique contribution to the stress and health pathway.

Our findings suggest that documentation status impacts health through direct and indirect pathways. Academic and future concerns were both significantly associated with higher perceived stress scores, which was in turn, associated with poorer self-rated health. Financial concerns were not associated with higher perceived stress but were directly associated with poorer self-rated health. Notably, deportation concerns did not

have any significant associations with stress or health in the structural equation model. While bivariate correlations with deportation measures and stress and health were significant, these associations were not significant in the structural equation. Our qualitative findings suggest that these pathways are tied to the unique social locations of our specific population. As undocumented students, their academic and future concerns feel out of their control and they are frequently reminded of this. As Californians attending the University of California, state and institutional policies insulate them from deep financial concerns that could be substantially more stressful in other states or educational institutions. Finally, as 1.5 generation undocumented youth who blend into U.S. society, they feel protected from deportation threats and are infrequently triggered to think about these concerns. We suggest that future health research should continue to tease apart documentation status into unique components. This should include moving beyond a focus on deportation threats. Research should also explore and theorize the role of future concerns, which was one of the main drivers of elevated stress and poorer health.

Our findings underscore the central tenant of theories of immigrant illegality: undocumented status is not a fixed individual characteristic but is produced through laws and policies that make it consequential. Although the general character of illegality may seem the same, the specific experiences vary greatly. Individuals' experiences of illegality vary based on other social locations that may afford them certain privileges or compound marginalization (Abrego 2014; Enriquez 2017a, Forthcoming; Golash-Boza and Hondagneu-Sotelo 2013). State and local policies create variation by place as they either integrate or exclude undocumented immigrants (Cebulko and Silver 2016;

Gulasekaram and Ramakrishnan 2015). Finally, policies change over time, creating new forms of illegality, such as DACA protections, or increasing the consequences of illegality, such as with the growing deportation and detention regime. Health researchers should center the socio-legal production of documentation status and understand the health risks arising from documentation status as group-specific and context-dependent.

Given the complex socio-legal production of illegality, we acknowledge the unique circumstances of undocumented students in California at the time of our survey limits the generalizability of our findings. Only approximately 29% of undocumented youth have attended college or received a college degree (Kerwin and Warren 2018). This means that some concerns, such as academic ones, do not translate to all 1.5 generation undocumented young adults or to first-generation undocumented adults who are not enrolled in school. Instead, these may manifest as work concerns. Further, our survey data was collected before the 2016 Presidential election, the inauguration of President Trump, and his administration's establishment of policies that marginalize immigrants by increasing immigration enforcement, rescinding the DACA program, ending Temporary Protected Status for many immigrant groups, separating migrant children from their parents, and suing sanctuary states. However, our interview data, which was collected after President Trump's inauguration, suggest that the dimensions of illegality and the stressors within them are consistent after this major shift in immigration policy. For example, students still spoke most frequently about fears regarding their future and academic concerns. However, the intensity of existing stressors appeared to grow due to political threats. We do acknowledge, however, that the associations between the four dimensions and stress may change as policies shift. In particular, the deportation

dimension may develop a significant relationship with stress or health now as the Trump administration ramps up deportations of all undocumented immigrants and expands detention practices.

Our study has additional limitations. First, women and Latinas/os are overrepresented in the sample, making it not representative of the undocumented students in the UC system. Second, our survey utilized a self-rated health measure; future studies could include more physical and mental health measure to ensure the validity of this measure. Finally, we acknowledge that the data is cross-sectional and we cannot make causal assumptions about our associations, such as stress causing poor self-rated health.

Our findings also help identify future points of intervention. For example, our finding that students' academic stress stemmed from immigration-related distractions suggests that inclusive classroom practices can help mitigate some of this particular stress and health pathway. Likewise, state and institutional financial aid for undocumented college students already seems to mitigate some of the stress associated with financial strain; similar policies should be implemented in other institutions and in the 44 other states that do not provide such state-funded financial aid (NILC 2017). Educational institutions should take care to ensure that undocumented students are accessing the health services they are entitled to as fee-paying students; this includes removing any unintended barriers to accessing services, providing professional development training to make campus service providers aware of the unique stressors facing undocumented students, and educational campaigns to promote recognition of unhealthy mental health strain and destigmatize the use of mental health services. Campus offices should also provide programming on topics such as stress-management, meditation, and wellness

strategies. Institutions that do not provide campus health services should build partnerships with local health-promoting community organizations and low-cost service providers. Nonetheless, we acknowledge that such activities will be buffers and will not address the underlying issue of documentation status. This needs to be handled with the implementation of federal immigration policy that creates a pathway to legalization.

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Figure 1. Conceptual Model with Pathways between Four Dimensions of Illegality, Stress and Health

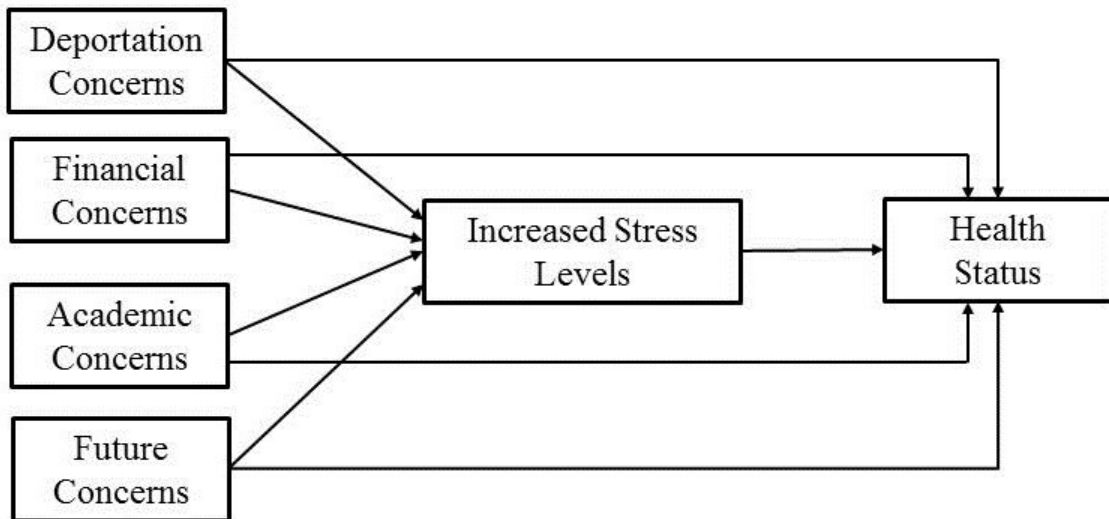


Table 1. Descriptive Information of Survey Respondents (n=508) and Interview Respondents (n=30)

	Survey Respondents	Interview Respondents
Female	71%	53%
Latino	82%	53%
Average Age	20.8	21.6
DACA	85%	77%
Perceived Stress Score (0-40)	20.8	-
Self-Rated Health		
Poor	6.9%	-
Fair	27.0%	-
Good	43.3%	-
Very Good	19.5%	-
Excellent	3.3%	-

Table 2. Proportions of Responses in Measurement Model by Dimensions of Illegality (n=508)

	Never	A few times a year	About once a month	About once a week	Daily
Academic					
Missed class	48.2	32.2	11.5	6.9	1.4
Distracted in class	20.7	35.6	17.9	17.9	7.9
Losing needed study hours	25.9	29.2	17.2	18.9	8.8
Did poorly on an exam	37.5	35.1	17.6	7.7	2.2
	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Fear of the Future					
Life after graduation gives me anxiety	2.2	3.9	10.2	39.2	44.5
Worried about using degree after graduation	5.4	24.8	34.3	25.0	10.5
Worry about DACA	0.4	0.6	4.8	23.4	70.9
	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Financial					
Difficulty paying rent	6.7	20.1	20.5	32.2	20.5
Worried about a place to live	4.9	13.8	22.6	36.4	22.2
Work to make ends meet	4.3	13.0	20.1	34.7	27.8
Worried about affording college	5.5	14.2	21.1	31.8	27.4
	Never	A few times a year	Once a month	About once a week	Daily
Deportation					
How frequently respondents think about deportation for					
Themselves	18.0	42.0	20.7	13.4	6.1
Their parents	12.8	27.0	22.7	18.0	19.5
Their friends and extended family	21.5	32.2	22.3	14.6	9.3
Larger undocumented community	6.3	27.8	24.3	23.9	17.8

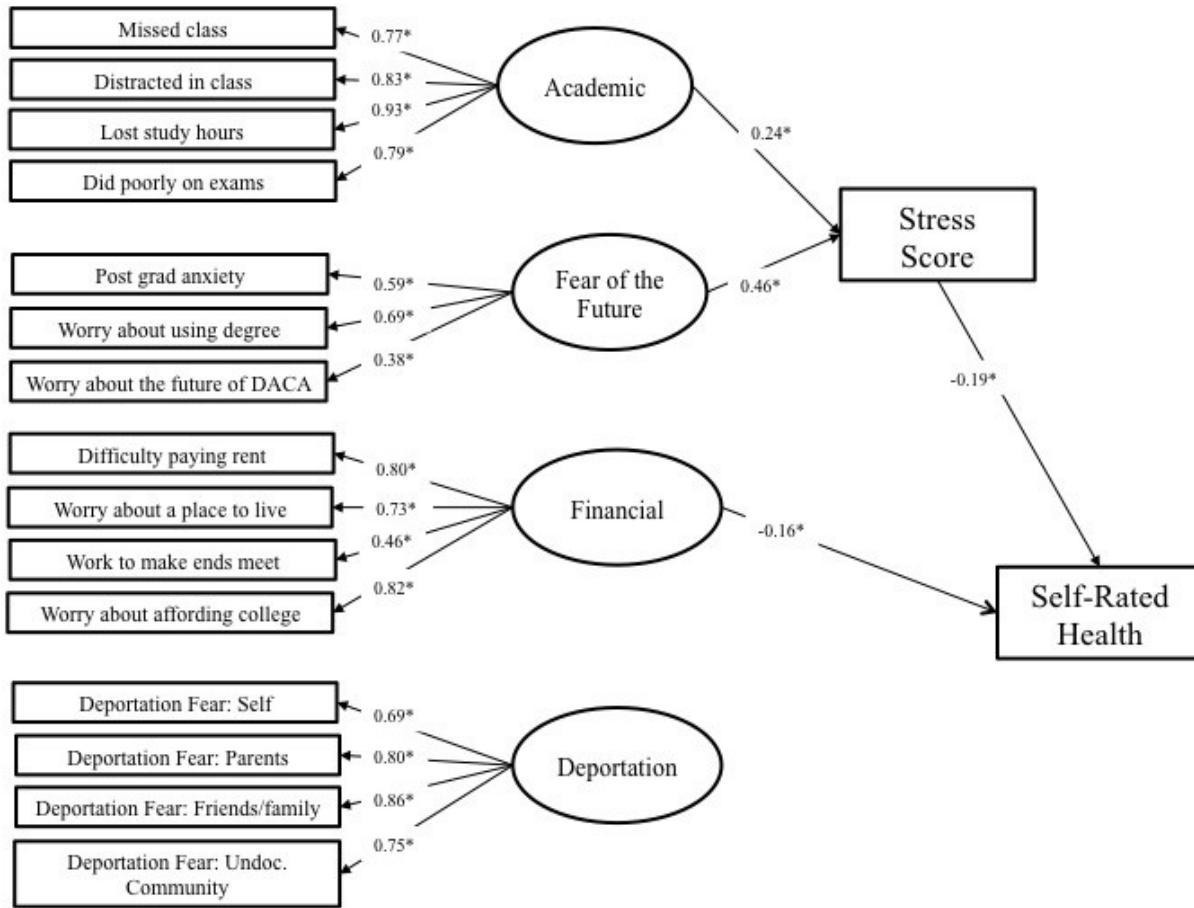
Table 3. Bivariate Correlation Matrix of Measured Variables (n=508)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
(1) Deportation Fear: Self	1																	
(2) Deportation Fear: Parents	0.66*	1																
(3) Deportation Fear: Friends/family	0.58*	0.69*	1															
(4) Deportation Fear: Undoc. Community	0.49*	0.60*	0.65*	1														
(5) Post grad anxiety	0.24*	0.21*	0.23*	0.21*	1													
(6) Worry about using degree	0.21*	0.23*	0.24*	0.17*	0.42*	1												
(7) Worry about future of DACA	0.20*	0.22*	0.18*	0.23*	0.18*	0.26*	1											
(8) Missed class	0.23*	0.23*	0.30*	0.22*	0.09*	0.05	0.06	1										
(9) Distracted in class	0.25*	0.24*	0.25*	0.29*	0.20*	0.01*	0.10*	0.58*	1									
(10) Lost study hours	0.24*	0.23*	0.25*	0.27*	0.11*	0.15*	0.07	0.60*	0.77*	1								
(11) Did poorly on exams	0.18*	0.20*	0.22*	0.18*	0.12*	0.14*	0.05	0.62*	0.65*	0.75*	1							
(12) Difficulty paying rent	0.24*	0.22*	0.24*	0.10*	0.13*	0.19*	0.10*	0.22*	0.26*	0.28*	0.29*	1						
(13) Worry about a place to live	0.20*	0.14*	0.16*	0.12*	0.12*	0.19*	0.11*	0.20*	0.28*	0.27*	0.25*	0.55*	1					
(14) Work to make ends meet	0.13*	0.14*	0.13*	0.16*	0.05	0.09	0.16*	0.16*	0.19*	0.21*	0.16*	0.35*	0.41*	1				
(15) Worry about affording college	0.13*	0.17*	0.17	0.08	0.13*	0.16*	0.11*	0.18*	0.25*	0.29*	0.23*	0.66*	0.56*	0.33*	1			
(16) Stress Score	0.18*	0.15*	0.12*	0.16*	0.36*	0.32*	0.14*	0.24*	0.34*	0.30*	0.28*	0.19*	0.22*	0.15*	0.19*	1		

(17	Self-Rated Health (1-	-0.09*	-0.13*	-0.15*	-0.11*	-0.18*	-0.16*	-0.04	-	-	-	-	-	-	-	-	-	1
)	poor, 5-excellent)								0.22*	-0.16*	0.21*	0.21*	0.19*	-0.19*	-0.10*	0.15*	0.28*	
									*		*	*	*				*	

* p<05, **p<.001

Figure 2. Structural Equation Model of Four Latent Dimensions of Illegality, Perceived Stress Score, and Self-Rated health (n=508)



*p<.05; model includes four covariates (gender, Latino, age, DACA status); $\chi^2/df(372.98/148)=2.5$; RMSEA=0.06; CFI=0.94.