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Authors

Parra, Luis A
Hastings, Paul D

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Integrating the Neurobiology of Minority Stress with an Intersectionality Framework for LGBTQ-Latinx Populations

Luis A. Parra,

Paul D. Hastings

University of California, Davis

Abstract

The comprehensive lived experiences of lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals of color remain invisible in neurobiological studies of LGBTQ populations. Models of minority stress posit that LGBTQ and Latinx individuals experience and internalize sexual, ethnic, racial, and gender discrimination, which may adversely impact mental and physical health. However, the current minority stress models predominantly focus on single categorical social identities and do not account for interlocking systems and processes of oppression based on features of sexuality, race, ethnicity, sex, and gender, as explained by an intersectionality framework in feminist theory. Thus, it remains unclear how LGBTQ people of color internalize and navigate multiple cultural, institutional and societal stressors, and, furthermore, how these sources of stress may affect health and well-being. A potential mechanism for this adverse internalization process is through the effects of stress on neurobiological regulation. This review will apply an intersectionality framework to the examination of how heterosexism, racism, and cissexism, as systems of oppression, create LGBTQ and Latinx lived experiences, and the differential impacts of these inequalities on neurobiological stress regulation. The overarching goal of this manuscript is to advocate for the application of intersectionality theory to advance the ecological validity of biopsychosocial models of multiple-minority stress.

Introduction

There is limited research on factors affecting mental and physical health that comprehensively examines the lived experiences of individuals who identify with multiple marginalized social groups (Meyer, 2010). Models of minority stress (e.g., Meyer, 2003) applied to sexual and gender minority communities suggest that lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals experience discrimination because they are not heterosexual (i.e., heterosexism; the idea that being sexually attracted exclusively to members of the opposite biological sex is superior to being sexually attracted to members of the same biological sex) or because they are transgender (i.e., cissexism, the idea that

LUIS A. PARRA is a Human Development Ph.D. Candidate in the Department of Human Ecology and a member of the Center for Mind and Brain at the University of California, Davis. He studies the effects of discrimination on psychosocial adjustment within an allostatic load framework, in individuals who belong to multiple marginalized social groups.

PAUL D. HASTINGS is a Professor of Psychology and member of the Center for Mind & Brain and Center for Poverty Research at the University of California, Davis. He studies the transactional contributions of environmental factors and neurobiological regulatory systems to social and emotional development.

identifying one's gender as concordant with one's biological sex at birth (cisgender) is superior to being transgender). These experiences are both distal (e.g., exposure to or awareness of anti-LGBTQ attitudes) and proximal (e.g., internalizing anti-LGBTQ attitudes) (Meyer, 2003, Tebbe & Moradi, 2016). Experiences of minority stress can be acute and chronic and lead to poor mental and physical health outcomes (Bockting, Miner, Swinburne Romine, Hamilton, & Coleman, 2013; Lick, Durso, & Johnson, 2013).

Models of minority stress also have been applied to studies of ethnic (referring to someone's cultural heritage) and racial (referring to someone's external social classification based on phenotype) (Jones, 2001) minority populations, suggesting that racism constitutes a form of stress contributing to mental and physical health problems (Paradies et al., 2015). These sources of stress and their associations with negative health outcomes have been well-documented in the general Latinx¹ community, who constitute a rapidly growing segment of the U.S. population (Gonzalez et al., 2010). These identity-focused models of minority stress often use single-axis approaches which refer to a focus on single categorical marginalized social identities (as critiqued by Crenshaw, 1989) (e.g., identifying as LGBTQ or experiencing discrimination based on LGBTQ identity alone confers risk for poor health outcomes). Additive approaches assume with each additional marginalized identity, there is an increase in social inequality (Bowleg, 2008), such that identifying as LGBTQ and Latinx or experiencing discrimination based on both LGBTQ and Latinx identity further increases risk for poor health outcomes. Further, multiplicative approaches also have been used to help explain social and health inequities and suggest that independent categorical marginalized group memberships interact with one another to shape individuals' lived experiences (Parent, DeBlaere, & Moradi, 2013). Thus, multiplicative approaches have used statistical interactions between two or more identities or experiences, typically treated as binary categories (e.g., LGBTQ-heterosexual X biological male-female), as predictors of health or other aspects of functioning (Cole, 2009). Single-axis, additive, or multiplicative approaches examine stressful experiences associated with sexual, ethnic, racial, or gender identities in isolation rather than in conjunction with one another (Cole, 2009). Researchers working within these frameworks of minority stress may have failed to capture the intricate transactions between multiple social identities that shape the lived experiences of marginalized social groups (Ajayi & Syed, 2016; Hancock, 2007) because these approaches do not capture the phenomenological experiences of multiple marginalized groups' as proposed by intersectionality framework (Cole, 2009; DeBlaere, Brewster, Sarkees, & Moradi, 2010). Consequently, our understanding of how these lived experiences are associated with health and well-being remains limited.

According to the National Coalition of Anti-Violence Programs (NCAVP, 2017), LGBTQ individuals of color represented 79% of anti-LGBTQ hate-related homicides in the U.S., of which 14% were Latinx. Of the total survivors of anti-LGBTQ hate crimes, 29% were Latinx. These figures are likely to under-estimate the true incidences, because the NCAVP bases its statistics only on cases for which it can confirm the identity characteristics of

¹The meaning of *x* in Latinx represents a conscientious effort to transcend the male/female masculine/feminine sex-gender binary that is inherent in the Spanish language. The function of *x* is to bring visibility to the existence of all LGBTQ individuals of Latin American descent (Scharrón-del Río & Aja, 2015).

the victims. For example, the total demographics of homicides and of hate-crime victims presented in the NCAVP (2017) report do not include the 49 lives taken or the 53 individuals who were injured at the Pulse Nightclub massacre in Orlando, FL. Although NCAVP (2017) documents that the majority of the victims likely were LGBTQ Latinx, the report was not able to confirm the identities of the lives taken. Recognizing that these are likely to be conservative estimates, NCAVP also reports that, compared to their non-Latinx counterparts, LGBTQ Latinx individuals were more likely to experience online harassment, to be threatened, to experience robbery, and to experience violence by their employers. Clearly, individuals who identify with being a sexual, ethnic, racial, and gender minority are at elevated risk for stressful, life-threatening, and even life-ending events.

Despite the disproportionate rates of hate crimes against LGBTQ Latinx individuals, little is known about how various forms of oppression targeting this population are experienced through the lenses of multiple identities, including how LGBTQ and Latinx identities may shape oppression (i.e., oppressed oppressing the oppressed— one aspect of identity conferring negative regard for another). Even less is known of how oppression is experienced, interpreted, and attributed among multiply marginalized people or of the impact of oppression on their neurobiological mechanisms of stress regulation, including the possibility that having a complex identity may confer a source of strength or resilience against social stressors. The purpose of this manuscript is to propose that applications of intersectionality theory be extended to psychological research on social group identity and health outcomes to examine the effects of oppression associated with multiple identities on neurobiological regulation. Psychologists have considered the role of oppression and inequalities in their models and empirical work; however, intersectionality makes these issues central and emphasizes the interconnectedness between diverse forms of oppression. This framework has not yet been applied to neurobiological research, for which single-axis, additive, or multiplicative perspectives on multiple identity statuses has been the main approach. These approaches as applications of intersectionality to examining multiply marginalized people are not necessarily irreconcilable and may even be mutually informative as they represent different disciplinary, theoretical, and methodological approaches to a common focus of interest.

Neurobiological Markers of Stress Regulation

The stressful contexts and experiences of marginalized vulnerable populations can have deleterious effects on their physical and mental well-being. A potential mechanism for this adverse internalization process is through the effects of stress on neurobiological regulation (Busse, Yim, Campos, & Marshburn, 2017). Chronic or pervasive psychosocial and physical stressors can repeatedly provoke strong reactions from neurobiological systems and thereby confer risk for poor mental and physical health (McEwen, & Seeman, 1999).

The hypothalamic-pituitary-adrenal (HPA) axis, a primary stress response system that is an essential component of neurobiological regulation and social adaptation to psychosocial stressors, is possibly the most frequently examined index of the impacts of stressful experiences on biology. The HPA axis responds to stressors through a chain of neurochemical communication between the hypothalamus, anterior pituitary gland, and

adrenal cortex that results in the release of glucocorticoid hormones, including cortisol, into the circulatory system (Sapolsky, Romero, & Munck, 2000). As a self-regulating system that operates through a negative feedback loop, circulating cortisol crosses the blood-brain barrier and binds to receptors that serve to suppress HPA axis activity and stop the continued production and secretion of cortisol after a challenge or stressor has ended (Sapolsky et al., 2000).

In addition to discrete responses to acute events, the HPA axis is active throughout the diurnal cycle to support metabolic processes and other functions. Typical daytime HPA axis activity shows a pattern of high cortisol concentration in the morning (Gunnar & Adam, 2012), with the peak occurring approximately 30 minutes after waking (referred to as the cortisol awakening response; Pruessner et al., 1997), and then decreasing cortisol levels throughout the day to reach a nadir in the evening before sleep (Adam, 2012). Thus, the normative diurnal cortisol rhythm (i.e., high morning levels that drop throughout the day) is indexed by a negative slope, which is representative of healthy functioning (Stone et al., 2001) that allows the body to readily allocate resources for stress regulation (Gunnar & Adam, 2012). Deviations from this typical diurnal pattern – flatter or less negative slopes reflecting less change in cortisol levels over the day – have been implicated with poor psychosocial adjustment (Gunnar & Vazquez, 2001). Examining the slope is the most common way of assessing diurnal adrenocortical activity, although researchers also use area under the curve (AUC) functions to calculate total daily secreted cortisol and look at cortisol levels at specific times of the day (Gunnar & Adam, 2012).

Neurobiological Studies of LGBTQ Minority Stress

The existing literature on neurobiology and minority stress primarily focuses on social identity group categorization, which highlights social group differences (e.g., sexual minority vs. heterosexual; Juster, Smith, Ouellet, Sindi, & Lupien, 2013) in HPA axis functioning based on single-axis categorical social identities within an additive stress approach. Crenshaw's (1989) and Cole's (2009) positions differ from this approach by emphasizing how a single-axis, additive, or multiplicative frameworks cannot capture the complex intersections of individuals' lived experiences within nested systems of oppression. However, the existing studies provide a beginning point for our understanding of the neurobiological mechanisms linking minority stress with poor health outcomes.

Researchers have tested the hypothesis that sexual minority identity, in and of itself, is linked to atypical patterns of cortisol levels. Studies that have looked at diurnal slopes and acute reactivity have generally not found that self-identified LGB individuals differ in their diurnal cortisol patterns from heterosexual individuals (e.g., Austin et al., 2016; Juster et al., 2013). From an intersectionality perspective, this lack of differences may not be surprising. Research questions that propose to address social group differences (e.g., LGB vs heterosexual) based on the endorsement of single categorical social construct (e.g., sexual orientation) do not inform about how the experiences associated with those social identities uniquely impact HPA axis functioning. In other words, one potential reason why some researchers have failed to identify significant group differences in past studies that

based “group” on a single social category may be that those studies failed to account for the diversity of individuals within those groups.

Conversely, some researchers interested in social identity group differences in neurobiological stress regulation have reported differences when accounting for the dual categories of sexuality and gender. For example, lesbian and bisexual women were found to show higher and prolonged cortisol elevation to an experimental induction of acute social stress when compared to heterosexual women, whereas gay and bisexual men showed lower cortisol levels than heterosexual men throughout the duration of the stressor (Juster et al., 2015). Thus, the application of additive and multiplicative approaches to examine multiple identities (i.e., sexual orientation, sex, and gender) yielded distinct patterns of cortisol secretion that would not have been identified if individuals had been characterized along only an axis of sexual identity, or only along an axis of gender identity. However, these findings do not inform *why* lesbian and bisexual women’s cortisol remained higher after experiencing social stress nor *why* gay and bisexual men showed a lower cortisol response throughout the experiment. Thus, this study is also an illustration of how additive or multiplicative approaches to the examination of multiple identities can fail to illuminate the *processes* by which systems of oppression and inequality may impact HPA axis regulation. One fruitful avenue to explore the *why* of these findings might be to look at the multiple forms of oppression these individuals experience at the intersections of sexual orientation and gender. Understanding the tightly interwoven associations between the social constructs of sexuality and gender requires examining the shared and unique lived experiences of LGBTQ and heterosexual individuals. Given our current focus on minority stress, we next consider the personal, social, and societal experiences of LGBTQ individuals.

Heterosexism and cissexism are significant forms of oppression that contribute to minority stress impacting the lives of LGBTQ individuals (Meyer, 2003, Norton & Herek, 2013, respectively). At the proximal level, LGBTQ individuals report internalizing stressful interpersonal conflicts with family members (Klein & Golub, 2016; Ryan, Huebner, Diaz, & Sanchez, 2009), peers (Russell, Ryan, Toomey, Diaz, & Sanchez, 2011) and others (D’Augelli, Pilkington, & Hershberger, 2002, Tebbe & Moradi, 2016) because of negative reactions to their divergence from heterosexual (Meyer, 2003) cisgender (Fish, 2007) norms. Processes leading to identifying and disclosing oneself as, and experiencing discrimination and prejudice for, being a sexual minority could adversely impact individuals’ physiological capacity for stress regulation by disrupting HPA axis functioning (Hatzenbuehler, 2014). Indeed, higher and less variable cortisol (i.e., flatter slopes) over the course of the day has been associated with stressful experiences with family, peers, and employers because of one’s sexual identity (i.e., LGB-related stress), which in turn, predicted having more symptoms of depression (Parra, Benibgui, Helm, & Hastings, 2016). Evidence also suggests that other environmental and social contexts impact HPA axis functioning in sexual minority populations. Burton, Bonanno, and Hatzenbuehler, (2014) documented that LGB individuals who reported more family support versus those with low family support showed a blunted cortisol response after a social stress test. At a distal structural level, self-identified LGB individuals raised in highly stigmatizing environments (e.g., states with prohibitive marriage laws) as adolescents showed flattened cortisol response following a social stress test when compared with LGB individuals raised in low stigmatizing environments (Hatzenbuehler

& McLaughlin, 2014). These findings suggest that HPA axis activity may be affected by socio-contextual factors that are rooted in heterosexism.

Sexual and gender minority identity disclosure also has been found to be related to neurobiological regulation. Sexual identity disclosure or non-disclosure is a proximal source of stress (Pachankis, 2007) that differs across contexts (Aranda et al, 2014). Self-disclosed gay men at the workplace have shown elevated diurnal cortisol patterns over the course of the workday when compared to non-disclosed gay men; and those who were self-disclosed also reported more psychological distress on workdays compared to non-workdays (Huebner & Davis, 2005). Gender identity disclosure also has been associated as a proximal source of stress (Lombardi, Wilchins, Priesing, & Malouf, 2002). A recent study documented that for transgender individuals, reporting more stress associated with disclosing their transgender identity to others was associated with having high diurnal cortisol (Dubois, Juster, Everett, & Powers, 2016). This empirical evidence suggests that properties of the HPA axis are affected differently by proximal (e.g., sexual and gender identity disclosure and fear of disclosure) and distal (e.g., institutional prohibited laws) sources of minority stress. Comprehensively, the current literature suggests that specific features of oppression and inequality underscore how the lived experiences of sexual and gender minorities impact their neurobiological regulation, thus pointing to where intersectionality theory can inform neurobiological studies of minority stress.

Neurobiological Studies of Latinx Minority Stress

There also have been studies of the neurobiology and mental health of Latinx individuals, although again, these have been based on single-axis, additive, and multiplicative approaches rather than consideration of their lived experiences and the systems of oppression and inequality that impact well-being. Single-axis social-group comparative studies suggest that Latinx adolescents show diurnal cortisol slopes that are flatter and more elevated than those of their White counterparts (DeSantis et al., 2007). Conversely, Martin, Bruce, and Fisher (2012) reported that Latinx and White individuals showed negative diurnal cortisol slopes (considered healthy or normative) whereas African American individuals showed higher and flatter slopes. Although the cortisol slopes of Latinx individuals were negative, they did not significantly differ from African American and White individuals. Further, a pair of studies on diurnal cortisol in Latinx pregnant women revealed slopes that did not differ from those of White pregnant women (Suglia et al., 2010), and were more normative and less elevated than those of African American pregnant women (Hajat et al., 2010).

Taken together, these studies of ethnic or racial group categories and HPA axis functioning could suggest that there are some differences in diurnal cortisol slopes between Latinx, African American, and White individuals, but they do not comprehensively help to explain *why* such differences exist. Thus, these between-social-group empirical approaches reveal that there are critical gaps in the literature and highlight the need for scientists to incorporate more culturally-specific measures of stress to best understand how context and neurobiological regulation influence each other. The differences in diurnal cortisol slopes between Latinx, African American, and White individuals may be associated with

varying forms of parenting styles (e.g., Martin et al., 2012) and victimization associated with racial and ethnic discrimination (e.g., macroaggressions, physical assault), which have been linked with adolescents' HPA functioning. For example, experiencing more racial or ethnic discrimination is associated with more elevated diurnal cortisol in Latinx adolescents (Zeiders, Doane, & Roosa, 2012). Further, it is plausible that the cortisol patterns of Latinx, White, and African American pregnant women may be associated with stressors linked to the availability or quality of prenatal care and experiences of racial or ethnic discrimination within the healthcare system (D'Angelo, Bryan, & Kurz, 2016). In sum, using an intersectionality framework could allow researchers to conduct more culturally-sensitive and contextually-informed research on differential HPA axis functioning, thus engendering more accurate representations of Latinx individuals' lived experiences.

Fortunately, there are recent examples of researchers adopting applications of intersectionality within additive approaches by examining the links between acculturation processes in the Latinx community and HPA axis functioning. For example, compared with Latinx pregnant women who endorsed less acculturation, Latinx pregnant women who endorsed more acculturation (e.g., frequent use of the English language vs the Spanish language, associating with more non-Latinx individuals) were found to show diurnal cortisol slopes that were flattened and suppressed, and their flatter diurnal cortisol slopes, in turn, predicted their infants' low birthweights (D'Anna et al., 2012). Although degree of acculturation does not measure the degree of stress associated with acculturation, it is plausible that retaining aspects of one's culture of origin (i.e., enculturation; Gonzales, Knight, Morgan-Lopez, Saenz, & Sirolli, 2002) contributes to personal resilience (Rivas-Drake et al., 2014) which may help prevent disruptions of the HPA axis. In turn, this may buffer against negative impacts of stress on transgenerational health problems (e.g., infant low birthweight). Although plausible, these hypothesized associations require rigorous empirical investigation.

Caretaker roles also have been found to be related to neurobiological regulation. Latinx women who self-identify as caretakers show flatter and more elevated diurnal cortisol slopes than White women in similar caretaking roles (Gallagher-Thompson et al., 2006). It is important to consider that expectations of traditional gendered caretaking roles, which have been associated with complex forms of sexism (e.g., Bermúdez, Sharp, & Taniguchi, 2015), may themselves be internalized through the lenses of other aspects of ethnic and racial identity, such as generational or documentation status (Flores, 2013). One may see a glimpse of these kinds of intersectional processes in one finding that first generation Latinx women showed higher mid-day cortisol when compared to third generation Latinx women (Ruiz, Stowe, Brown, & Wommack, 2012). These generational differences in cortisol are in accord with literature suggesting that first generation status of Latinx individuals is associated with greater challenges with acculturation (Rumbaut, 2004) and access to resources (Kao, 2009) when compared to second or third generation status. Yet, generational status may confer different experiences and meanings to different individuals. For example, first generation Latinx men showed lower diurnal cortisol when compared to first generation Latinx women, when Latinx men reported more time spent in the U.S. and migration at older ages (Squires et al., 2012), suggesting that gender and age of migration may influence how acculturation and generational status are related to cortisol levels.

Perhaps better sense could be made of these results by incorporating an intersectionality framework, complementing the quantitative neurobiological data with qualitative methodology. Such a mixed method approach would allow researchers to conduct interviews and gather the life narratives of their participants who belong to multiple marginalized groups. Emerging patterns within the data could be identified and analyzed through content (Wilkinson, 2000) or thematic (Braun & Clarke, 2006) analysis approaches. The emerging themes could then be used to create new quantitative scales that more accurately capture the unique lived experiences of multiply marginalized individuals (e.g., Balsam, Molina, Beadnell, Simoni, & Walters, 2011) or be converted to quantitative data (e.g., Juan, Syed, & Azmitia, 2016) to perform statistical analyses. This methodological approach could help researchers to begin examining the interlocking associations between multiple dimensions of oppression and inequality, which extend beyond heterosexism and racism, and their effect on neurobiological regulation in Latinx populations.

Intersectionality as a Framework to Examine Neurobiological Regulation in LGBTQ Latinx Populations

To date, we have identified only one published study on single social categorical identification and neurobiology that has examined sexual orientation and race; these aspects of identity were examined through the statistical interaction of two axes (a multiplicative approach) rather than the theoretical approach of intersectionality (DeBlaere et al., 2010). Cook and colleagues (2017) applied a multiplicative approach to examine cortisol levels as a function of multiple identity status in a group of Black and White bisexual and gay men. Black bisexual and gay men had lower and flatter cortisol slopes, relative to White bisexual and gay men, resulting in less circulating cortisol overall, but relatively high levels in the evening. Elevated evening cortisol can have somatic and affective effects like disrupted sleep which may not allow the body to recover from the prior day's stresses overnight (Meerlo, Sgoifo, & Suchecki, 2008). Further, overall low diurnal activity is suggestive of depleted energy which can impact cognitive effects on attention and memory, emotional well-being, and physical health (Guerry & Hastings, 2011; Gunnar & Adam, 2012; Juster, McEwen, & Lupien, 2010). Whether the observed cortisol patterns in Black bisexual and gay men were specifically associated with heterosexism and racism remains an open question, although such associations seem likely.

Heterosexism and racism are just two of many distinct forms of oppression that also impact the well-being of LGBTQ people of color. LGBTQ Latinx individuals experience invalidation, stigmatization, victimization, and rejection of their sexual orientation within Latinx communities (Díaz, Ayala, Bein, Henne, & Marin, 2001; Díaz, Bein, & Ayala, 2006; Ryan et al., 2009), and microaggressions and segregation based on their ethnic and racial background within LGBTQ White communities (Balsam, et al., 2011; Morales, 1989). Further, LGBTQ Latinx individuals experience exclusion from leadership in U.S. LGBTQ political movements (Han, 2007), and racial objectification (Díaz et al., 2001) or eroticization in interracial relationships (Wilson et al., 2009). Perhaps because of these experiences that are deeply rooted in intersecting sociocultural and contextual factors, in studies comparing Latinx and White individuals with LGBTQ identities, or comparing

LGBTQ and straight individuals with Latinx identities, those individuals with the multiple-minority identity of LGBTQ Latinx have reported diminished psychological well-being (Kertzner, Meyer, Frost, & Stirratt, 2009), internalized heterosexism and racism (Velez, Moradi, & DeBlaere, 2015), more depression (Díaz et al., 2001), and greater acculturative stress (Zea, Reisen, & Poppen, 1999). Yet, there is an inherent limitation to these studies. The research heavily relies on single-axis, additive, or multiplicative quantitative methods that do not address contextual processes associated with intersecting identities and systems of oppression (DeBlaere et al., 2010). It is important for future research to also go beyond the single-axis, additive, or multiplicative approaches to understand unique forms of oppression and privilege that are central to intersectionality perspectives.

LGBTQ Latinx individuals are influenced by their membership in, and strength of orientation towards, both their ethnic or racial minority group and their sexual minority group (Meyer, 2010; Moradi et al., 2010). This position may engender identity conflicts (Sarno, Mohr, Jackson, & Fassinger, 2015; Santos & VanDaalen, 2016), such that a strong connection to one identity may increase an individual's exposure to prejudice regarding the other identity. This is true across many aspects of identity, but there are particular ways in which it is likely to be experienced by the multiple-minority identity of LGBTQ Latinx individuals. For example, strong Latinx identity may increase contact with anti-LGBTQ cultural norms and attitudes that may exist within some Latinx communities in the U.S. (Sarno et al., 2015), but conversely, a strong sense of ethnic or racial identity may provide an anchor or source of pride that could help buffer against anti-LGBTQ discrimination in the majority culture (Rivas-Drake et al., 2014).

Few studies have examined LGBTQ, ethnic, or racial identities concurrently and specifically among LGBTQ racial and ethnic minority people. LGBTQ individuals with strong ethnic identity report high identity conflict and lower engagement in LGBTQ communities (Sarno et al., 2015). High identity conflict has been associated with depression symptoms (Santos & VanDaalen, 2016). LGBTQ Latinx individuals also may prioritize one group identity, thus reducing the impact of prejudice regarding the other (Harper, Jernewall, & Zea, 2004). However, the prioritization of one group identity over the other may be challenging or unwarranted for those who place great importance on both identities.

The aforementioned processes (e.g., identity conflict) associated with intersecting identities are examples of the many ways in which intersectionality theory can be applied to psychological research to examine the lives of individuals belonging to multiple marginalized social groups. Yet, there are other factors that impact the lives of LGBTQ Latinx populations in potentially complex ways. For example, bisexual Latinx men who endorsed greater religiosity also reported more masculine ideologies, internalized homonegativity, loneliness, and discrimination experiences; yet they also reported that their religiosity served as a positive coping mechanism (Severson, Muñoz-Laboy, Kafuma, 2014). These findings suggest that while some aspects of someone's identity and culture confer risk in one domain, they may also confer resilience in another domain of an individuals' life – a complexity that emerges at the interface of ethnic identity and sexual identity, rather than as an additive function of the two. These findings warrant further analysis to understand how coping with discrimination (e.g., Kuper, Coleman, Mustanski, 2013;

Toomey & Anhalt, 2016) and internalized homonegativity intersect and shape each other, as both have been shown to differ across migration and generational status (Morales, 2013), to impact neurobiological regulation of individuals who belong to multiple marginalized social groups.

This study also suggests that the predominant focus of psychological research on pathology – *poor* mental and physical health – may present an overly bleak portrait of the lives of multiple minority individuals (Toomey, Huynh, Jones, Lee, & Revels-Macalinao, 2016). Without minimizing or dismissing the reality of systemic oppression and discrimination, it also is plausible that more diverse or complex identities may confer advantages for some individuals (e.g., Knifsend & Juvonen, 2014). There may be protective or buffering aspects to parts of one's identity that help individuals who belong to multiple marginalized groups healthfully adapt to a variety of challenges, and a strong and established commitment to one's multiple identities may allow one to engage positively and compassionately with a greater diversity of others. Essentially, rather than presuming that LGBTQ Latinx (and other multiple-minority) individuals necessarily experience themselves as living betwixt and between their divided social worlds, researchers could begin to consider how they may thrive both within and across their communities. To be sure, such a perspective has not yet been applied to the limited research on HPA axis functioning in multiple-minority individuals, but we would argue it is overdue and highly warranted.

Conclusions

Neurobiological studies of stress regulation have yet to bring visibility to understanding how LGBTQ Latinx individuals internalize multiple transactions between and within cultural, institutional, and societal stressors, or to the impact of these internalized transactions on neurobiological regulation. This is especially true for transgender people of color because they disproportionately experience anti-LGBTQ violence and homicides when compared to White sexual and gender minority groups (NCAVP, 2017). The complex bidirectional associations between systems and processes of oppression and inequality, both between and within multiple features of sexuality, gender, sex, and culture, impact the well-being of LGBTQ Latinx communities. This is evidenced by disproportionate experiences of discrimination, hate violence, and injuries (NCAVP, 2017) all of which is occurring against the backdrop of political shifts in the U.S. that significantly undermine the security and threaten the lives of marginalized populations. Drawing from the available neurobiological literature in both LGBTQ and Latinx populations, it is likely that the lived experiences of LGBTQ Latinx individuals, which are situated within multiple systems of oppression and inequality targeting their varying identities and across many contexts, adversely impact neurobiological regulation and well-being. More speculative is the possibility that the multiple-minority identities of LGBTQ Latinx individuals may simultaneously confer unique strengths and protective elements that facilitate their ability to cope with adversity. By recognizing and incorporating the perspectives of intersectionality frameworks, neurobiological studies may attain a deeper understanding of the links between individual health and sociocultural and contextual systems. In turn, by utilizing the tools of neurobiology, intersectionality studies may be able to illustrate the processes or mechanisms by which multiple-minority individuals respond and adapt to direct and

systemic experiences of oppression across multiple features of identity in ways that promote or undermine their health and well-being.

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