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The Impact of Culture and Neighborhood Context on the Mental Health of Latino Youth

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The Impact of Culture and Neighborhood Context on the Mental Health of Latino Youth

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Dedicado a mis padres – la inmigración trae lo mejor y lo peor…os agradezco por los sacrificios que habéis hecho por mí y mi hermano. Ojala un día tenga yo el honor de pasar a mis propios hijos todo lo que he aprendido de ustedes.

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Biography

The author was born in Newark, New Jersey on April 14, 1980. He graduated from Drew University in Madison, New Jersey in 2002 with dual Bachelor of Arts degrees in Psychology and Sociology. In 2004, he received a Master of Arts degree in Forensic Psychology from the City University of New York – John Jay College in New York City, New York. In 2010, he received a Master of Arts degree from DePaul University in Clinical-Child Psychology. In the same year, he was awarded the American Psychological Association Minority Fellowship Program's Substance Abuse and Mental Health Services Fellowship. In 2013, he was awarded the Ford Foundation Dissertation Fellowship. He completed his American Psychological Association accredited predoctoral internship in the Multicultural Clinical Training Program through the University of California, San Francisco/San Francisco General Hospital in Child and Adolescent Services within the Division of Infant, Child, and Adolescent Psychiatry.

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Cities produce love and yet feel none. A strange thing when you think about it, but perhaps fitting. Cities need that love more than most of us care to imagine. Cities, after all, for all their massiveness, all their there-ness, are acutely vulnerable.

- Junot Díaz

Abstract

Latino youth are members of an ethnic group that shares similar values, customs, beliefs, and, often, the Spanish language, that serve as protective factors for some youth. The extent to which these factors are protective across neighborhood contexts has yet to be explored. The present study adds to the literature on contextual correlates of mental health symptomatology in Latino adolescents by examining individual cultural dimensions as protective factors, and environmental risk and protective factors through the lens of the person-environment fit theory (Caplan, 1987). Specifically, the person-environment fit theory is evaluated by proposing that the fit between a Latino youth's cultural dimensions (affiliative obedience and Spanish language use) and their neighborhood's Latino immigrant density influences the degree to which neighborhood socioeconomic status (SES) and violence are associated with Latino youths' mental health. The present sample comprised 1,023 5^{th} – 7^{th} grade Latino students ranging in age from 12 to 15 years old (53.8% female) from three large metropolitan areas (Boston, Chicago, and Los Angeles) in the United States. Multilevel modeling methods indicate that higher neighborhood SES and lower individual affiliative obedience are associated with higher youth externalizing and internalizing problems. Furthermore, neighborhood violence moderated the relationship between Spanish language use and internalizing problems, such that higher Spanish language use was associated with higher youth internalizing problems, but only in neighborhoods with higher levels of violence. Finally, higher individual affiliative obedience, combined with a higher neighborhood Latino immigrant density, protects against youth externalizing problems but only among those residing in higher SES neighborhoods. The results support the value of considering context beyond the individual and family levels, of applying a

theoretical framework, and of including cultural variables to understand protective and risk factors in Latino and ethnic minority youth.

Introduction

The United States Latino population is comprised of more than 50.5 million persons and has accounted for 56% of the overall U.S. population growth between 2000 and 2010 (Passel, Cohn, & Lopez, 2011). Research that focuses on Latinos and other ethnic and linguistic minority populations is essential to effectively meet their most pressing needs (Huey & Polo, 2008). Evidence in the literature exists for the effects of neighborhood context on both internalizing and externalizing problems of Latino youth (e.g., Gonzales et al., 2011; Roosa et al., 2009). In addition, individual cultural dimensions have been associated with decreased depressive symptoms (Polo & López, 2009; Umaña-Taylor & Updegraff, 2007), increased anxiety symptoms (Martinez, Polo, & Carter, 2012), and decreased externalizing problems (Gonzales et al., 2008; Smokowski & Bacallao, 2007) in Latino youth. Yet minimal research has examined the interaction between neighborhood contexts and individual cultural dimensions, and their impact on the adjustment of Latino youth. The present study is designed to add to the literature on contextual correlates of mental health symptomatology in Latino youth by examining protective factors through the lens of the person-environment fit theory (Caplan, 1987; Edwards, Caplan, & Harrison, 1998). Specifically, the person-environment fit theory will be evaluated to determine whether a higher fit between Latino youths' cultural dimensions and their neighborhood's cultural characteristics protect Latino youths against the negative effects of neighborhood adversity (low socioeconomic status and high levels of violence) on their mental health.

Latino youth may be at greater risk for developing certain kinds of mental health concerns. For example, Latino youth are at higher risk of developing internalizing problems, such as depressive and anxiety related symptoms. Specifically, studies consistently demonstrate

that Latino youth present with greater depressive symptoms and suicidal ideation than youth from other ethnic groups (Roberts & Chen, 1995; Roberts, Roberts, & Chen, 1997; Roberts & Sobhan, 1992; Twenge & Nolen-Hoeksema, 2002). Lifetime prevalence rates for mood disorders are also higher among Latino adolescents when compared to their European-American counterparts (Merikangas, He, Burstein, et al., 2010). Latino youth also report increased symptoms of anxiety and worry (Ginsburg & Silverman, 1996; Glover, Pumariega, Holzer, Wise, & Rodriguez, 1999; Gross et al., 2006; McLaughlin, Hilt, & Nolen-Hoeksema, 2007; Silverman, La Greca, & Wasserstein, 1995; Varela et al., 2004). On the other hand, the evidence that Latinos are at increased risk for anxiety *disorders* is less consistent. Some studies suggest that Latinos are at increased risk of anxiety disorders (Chen, Killeya-Jones, & Vega, 2005; Roberts, Roberts, & Xing, 2006), while others show Latinos having comparable (Merikangas, He, Burstein, et al., 2010; Merikangas, He, Brody, et al., 2010) or even lower rates (Kessler et al., 2005) than those found among other ethnic groups.

While the majority of evidence indicates that Latino youth may be at higher risk of developing internalizing problems, the evidence for externalizing problems, such as conduct-related concerns or substance abuse, is less conclusive. Latino youth are at higher risk of being involved in the juvenile justice system (Bishop, 2005) and engaging in alcohol and illicit drug use (Wallace et al., 2003). However, lifetime prevalence rates gathered from epidemiological data suggest that Latino youth do not have higher lifetime rates of disruptive or substance use disorders than youth from other ethnic groups (Merikangas, He, Burstein, et al., 2010). Another study observed that Latino youth were less at risk of having attention-deficit hyperactivity disorder than European-American youth (Pastor & Reuben, 2005). Latinos in the United States often live in poverty and are more likely to reside in low-income and violent neighborhoods

(Sampson, 2009), placing them in higher risk contexts which may better account for differences in symptom presentation (Canino, 2004).

Further research is necessary to help understand why Latinos may be at particular risk for some mental health problems but not for others. In particular, research is necessary to understand what factors may help reduce the risk of mental health concerns in youth across different neighborhood SES and violence contexts. The present study will examine how individual cultural dimensions can serve a protective function in Latino youth across the contexts of neighborhood SES and violence. In addition, the study will examine if those protective effects are enhanced when a youth resides in a neighborhood with characteristics that may be a match for those cultural dimensions.

Latino Neighborhood Contexts

Historically, Latinos have resided in well-established metropolitan areas among high concentrations of other Latinos (Fry, 2008). However, in the 1990s a new pattern emerged, whereby Latinos began dispersing across rural areas of the South and Midwest that traditionally have had low numbers of Latinos. The pattern again changed at the turn of the 21st century, when Latino dispersion shifted back to metropolitan areas of the West and Northeast. However, even with the increases in dispersal of Latinos in the U.S., the growth of the Latino population is still highly concentrated. The majority of Latinos reside within urban areas (Motel & Patten, 2012). Nearly half (22.4 million) reside within just 10 metropolitan areas, with the top five metropolitan areas including the metropolitan areas of Los Angeles, CA, New York, NY, Houston, TX, San Bernardino, CA, and Chicago, IL.

Despite the fact that the majority of Latinos reside within the same type of metropolitan areas, more Latinos in the U.S. reside in neighborhoods where Latinos are the minority (57%)

than ones where Latinos are the majority (Suro & Tafoya, 2004). Approximately two out of every five (43%) residents in Latino-majority neighborhoods are foreign-born. Latinos living in Latino-majority neighborhoods are, for the most part, either bilingual in Spanish and English (58%) or speak only Spanish (28%). The majority of native-born Latinos residing in Latino-majority neighborhoods are the children of immigrants, also described as second-generation youth (Suro & Passel, 2003).

Neighborhood Effects

Latinos reside in a myriad of neighborhood contexts and the effects of these contexts on mental health should be explored. In order to assess for neighborhood effects, one must first decide how to operationalize the *neighborhood* construct. Neighborhoods can have independent effects on youth, as well as interact with the youth's family and peer contexts (Bronfenbrenner, 1986). For example, a family or peer context that may be protective in one neighborhood setting may have no effect or even be detrimental in another environment. The local neighborhood is often the setting whereby many social, economic, and political policies have their impacts on youth and families (Rossi, 1972). Therefore, neighborhood environments often have a significant impact on global health, and specifically the mental health of youth (Leventhal & Brooks-Gunn, 2000; Sampson, 2012; Sampson, Morenoff, & Gannon-Rowley, 2002).

The literature contains many definitions and associated measurements of the construct of *neighborhood* (see Nicotera, 2007). Wachs (1999) defines a neighborhood as comprising two dimensions: the person's objective environment and the person's perception of that environment. A person's objective environment includes neighborhood characteristics and demographics, e.g., socioeconomic markers. The second dimension focuses on how that person experiences the objective environment in which he or she resides.

A review of studies examining the impact of neighborhood effects on youth outcomes found that neighborhood U.S. Census tracts are typically used to identify neighborhood boundaries (Leventhal & Brooks-Gunn, 2000). The authors recommend that studies examining neighborhood effects should be multisite and heterogeneous in regards to socioeconomic status and any other variables of interest. In addition, studies should include a theoretical underpinning to explain neighborhood effects on individual outcomes. A final recommendation is that studies should attempt to control for confounds by including better measures of both neighborhood contexts and individual characteristics.

Neighborhood Contexts and Youth Mental Health

The association between the neighborhoods youth reside in and mental health symptoms has been found to exist above and beyond individual-level and family-level characteristics (e.g., Roosa et al., 2009; White, Roosa, & Zelders, 2012; Xue, Leventhal, Brooks-Gunn, & Earls, 2005). For example, recent studies have consistently demonstrated that low SES and high-crime neighborhoods are associated with higher externalizing and internalizing problems in youth (Barry, Lochman, Fite, Wells, & Colder, 2012; Katz, Esparza, Carter, Grant, & Meyerson, 2012; Xue et al., 2005). However, a previous review of the literature on neighborhood effects on child outcomes concluded that the effects may be strongest for externalizing problems versus internalizing problems (Leventhal & Brooks-Gunn, 2000). Effect sizes tend to be consistent across studies examining neighborhood effects, with most studies finding small to moderate effects, accounting for approximately 5% of the variance in child outcomes.

Socioeconomic status. Latinos in the United States disproportionately experience poverty relative to European Americans, and recent estimates indicate that Latino youth under the age of 18 are the largest numerical majority of youth experiencing poverty (Motel & Patten,

2013). Latinos residing in neighborhoods with higher concentrations of Latinos are more likely to be living in poverty than those in Latino-minority neighborhoods (Suro & Tafoya, 2004). Similarly, most upper-class Latinos (71%) reside in minority-Latino neighborhoods. However, it should be noted that the majority of Latinos in the lowest income bracket reside in neighborhoods where they are the minority. Thus, Latinos of all socioeconomic backgrounds reside in both Latino majority and minority neighborhoods.

Evidence suggests that youth residing in low SES neighborhoods may be at increased risk of experiencing mental health concerns (Bradley & Corwyn, 2002). In reviews of the literature, low neighborhood SES was found to be a strong risk factor for developing a number of mental health concerns, including substance use, delinquency, and oppositional behaviors (Leventhal & Brooks-Gunn, 2000). However, the magnitude of the risk imparted by residing in a low SES neighborhood was less for internalizing than externalizing problems. In addition, there are studies that have found that youth in high SES neighborhoods are at greater risk of exhibiting internalizing concerns (Chase-Lansdale & Gordon, 1996; Duncan, Brooks-Gunn, & Klebanov, 1994). The impact of SES on health conditions is often on a gradient, and thus in order to study its effects, it is important to ensure that study samples vary in regards to SES (Adler et al., 1994).

While the literature examining the impact of SES on youth mental health consistently finds an association between SES and mental health outcomes in youth, little research has examined the impact of neighborhood SES on Latino youth. Contrary to what is found in the broader literature, one study that focused on Latino youth residing in low SES neighborhoods found that youth residing in neighborhoods with high Latino concentrations exhibit lower internalizing and externalizing problems (Aneshensel & Sucoff, 1996). Another early study found that Latino youth in low SES neighborhoods are exposed to more stressors, and this

increased exposure to stress leads to increased externalizing problems (Attar, Guerra, & Tolan, 1994). However, in a more recent study examining Mexican-American youth from varied SES backgrounds in the southeastern United States, low neighborhood SES was associated with increased use of cigarettes and marijuana in Latino youth (Kulis, Marsiglia, Sicotte, & Nieri, 2007). However, other studies using the same sample of youth found no direct association between neighborhood SES and internalizing problems, or other externalizing problems such as conduct and oppositional defiant disorders (White & Roosa, 2012; White et al., 2012).

Socioeconomic status is strongly associated with immigration status in Latinos, as Latinos of lower SES are also more likely to be immigrants (Motel & Patten, 2013). However, immigrant Latinos typically display better mental health outcomes than later generation Latinos (Alegría et al., 2007). Therefore, despite having lower SES, immigrants fare better than their U.S. born counterparts. Cultural factors play a role in these discrepancies and therefore, may also play a role when examining SES at a neighborhood level. For example, one study suggests that for Latino youth residing in low SES neighborhoods, a higher concentration of Latino immigrants reduces the risk for mental health concerns (Aneshensel & Sucoff, 1996). Thus, immigration status should be considered when examining the association between SES and Latino youth mental health, to better assess the role cultural factors have in explaining differences between immigrant and later generation Latinos.

Neighborhood violence. Comprehensive data are not available to determine the degree to which Latinos, relative to individuals of other ethnic groups, are impacted by neighborhood violence. The largest and most expansive crime statistics system in use in the United States, the Federal Bureau of Investigation's Uniform Crime Reporting (UCR) Program, had not, until recently, included a category of "Hispanic or Latin Origin" (Federal Bureau of Investigation,

2011). Data for 2013, the first year in which the Latino ethnic category was included on the UCR reports, are not yet available. However, there is evidence from individual studies that suggests that immigrant Latino youth residing in lower SES neighborhoods may have particularly high rates of exposure to violent crime. Latino youth are exposed to higher levels of community violence than European American youth (Crouch, Hanson, Saunders, Kilpatrick, & Resnick, 2000). Similarly, youth residing in neighborhoods with higher concentrations of immigrants may be at higher risk of exposure to community violence (Gibson, Morris, & Beaver, 2009). Latino youth are also more likely to report the presence of gangs in their school (Robers, Kemp, & Truman, 2013), and report witnessing more shootings (Finkelhor, Ormrod, Turner, & Hamby, 2005) than European American youth. Immigrant youth are more likely to reside in neighborhoods with higher incidences of community violence (Gibson et al., 2009). Latino immigrant youth, in particular, report significant levels of exposure to community violence (Gudiño, Nadeem, Kataoka, & Lau, 2011; Kataoka et al., 2003).

Evidence exists for the adverse impact of neighborhood violence on youth mental health. Neighborhood violence has generally been associated with both increased internalizing and externalizing problems (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009; Kliewer & Sullivan, 2008; McCabe, Hough, Yeh, Lucchini, & Hazen, 2005). Studies focused on Latino youth have found increases in internalizing and externalizing problems in Latino youth exposed to neighborhood violence, and the deleterious impact of these effects are above and beyond other types of stressors, such as immigration trauma (Gudiño et al., 2011; Kataoka et al., 2003; Kulis et al., 2007).

Cultural contexts. A recent line of research has been examining the extent to which family and neighborhood factors combine to impact mental health symptoms in Latino youth

(Gonzales et al., 2011; Roosa et al., 2009; White & Roosa, 2012; White et al., 2012). For example, Gonzales and colleagues (2011) explored the interaction between family context and neighborhood types in Mexican American youth by examining the role that parenting and traditional family values play on the mental health of Mexican American children. The study employed both objective measures (i.e., Census data) and subjective measures (i.e., perceptions of neighborhood danger) to examine the effects of neighborhood disadvantage on youth residing in a large, southwestern metropolitan area. The study was notable for a number of reasons. One, it employed an entirely Mexican-American sample to examine within group effects. In addition, it used a heterogeneous Mexican-American sample in regards to both SES and urban versus rural location. The investigators found that higher neighborhood familism, a type of family value typically associated with Latinos, was associated with less youth externalizing problems, even when accounting for neighborhood SES and subjective neighborhood danger, as well as parenting behavior.

White and Roosa (2012) further expanded on this research by examining the mechanisms by which the dangerousness of a neighborhood impacted youth internalizing problems. They employed the same sample of Mexican American youth (Gonzales et al., 2011). Specifically, they found that the association between fathers' perceptions of neighborhood danger and internalizing problems in Mexican American youth was mediated by reduced family cohesion. When fathers perceived their neighborhoods as being more dangerous, they were more likely to report less family cohesion, and in turn, this resulted in increased internalizing problems in their children.

Finally, this literature led to the development of an integrated model of interactions between neighborhood, family, and cultural effects on youth mental health (White et al., 2012).

The model used the same sample (Gonzales et al., 2011; White & Roosa, 2012) to provide a framework for understanding how parenting practices and family processes are disrupted by a parent's perceptions of neighborhood violence, and in turn, how these disruptions then serve to impact mental health symptoms. The authors found partial support for the model when tested prospectively. For example, they found that traditional family values, such as obligation to the family and family support, moderated the relationship between maternal perceptions of neighborhood dangers and parenting behaviors. The study also provided further evidence of the mediating role of family cohesion in the relationship between mental health symptomatology as perceived neighborhood danger increases.

While the aforementioned studies have made strides in examining neighborhood effects within Latino groups, they do have a number of common limitations. One limitation includes the ability of the studies to be generalizable to Latino youth from other countries of origin, or even to Mexican-American youth residing in other regions of the United States. All studies that have examined the impact of neighborhood and cultural effects on the mental health of Latino youth have focused on Mexican-American youth in the Southwest. One study (Gonzales et al., 2009) had the specific limitation of employing a measure of neighborhood cultural context that was created from parental reports, which can lead to multicollinearity problems. While the studies did measure cultural values (e.g., familism), reports of cultural values were all based on parental reports, failing to account for the unique perspective of the child or adolescent. Finally, all studies focused on the family context, and, in particular, most focused on parental reports of perceptions of neighborhoods rather than objective measures. The focus on the family context fails to account for the unique contributions that the interactions between a youth's individual

cultural orientation and their environment may have on their own mental health, including how individual factors may moderate the impact of adverse neighborhood conditions.

Protective Factors

In order to examine the protective nature of individual factors under adverse neighborhood conditions, it is important to define the nature of the interactions. The literature examining the constructs of resilience and protective factors is varied in regards to the use of definitions and processes to explain factors that may minimize the impact of adverse life conditions on mental health outcomes in youth (see Luthar, Cicchetti, & Becker, 2000 for a review and critique of this literature). The construct of protective factors is used interchangeably to describe both main effect models, as well as those that include interactions. Therefore, Luthar (1993) argued for different labels that could be used to describe both main effects and interactional processes related to protective effects. *Protective factors* could be used simply to describe main effects processes, e.g., a child's traditional family values are associated with less externalizing problems. *Protective-stabilizing* can refer to the interaction whereby regardless of the level of a risk factor (e.g., neighborhood violence), mental health outcomes remain stable in the presence of the protective factor. On the other hand, *protective-enhancing* refers to the interactional process by which the presence of the protective factor results in better mental health outcomes, while the opposite is true its absence. Finally, the *protective-reactive model* describes interactions in which the magnitude of the effect of a protective factor decreases as risk factors increase. To date, no study has examined these protective effect patterns in regards to cultural protective factors and neighborhood risk factors on Latino youth mental health.

Individual Cultural Dimensions

Individual cultural dimensions could serve as protective factors when Latino youth are faced with adverse neighborhood conditions. Culture, by definition, is a construct that can take on many forms and influence the way individuals develop and express psychopathology (Aguilar-Gaxiola, Kramer, Resendez, & Magaña, 2008). Betancourt and López (1993) argued for the adoption of a definition of culture that is based on theory and the measurement of sociocultural variables. Studying the specific variables and mechanisms by which culture influences behavior makes for better contributions to cross-cultural research. Using theory to guide a priori hypotheses regarding cross-cultural differences helps alleviate the issue of offering post hoc explanations for differences when they are found.

Latino parents place a great value on devotion, loyalty, and affiliative obedience, and attempt to ingrain similar values in their children (Díaz-Guerrero, 1994). The importance placed on these values may run counter to that of the majority, U.S. culture and these differing values and beliefs may help Latino families navigate their neighborhood contexts (Coll et al., 1996). Traditional family values provide Latino groups with a rooted identity and an avenue for support, particularly for recent immigrants. Additionally, it has been posited that family-centered values may serve a protective function, shielding members of Latino families from negativistic environmental attacks, such as, for example, adverse neighborhood conditions (Coll, Akerman, & Cicchetti, 2000; Vega, Zimmerman, Warheit, Apospori, & Gil, 1993).

Affiliative obedience. A traditional Latino value associated with a higher level of deference and respect to parents and authority figures is known as *affiliative obedience* (Díaz-Guerrero, 1994). Latino youth are often expected to put the interests of the family above all other interests (Mordkowitz & Ginsburg, 1986). Higher levels of responsibility to the family may

indicate more positive adjustment for youth in immigrant Latino families (Kuperminc, Jurkovic, & Casey, 2009). However, in the United States, affiliative obedience values can often come into conflict with the more mainstream goal of autonomy, thus creating a possible source of distress for Latino families (Fuligni, Tseng, & Lam, 1999). This distress may be more likely to occur in neighborhoods with lower numbers of immigrant Latinos and Latinos, in general.

Family cultural values can function as a form of social capital and research supports that traditional family values have mostly protective effects in Latino youth. A number of studies have consistently demonstrated that higher family cultural values are associated with lower externalizing problems in Latino youth (Brook, Whiteman, Balka, Win, & Gursen, 1998; Gil, Wagner, & Vega, 2000; Gonzales et al., 2008; Guilamo-Ramos, Bouris, Jaccard, Lesesne, & Ballan, 2009; Smokowski & Bacallao, 2007; Sommers, Fagan, & Baskin, 1993; Vega et al., 1993). The process of losing traditional values and being increasingly influenced by deviant peers in second-generation youth has been described as downward assimilation (Portes & Rumbaut, 2006). In the context of disadvantaged neighborhoods, Latino youth who uphold more traditional family values are more likely to be socialized by the family system than their peers. However, when family connections become diffused, the socialization by peers increases, and thus the potential to be influenced by deviant peers also increases. While studies have examined the impact of traditional family values in relation to neighborhood contexts, studies have primarily focused on how these values moderate the impact of adverse neighborhood conditions on parenting (e.g., White et al., 2012). To date, no study has directly examined the moderating effect of affiliative obedience, or other traditional family values in Latino youth, on the relationship between neighborhood conditions and mental health symptoms.

Similarly, traditional family values, such as affiliative obedience, have also been associated with decreased depressive and social anxiety symptoms in Latino youth (e.g., Polo & Lopez, 2009). In contrast, there is evidence that some anxiety symptoms, including harm avoidance and separation anxiety, were found to increase as children reported more traditional family values (Martinez et al., 2012). However, the Martinez et al. (2009) study, as well as most studies of Latino youth, employed a predominantly low-income, urban sample. In youth from under-resourced neighborhood contexts, the harm avoidance and separation anxiety symptoms typically associated with anxiety may be advantageous in regards to reducing risk of developing externalizing problems. The symptoms may be more related to values placed on staying near and being obligated to one's family for more traditional Latino youth. For example, youth may endorse more harm avoidance because they are avoiding possible risky situations, not because they are exhibiting symptoms related to an anxiety disorder.

Language use. Family values are one important construct that can help differentiate traditional Latino values but may only provide information on attitudes and values within the family context. The Spanish language use of Latino youth is often used as a proxy for contact with traditional Latino culture across different contexts such as family, friends, school, etc. Estimates indicate that approximately 7.8 million children between the ages of 5 and 17 speak Spanish in the home (U.S. Census Bureau, 2006). According to 2007 estimates, 43% of first-generation Latino children speak English "less than very well," compared to 21% of second-generation children, and 5% of third-generation and beyond children (Fry & Passel, 2009). Thus, the interplay between Spanish and English language dominance can be especially salient for Latino youth, and particularly for those of earlier generations.

Children of immigrant parents often are more adept at the English language than their caregivers and thus are often involved in translating, surrogate parenting of their siblings, and advocacy, among other tasks that are facilitated by their more proficient English skills (Buriel, Perez, de Ment, Chavez, & Moran, 1998; Jurkovic et al., 2004). Thus, the increased contact with family members by earlier-generation children can lead to increased socialization through family factors, and reduce the potential to be influenced by external cultural dimensions relative to later generation children (Harris, 1999). However, as children become more proficient in the English language, they become less so in Spanish, contrary to common belief that second-generation children tend to be bilingual (Fillmore, 1991, 2000). Additionally, the loss of a child's first language through the acculturation process may create communication barriers with their family (Fillmore, 2000). The socialization process between parent and child is then disrupted, creating more potential for external, negative influences on the child. For example, Spanish language use has been associated with decreased risk for substance use in Latino youth (Allen et al., 2008).

The literature has demonstrated some associations between language and mental health in Latino samples. Studies of monolingual English-speaking youth have found that language deficits are associated with internalizing disorders, and greater severity in symptoms of externalizing disorders (Toppelberg & Shapiro, 2000). Research on Latino youth has similarly found that both lower English and Spanish proficiencies are associated with poorer mental health (Toppelberg, Nieto-Castañon, & Hauser, 2006). However, these studies have all used clinical samples.

In a nationally representative sample of Latino adults, English language proficiency was associated with increased internalizing and externalizing problems (Alegría et al., 2007). Similarly, increased English language use has been associated with externalizing problems, such

as substance use, in Latino youth (Nielsen & Ford, 2001; Unger et al., 2000), while increased Spanish language use is associated with less substance use (Allen et al., 2008). In a study of Latino youth exposed to community violence, limited English language proficiency was associated with increased internalizing problems, specifically posttraumatic stress (Gudiño et al., 2011). However, in regards to anxiety symptoms, the association is more complex. Higher Spanish language use was associated with some forms of anxiety (harm avoidance), while English language use was also associated with some forms of anxiety (separation and panic; Martinez et al., 2012).

Person-environment Fit

In addition to examining how individual cultural dimensions impact the relationship between adverse neighborhood conditions and mental health outcomes, it is important to consider the neighborhood context of individual cultural dimensions. Human development and adaptation is based on a constant interaction between a person and the context in which the individual resides (Bronfenbrenner & Ceci, 1994). Among children and adolescents, optimal growth and adaptation depend on the characteristics of the individual, the characteristics of the context in which the individual resides, and the interplay between the two. Contexts that may be positive and beneficial to one individual may be stressful and detrimental to another (Kupersmidt, Griesler, DeRosier, Patterson, & Davis, 1995). While the literature has examined separately the impact of different neighborhood contexts, and the protective effects of individual cultural dimensions on the mental health of Latino youth, no study has examined the protective nature of these individual cultural dimensions across different neighborhood contexts.

The person-environment (P-E) fit theory provides a framework to explain why outcomes for different persons may vary depending on how well individual factors mesh with their

environmental context (Caplan, 1987; Edwards et al., 1998). Neighborhood environments could be well aligned with a person's individual characteristics or need, providing that person with protective resources. Likewise, a person may not fit with their environment, introducing stressors and other barriers not otherwise salient for the well-fitted individual. For example, immigrant enclaves are often high in social cohesion due to residents sharing similar values and beliefs (Suárez-Orozco & Suárez-Orozco, 2001; Suárez-Orozco, Suárez-Orozco, & Todorova, 2010). The increased social cohesion could lead to a more favorable adjustment for these Latino immigrant youth. However, the same immigrant youth residing in a neighborhood with low levels of Latino immigrants, for example, a predominantly European-American neighborhood, may be more likely to be exposed to discrimination and may also lack the type of social cohesion found in a more similarly matched neighborhood (Portes & Rumbaut, 2006). Thus, it is expected that these youth would experience poorer adjustment than youth in better fitting neighborhood environments.

Theories of P-E fit have existed in the literature since 1974 (see review of literature in Caplan, 1987). Caplan (1987) provided a framework for testing the P-E fit theory by operationalizing the combined roles of an individual's characteristics and the environmental context, on the well-being of that individual. The framework for the theory was further refined through the proposal that testing the fit between individuals and their environment is best accomplished when an individual's characteristics and the characteristics of that individual's neighborhood are measured along similar dimensions (Edwards et al., 1998). For example, evaluating how often persons use Spanish in their day-to-day life while also measuring the density of Spanish-speaking households in their neighborhood.

Few studies have applied Caplan's (1987) framework of P-E fit to the neighborhood

environment. Much of the support for P-E fit has come, instead, from studies examining workplace and organizational environments. Only a few studies have found support for the P-E fit framework as applied to neighborhood contexts. For example, youth were at increased risk for childhood aggression and peer rejection if their family income did not match the socioeconomic characteristics of their neighborhood (Kupersmidt et al., 1995). Similarly, youth were at risk of increased symptoms of attention-deficit/hyperactivity disorder when there was a misfit between family and neighborhood income (Gordon et al., 2003). Finally, immigrant youth in Canada residing in neighborhoods with high levels of immigrant youth reported fewer behavioral and emotional problems than immigrant youth residing in neighborhoods with low immigrant density (Georgiades, Boyle, & Duku, 2007).

One study examined P-E fit theory in Latino youth and the results provide support that this model may adequately describe some of the differential responses found in mental health symptom profiles. Roosa and colleagues (2009) evaluated the P-E fit theory in a sample of 750 Mexican and Mexican-American youth in a Southwestern metropolitan area. Specifically, they examined how the fit between family SES and neighborhood SES impacts various mental health symptoms in Latino youth. The results suggest that for youth exhibiting symptoms of attention-deficit/hyperactivity disorder (ADHD), family SES and neighborhood SES fit predicted less ADHD symptoms while the misfit predicted more ADHD symptoms. The results also found support for the protective nature of fit in immigrant youth, as immigrant youth residing in neighborhoods with higher density of immigrants were less at risk of developing mental health problems.

The Roosa and colleagues (2009) study is exemplary for being one of the few examining neighborhood and individual-level factors with Latino youth, and the only one thus far to employ

P-E fit theory. While the family context is an important one, it fails to account for the individual context of youth within their environment. As children mature, their neighborhood context may begin having stronger effects on them than their familial context (Leventhal & Brooks-Gunn, 2000). In addition, Roosa's study did not directly measure individual cultural dimensions, and instead used proxies, such as immigration status. Measuring individual cultural dimensions provides a more nuanced approach to understanding how individuals are impacted by their neighborhood contexts. For example, a second-generation youth residing in a predominantly immigrant neighborhood and whose first language is Spanish may be more similar culturally to an immigrant youth, than a second-generation youth residing in a neighborhood where Latinos are the minority. The present study will expand on the work of Roosa and colleagues (2009) by exploring the fit between individual cultural factors and the cultural dimensions of neighborhoods in which Latinos reside. While Roosa and colleagues (2009) focused on the fit between the family's SES and neighborhood SES, as well as immigration status, the present study will shift the focus to examining the fit between the dimensions of individual Latino culture and immigrant neighborhood density.

Study Aims and Hypotheses

Latino youth are members of an ethnic group that shares similar values, customs, beliefs, and, often, the Spanish language. Although many of these factors may be protective, the nature or extent of their influence has not been considered in the context of their neighborhood environments. Understanding the protective effects of a youth's cultural values and language use, and how these function within different neighborhood contexts, such as SES and neighborhood violence, will help elucidate some of the mechanisms by which cultural values may be protective. The present study aims to address these issues by using a sample located within three

of the largest U.S. metropolitan areas and by focusing on cultural dimensions of individuals and neighborhoods, as well as the neighborhood contexts of SES and violence.

Study Aim 1. Main Effects of Youth Mental Health

Consistent evidence supports the deleterious impact that neighborhood poverty and violence have on youth mental health. In addition, the literature to date has provided evidence of how the individual-level factors of affiliative obedience and language use may impact the mental health of Latino children. The associations between these variables were explored through the use of correlations. Furthermore, multilevel linear modeling was used to examine the impact of affiliative obedience and Spanish language use when including neighborhood SES or violence as covariates. Examining the main effects of affiliative obedience and Spanish language use is aligned with Luthar et al.'s (2000) definition of a protective factor. All multilevel models will also control for the youth's gender and immigration status. Each multilevel model was run separately for each of the two youth mental health dependent variables (externalizing and internalizing problems), for a total of 12 models within this aim. The following hypotheses were tested:

Hypothesis 1a. Youth living in lower SES neighborhoods will report higher externalizing and higher internalizing problems.

Hypothesis 1b. Youth living in more violent neighborhoods will report higher externalizing and internalizing problems.

Hypothesis 1c. Youth endorsing higher affiliative obedience will report lower externalizing and internalizing problems. However, based on previous literature, there is less certainty that this relationship with internalizing problems will be present or significant.

Hypothesis 1d. Youth who report higher Spanish language use will report lower externalizing and internalizing problems. However, based on previous literature, there is less certainty that this relationship with internalizing problems will be present or significant.

Study Aim 2. Buffering Effects of Individual Cultural Variables

Multilevel models examined the potential protective effects of individual cultural variables on the relationship between neighborhood SES and violence, and youth mental health. Specifically, the models examined the degree to which youth affiliative obedience and Spanish language use buffer the negative effects of low neighborhood SES and high neighborhood violence on both internalizing and externalizing problems. Models included two-way interactions between individual cultural dimensions and either neighborhood SES or neighborhood violence. The literature, while providing information on the protective effects of affiliative obedience and Spanish language use, has not focused on examining how these variables may interact with adverse neighborhood conditions. Therefore, predictions regarding the nature of the interactions, specifically what kind of protective interaction as per Luthar and colleagues (2000) framework, were not made for any of the hypotheses.

Hypothesis 2a: Youth affiliative obedience will moderate the relationship between neighborhood SES and youth externalizing problems. Similarly, youth affiliative obedience will moderate the relationship between neighborhood SES and youth internalizing problems.

Hypothesis 2b: Youth affiliative obedience will moderate the relationship between neighborhood violence and externalizing problems. Similarly, youth affiliative obedience will moderate the relationship between neighborhood violence and youth internalizing problems.

Hypothesis 2c: Youth Spanish language use will moderate the relationship between neighborhood SES and youth externalizing problems. Similarly, youth Spanish language use will moderate the relationship between neighborhood SES and internalizing problems.

Hypothesis 2d: Youth Spanish language use will moderate the relationship between neighborhood violence and youth externalizing problems. Similarly, youth Spanish language use will moderate the relationship between neighborhood violence and internalizing problems.

For hypotheses 2a-2d, it was expected that the interaction effects would reveal protective effects of the individual cultural variables. For example, youth living in neighborhoods with higher neighborhood violence would be less likely to report internalizing problems, if they endorsed higher affiliative obedience. Similarly, youth living in neighborhoods with lower SES would be less likely to endorse higher externalizing problems if they reported higher Spanish language use. Each model was run separately for each of the two youth mental health dependent variables (externalizing and internalizing problems), for a total of eight models within this aim.

Study Aim 3. The Effects of Person-Neighborhood Cultural Fit

For this aim, the individual and neighborhood cultural fit was evaluated to determine if a greater fit is associated with: a) lower youth mental health; and b) protective of the impact of lower neighborhood SES and higher violence on youth mental health. This aim, therefore, more directly evaluates the person-environment theory. The first set of models examined (two-way) cross-level interactions between the individual cultural dimensions (affiliative obedience and Spanish language use) and neighborhood Latino immigrant density on internalizing and externalizing problems. The next set of models examined the buffering effects of this cultural fit on the relationship between neighborhood SES or violence and youth mental health via three-way interactions. Each of the models was run separately using youth internalizing or youth

externalizing problems as the dependent variable. Luthar and colleagues (2000) framework for explaining the interactive effects of protective factors was used to help describe the nature of the protective effects. However, no predictions on the nature of the interactions was made, as there is no literature to support making these predictions.

Hypothesis 3a. Youth affiliative obedience will moderate the relationship between neighborhood Latino immigrant density and youth externalizing problems. Similarly, affiliative obedience will moderate the relationship between neighborhood Latino density and youth internalizing problems. For example, youth who endorse higher affiliative obedience will endorse lower externalizing problems, but especially if they are living in high Latino density neighborhoods.

Hypothesis 3b. Youth Spanish language use will moderate the relationship between neighborhood Latino immigrant density and youth externalizing problems. Similarly, youth Spanish language use will moderate the relationship between neighborhood Latino density and youth internalizing problems. For example, youth who endorse higher use of Spanish will endorse lower internalizing problems, but especially if they are living in high Latino density neighborhoods.

Hypothesis 3c. A significant three-way interaction between youth affiliative obedience, neighborhood SES, and neighborhood Latino immigrant density is predicted for both youth internalizing and youth externalizing problems (run separately). For example, it is expected that Latino youths' mental health will be less likely to be impacted by lower neighborhood SES if they endorse higher affiliative obedience and are living in a high Latino density neighborhood.

Hypothesis 3d. A significant three-way interaction between youth Spanish language use, neighborhood SES, and neighborhood Latino immigrant density is predicted for both youth

internalizing and youth externalizing problems (run separately). For example, it is expected that Latino youths' mental health will be less likely to be impacted by lower neighborhood SES if they endorse higher Spanish language use and are living in a high Latino density neighborhood.

Hypothesis 3e. A significant three-way interaction between youth affiliative obedience, neighborhood violence, and neighborhood Latino immigrant density is predicted for both youth internalizing and youth externalizing problems (run separately). For example, it is expected that Latino youths' mental health will be less likely to be impacted by higher neighborhood violence if they endorse higher affiliative obedience and are living in a high Latino density neighborhood.

Hypothesis 3f. A significant three-way interaction between youth Spanish language use, neighborhood violence, and neighborhood Latino immigrant density is predicted for both youth internalizing and youth externalizing problems (run separately). For example, it is expected that Latino youths' mental health will be less likely to be impacted by higher neighborhood violence if they endorse higher Spanish language use and are living in a high Latino density neighborhood.

Method

Participants

Data in the present study were collected as part of a survey used to obtain information on a wide variety of variables. The goal of the original study was, in part, to identify youth at-risk for depression through the use of a screener survey. Youth identified as at-risk for depression were invited to participate in another study examining a group-based treatment for depression.

Youth were recruited from three major metropolitan areas in the United States: Boston, Chicago, and Los Angeles. Similar recruitment procedures were used across the three

metropolitan areas. Only students reporting being of Latino background were included in the present study. Summary recruitment data are presented in Table 1.

Los Angeles. Three middle schools in the Los Angeles metropolitan area were chosen for recruitment. One school was located within a school district with below average levels of Latino youth enrollment, relative to district enrollment figures, and largely middle to upper class families. The other two schools were situated within more ethnically and socioeconomically diverse areas, with higher Latino enrollments. All 2,321 students in 6th and 7th grade across the three schools were recruited to participate. Of these students, 1,786 (76.9%) returned parental consent forms, 1,114 (48.0%) of which agreed to participate. Consent rates for each school ranged from 43.1% to 54.0%. A number of youth (n = 584; 52.4%) were excluded for not reporting at least one parent of Latino heritage. The final available sample consisted of 530 youth in the Los Angeles metropolitan area.

Boston. Seven schools in the Boston metropolitan area were chosen for recruitment. Schools ranged from being located within predominantly European American and middle to upper class areas, to serving mostly ethnically diverse students from working and lower class neighborhoods. In total, all 6th and 7th grade students across the seven schools were asked to participate for a grand total of 3,089 students. Of these students, 2,212 (71.6%) returned their parent consent forms, 1,252 (40.5%) agreeing to participate in the study. Consent rates for each school ranged from 31.1% to 51.4%. A number of youth were excluded (n = 890; 71.2%) for not reporting at least one parent of Latino background. The final sample consisted of 360 Latino youth in the Boston metropolitan area.

Chicago. One middle school in the Chicago metropolitan was selected for recruitment. The school was located in a predominantly Latino and low-income neighborhood. All 186

students in the 5th, 6th, and 7th grades were initially recruited for the study. Of these, 181 returned forms (97.3%) and 142 (76.3%) indicating their agreement to participate in the study. Nine (6.3%) were excluded because they did not report at least one parent that was of Latino descent. The final sample size for Chicago consisted of 133 students.

Total sample. The final sample size contains a total of 1,023 Latino youth across the three metropolitan areas. The sample included 547 girls (53.5%) with a total mean age of 11.8 years (range: 10 to 15 years). The sample consisted of mostly second-generation youth (children of immigrant parents; 56.9%) but included significant numbers of first-generation youth (youth born in other countries like Mexico and outside of the U.S. mainland, like Puerto Rico; 16.6%) and third (and beyond) generation backgrounds (youth born in the U.S. with at least one U.S.-born parent; 25.8%). The majority of youth in the present sample were of mixed Latino (32.9%), Mexican (37.3%), Puerto Rican (16.4%), or Dominican (11.0%) descent.

Demographic information on each of the schools from where children were recruited is provided in Table 2. Youth attended schools with a wide range of demographic characteristics. Latino enrollment in the study sample schools ranged from schools with relatively small concentrations of Latinos enrolled (7.1%) to schools where Latinos were the overwhelming majority with regard to ethnic group enrollment (81.8%). Youth in the present sample were also recruited from schools heterogeneous in regard to income levels. Some students attended schools with high concentrations of youth living in poverty (90.8%) while others attended schools with very low concentrations of youth living in poverty (9.5%). Finally, there was ample variance in the sample with regard to the presence of English language learners (ELLs). Some schools had very low concentrations of ELLs (3.8%) while other schools had very high concentrations (52.8%). Information on immigrant student enrollment was not available for any of the schools.

However, concentration of ELLs may be indicative of the number of immigrant and second-generation youth that are enrolled in that particular school so it may function as a proxy for generational status. Therefore, the present sample, based on the demographic characteristics of the recruitment schools, represents a wide swath of Latino youth with regard to socioeconomic status, neighborhood characteristics, language use, and generational status.

Table 1
Recruitment and Sample Demographic Data Per School

	Recruited	Returned consents	Consented	Latino	Female	Mean Age[a,b]	Immigrant[b]	2nd Generation[b]	3rd+ Generation[b]
				Los Angeles					
School 1	768	592 (77.1)	415 (54.0)	217 (52.3)	113 (52.1)	11.60 (0.61)	17 (7.8)	148 (68.2)	48 (22.1)
School 2	745	563 (75.6)	351 (47.1)	113 (32.2)	119 (59.8)	11.76 (0.68)	38 (19.0)	145 (72.5)	16 (8.0)
School 3	808	631 (78.1)	348 (43.1)	200 (57.5)	58 (51.3)	11.55 (0.63)	3 (2.7)	76 (67.3)	34 (30.1)
				Boston					
School 4	344	241 (70.1)	135 (39.2)	10 (7.4)	7 (70.0)	11.60 (0.84)	4 (40.0)	3 (30.0)	3 (30.0)
School 5	425	310 (72.9)	177 (41.6)	18 (10.2)	9 (50.0)	11.86 (0.77)	2 (11.1)	8 (44.4)	4 (22.2)
School 6	267	142 (53.2)	97 (36.3)	36 (37.1)	22 (61.1)	12.42 (0.84)	7 (19.4)	21 (58.3)	7 (19.4)
School 7	322	200 (62.1)	100 (31.1)	44 (44.0)	24 (54.5)	12.09 (0.80)	13 (29.5)	24 (54.5)	6 (13.6)
School 8	442	249 (56.3)	151 (34.2)	54 (35.8)	26 (48.1)	11.93 (0.70)	18 (33.3)	26 (48.1)	10 (18.5)
School 9	373	236 (63.3)	142 (38.1)	11 (7.7)	4 (44.4)	11.78 (0.83)	0 (0.0)	9 (81.8)	2 (18.2)
School 10	916	834 (91.0)	450 (49.1)	187 (41.6)	107 (57.2)	12.03 (0.84)	47 (25.1)	112 (59.9)	24 (12.8)
				Chicago					
School 11	186	181 (97.3)	142 (76.3)	133 (93.7)	59 (44.4)	11.89 (0.96)	21 (15.8)	88 (66.2)	24 (18.0)

Note. Some demographic variables contained missing data. Numbers in parentheses represent percentages of total recruitment sample except where otherwise noted.

Table 2
School Enrollment and Demographic Data

	Total Enrollment	Latino Enrollment	Other Minority Enrollment	Low Income	English Language Learners
		Los Angeles[a]			
School 1	1042	566 (54.3)	194 (18.6)	512 (49.1)	280 (26.9)
School 2	868	475 (54.7)	223 (25.7)	495 (57.0)	271 (31.2)
School 3	1129	224 (19.8)	247 (21.9)	203 (18.0)	189 (16.7)
		Boston[b]			
School 4	533	42 (7.9)	148 (27.7)	82 (15.4)	20 (3.8)
School 5	677	48 (7.1)	183 (27.0)	64 (9.5)	34 (5.0)
School 6	246	61 (24.8)	178 (72.4)	169 (68.7)	130 (52.8)
School 7	838	385 (45.9)	351 (41.9)	685 (81.7)	330 (39.4)
School 8	632	278 (44.0)	334 (52.8)	450 (71.2)	237 (37.5)
School 9	612	46 (7.5)	194 (31.7)	65 (10.6)	44 (7.2)
School 10	714	375 (52.5)	319 (44.7)	648 (90.8)	224 (31.4)
		Chicago[b]			
School 11	800	654 (81.8)	67.2 (8.4)	655 (81.9)	186 (23.2)

Note. Numbers in parentheses represent percentages of total enrollment.
[a]Data based on 2010-2011 school district figures.
[b]Data based on 2011-2012 school district figures.

Measures

Individual-level factors. The *Affiliative Obedience* (Díaz-Guerrero, 1994) scale is an 18-item self-report instrument that measures the endorsement of values such as respect and deference towards adults, particularly toward parents. The scale was drawn from a larger inventory of cultural values thought to be characteristic of the normative socialization of Latino youth and was originally validated with Mexican and Puerto Rican youth (Fernandez-Marina, Maldonado-Sierra, & Trent, 1958). A total of 18 items, such as "A person must always respect his or her parents", were rated by youth using a five-point Likert scale from *Strongly Disagree (0)* to *Strongly Agree (4)*. Items were reverse scored, as needed, such that higher scores reflect higher affiliative obedience, while lower scores represent higher self-affirmation. Internal consistency of this measure with Latino youth has been good in previous studies with this population (e.g., Martinez et al., 2012; Polo & López, 2009). Internal consistency for the present sample is good ($\alpha = .87$).

Language use was assessed using the *Language Use* scale (Polo & López, 2009). On this scale, youth responded to three questions (e.g., "What language do you speak with your _____") about their English and Spanish use with their parents, close friends, and siblings or relatives their age. Response options included: *Only Spanish, Not English (5)*, *Mostly Spanish, Sometimes English (4)*, *Both English and Spanish Equally (3)*, *Mostly English, Sometimes Spanish (2),* and *Only English (1).* The response options as listed indicate higher scores on the *Language Use* scale are associated with higher Spanish use while lower scores are associated with increased English use. The reliability of this measure with Latino youth has been demonstrated in previous studies (e.g., Martinez et al., 2012; Polo & López, 2009). In the present

study, internal consistency was .74 indicating that internal reliability of this measure is adequate for the present sample.

A demographics section was included in the youth survey. Students reported on their gender, age, school grade, ethnic background, and generational status among other variables.

Neighborhood-level factors. Neighborhood was operationalized at the Census tract level whereby each individual was assigned a Census tract number based on his or her reported home address. Census tracts are smaller geographical areas used to subdivide densely populated metropolitan areas (U.S. Census Bureau, 2000). The Census aims to have the boundaries of tracts be relatively permanent so as to better make comparisons over time. Each Census tract is comprised of approximately 1,500 to 8,000 persons. Individuals in the present sample resided in 326 different Census tracts.

Information on neighborhood-level dimensions was gathered at the Census tract level from the 2006-2010 American Community Survey (ACS) five-year estimates. The ACS is a yearly survey conducted by the Census Bureau providing current social and economic data on communities in the United States. Persons are selected to participate based on their home address. Each year, approximately 3.5 million addresses are randomly selected to participate in the ACS survey.

The protective effects of individual cultural dimensions were examined under two neighborhood contexts: socioeconomic status and neighborhood violence. Socioeconomic status was calculated using the 2006-2010 ACS five-year estimates data and specifically via the following variables: (a) percentage of blue-collar workers; (b) percentage of persons 25 and over without a high school degree; (c) median family income; (d) median home value; and (e) percentage unemployed. The five variables were standardized and combined to create a

Neighborhood SES Index (Winkleby & Cubbin, 2003).

Information on neighborhood violence was gathered from the National Neighborhood Crime Study (NNCS; Peterson & Krivo, 2000). The NNCS contains tract-level crime data for 9,593 Census tracts across 91 cities in the United States collected over the span of three years (1999-2001). It is one of the few datasets of its kind as crime data are often provided by police districts and do not entirely map on Census tracts. Data were not available for all Census tracts in the sample, with some data, for example, three-year average total crime rate, being available for fewer Census tracts than other variables. The decision was made to use the three-year homicide rate data, as it was the only variable that provided sufficient Census tract data across all three metropolitan areas in the present sample. The homicide rate was calculated by summing all murders in a Census tract over three years, dividing by the population of that tract, and then multiplying that resulting number by 100,000.

A number of ACS variables were used as proxies for neighborhood cultural dimensions. Not any one variable included in the ACS captured succinctly the myriad of cultural dimensions that may be present in Latino neighborhoods. Therefore, the decision was made to include a number of variables that were then aggregated into an index variable. The ACS variables included: (a) concentration of linguistically-isolated households (defined by the U.S. Census as households where English is spoken “less than well” and another language is spoken “well” or better); (b) Latino concentration; (c) foreign Latino concentration; and (d) concentration of immigrants arriving after the year 2000. The four variables were standardized and combined to create a Neighborhood Latino Immigrant Density Index similar to the methods used to create the SES Index.

Mental health. Mental health symptoms were measured through the Youth Self Report (YSR; Achenbach & Rescorla, 2001). The YSR is a widely used measure assessing emotional and behavioral problems in youth ages 11 to 18. The YSR a list of behavioral problems or concerns and asks youth to rate each item as *Not true (0)*, *Somewhat or Sometimes True (1)*, or *Very True or Very Often True (2)* over the past six months. The YSR includes two broadband scales. The Internalizing Problems (31 items: $\alpha = .89$) broadband scale measures problems associated with anxiety, depression, and somatic complaints (e.g., I feel nervous or tense). The Externalizing Problems (32 items: $\alpha = .90$) broadband scale measures behaviors associated with rule-breaking and aggression (e.g., I physically attack people). The internal consistency data are similar to those found in the normative sample (Achenbach & Rescorla, 2001).

Procedure

A convenience sample of public schools was identified. School principals were then approached and each agreed to collaborate with the study research team, resulting in a total of 11 schools participating in the study. The recruitment process included presenting 5th, 6th, and/or 7th grade classrooms with information about the study, and packets were given for the students to take home. The information packets included a letter from the school's principal showing support for the research, as well as a parental consent form. Parents were asked to review the consent forms and to sign them, indicating with a yes or no their permission to allow the child to participate in the study. Research team members returned several times over the span of two to three weeks to collect the forms, and to hand out extra copies of forms, as necessary. Assent from students was obtained on the date of the survey.

Classroom surveys took place during a time period mutually agreed upon by the principal investigators, the principal of the school, and the children's classroom teachers. Assent was

sought from students immediately prior to beginning the survey. Participants were administered survey booklets and asked to follow along with a research team member who was reading the items out loud. At least two other members of the research team were present in the room to ensure that students were given additional assistance, as needed. The research team was comprised of the principal investigators, doctoral level psychology students, post-doctoral employees, and undergraduate level research assistants. The surveys lasted between one and one-and-a-half hours. Children who completed the survey were entered into a raffle drawing that included several prizes worth $5 to $10.

Data Analysis Strategy

Multilevel linear modeling (MLM) was used to examine individual and neighborhood influences on externalizing and internalizing problems in Latino youth. Multilevel modeling allows the testing of both the separate and combined effects of individual and neighborhood level effects for nested data (e.g., individuals in neighborhoods) while accounting for dependence in the data (Snijders & Bosker, 1999). It also allows for accurate estimation of standard errors by decomposing the total variance into within-class variability and between-class variability. Intraclass correlations were calculated for all models and serve as an indicator of the amount of neighborhood-level variance that is present between neighborhoods, and therefore, due to differences in neighborhoods.

In addition, MLM provides the ability to evaluate simultaneously the effects of individual-level and neighborhood-level variables. Cross-level interactions, interactions between individual cultural dimensions and neighborhood SES and violence variables, were also tested to examine whether an individual level variable influences the association between neighborhood SES or violence and internalizing or externalizing problems. Specifically, the study aims to

examine the protective effects of individual level cultural dimensions on internalizing and externalizing problems across different neighborhood contexts. In addition, the analyses explored whether the protective effects of individual cultural dimensions could be enhanced as they more closely approximate the Latino immigrant density of the child's neighborhood.

All multilevel linear modeling analyses were conducted using Mplus Version 7.11 (Muthén & Muthén, 2013). Full information maximum likelihood estimation procedures were used to calculate likelihood estimates for all models, and also allowed for the estimation of model parameters when missing data were present (Snijders & Bosker, 1999). Parameters for fixed effects were tested for significance in each model in order to determine the influence of individual, neighborhood, and cross-level interactive effects. All continuous predictors at the individual level were group-mean centered in order to interpret the individual level effects above and beyond then neighborhood effects (Enders & Tofighi, 2007). In order to probe significant cross-level interactions, simple slopes tests were performed using an online tool provided by Preacher et al. (2006).

Results and Analysis

Missing Data and Preliminary Analyses

In the present sample, data for affiliative obedience were not available for 20 (2.0%) youth while 11 (1.1%) youth had missing Spanish language use information. Information on gender was missing for four (0.4%) youth in the sample. Generational status was not available for 17 (1.7%) cases. Externalizing problems and internalizing problems information was not available for 13 (1.3%) youth.

In regards to neighborhood-level information, 25 (2.4%) cases were not included in the analyses because of missing address information necessary for acquiring their Census tract data.

Neighborhood violence data were only available for 707 (69.1%) youth in the sample as data were not available for all Census tracts. Independent samples t-tests reveal that there was a significant difference in neighborhood SES and neighborhood Latino immigrant density in youth with available neighborhood violence data versus those with missing data. Specifically, youth with missing data were more likely to reside in neighborhoods with lower Latino immigrant density [$t(996) = -15.15$, $p < .001$] and higher SES [$t(996) = 22.99$, $p < .001$]. As the data analytical procedures allow for the estimation of model parameters, even in the presence of missing data, all cases with missing data were still included in the analyses. However, the power to find main and interactive effects is reduced, particularly in regards to neighborhood violence.

Several ACS variables were used to create the neighborhood SES Index and the neighborhood Latino Immigrant Density Index. Table 3 presents descriptive information among the variables used to create the neighborhood index variables in order to assess whether the indicators are significantly correlated with one another. The indicators that comprise the neighborhood SES Index were all moderately to highly correlated with one another and in the expected directions.

The indicators that comprise the neighborhood Latino Immigrant Density Index were all moderately to strongly associated with one another in the directions that were expected. However, there was no significant association between the concentration of Latinos in a neighborhood, and the concentration of recent immigrants. Upon further examination of the relationship between Latino concentration and concentration of recent immigrants, it was found that the correlations between the three metro areas differed as Los Angeles and Boston had weaker associations (.16-.18), than did Chicago (.43), thus indicating that the neighborhoods in Los Angeles and Boston were more likely to have less recent immigrants and/or Latinos than

neighborhoods in Chicago. For example, sizeable amounts of youth who identified as Puerto Rican in the present sample were located within the Boston metropolitan area. As Puerto Ricans are U.S. citizens by birth, migrating from Puerto Rico to the mainland U.S. would not be identified as immigration by the U.S. Census.

Table 3
Descriptive Statistics and Correlations between Neighborhood SES and Neighborhood Latino Immigrant Density Indicators

Variable	1	2	3	4	5	6	7	8	9
1. Linguistically-isolated Households	-								
2. Latinos	.87***	-							
3. Foreign Latinos	.87***	.86***	-						
4. Recent Immigrants	.21***	.06	.16***	-					
5. Blue-collar Workers	.70***	.70***	.79***	.24***	-				
6. High School Diploma or Less	.75***	.71***	.74***	.22***	.85***	-			
7. Median Family Income	-.52***	-.53***	-.55***	-.31***	-.73***	-.70***	-		
8. Median Home Value	-.35***	-.40***	-.43***	-.19*	-.65***	-.55***	.65***	-	
9. Unemployed	.08*	.04	.14***	.14***	.38***	.42***	-.46***	-.25*	-
Sample Mean	9.74	31.98	17.28	23.04	35.54	20.03	61,968.81	551,052.50	5.98
Standard Deviation	10.18	23.29	13.42	11.54	17.99	13.80	36,449.64	218,865.40	3.31

Note. $^{*}p < .05$. $^{***}p < .001$.

Study Aim 1. Main Effects on Youth Mental Health

Models were run examining the main effects of affiliative obedience and Spanish language use on externalizing problems. Models 1 and 2 tested the main effect of affiliative obedience on externalizing problems when controlling for either neighborhood SES or violence. Models 3 and 4 were similar but examined the main effects of Spanish language use instead of affiliative obedience. Models 5 and 6 examined the main effects of affiliative obedience and Spanish language use when both were included in the models at the same time. The same set of models was then run but substituting internalizing problems for externalizing problems as the outcome variable. Table 4 presents descriptive information and associations among study variables that were included in the multilevel models.

Neighborhood level data were gathered at the Census tract level with each Census tract representing a neighborhood. Youth in the present study resided in 305 distinct Census tracts, or neighborhoods. The number of youth in each neighborhood ranged from 1 to 46 with the mean number of youth per neighborhood being 3.27.

The intra-class correlation (ICC) allows for a determination of the amount of variance in internalizing and externalizing problems that can be explained at the neighborhood level when accounting for the variables in the model. Table 5 presents information on all main effect models ran for Study Aim 1 for externalizing problems, including the null model. According to the ICC of the null model, 3% of the variance in externalizing problems can be explained at the neighborhood level. Table 6 provides the same information but for internalizing problems. The ICC for the null model for internalizing problems indicates that 4% of the variance can be accounted at the neighborhood level.

Residing in lower SES neighborhoods was significantly associated with increased externalizing and internalizing problems, even when accounting for other covariates, thus supporting Hypothesis 1a. Neighborhood violence was not found to be significantly associated with externalizing or internalizing problems in any models. Similarly, correlations between neighborhood violence and externalizing or internalizing problems were not significant, thus Hypothesis 1b was not supported.

Higher affiliative obedience was significantly associated with decreased internalizing and externalizing problems. However, the main effect models demonstrated the relationship between internalizing and externalizing problems is somewhat more complicated. For externalizing problems, affiliative obedience was found to be protective across all models. However, for internalizing problems, affiliative obedience was only found protective for models including neighborhood SES but not those that included neighborhood violence as a covariate. The results suggest affiliative obedience is not protective of internalizing problems when accounting for neighborhood violence. Thus, full support for Hypothesis 1c was only found for externalizing problems and partial support for internalizing problems. Spanish language use was not significantly associated with either internalizing or externalizing problems when including covariates in the models. In addition, correlations indicate that Spanish language use was associated with *increased* externalizing and internalizing problems. Therefore, the results do not support Hypothesis 1d.

Table 4
Correlations between Study Variables and Descriptive Statistics

Variable	1	2	3	4	5	6	7
1. Affiliative Obedience	-						
2. Spanish Language Use	.13***	-					
3. Neighborhood Socioeconomic Status	-.08**	-.18***	-				
4. Neighborhood Violence	.05	-.03	-.36***	-			
5. Neighborhood Latino Immigrant Density	.07*	.21***	-.66***	.07	-		
6. Externalizing Problems	-.29***	.08*	-.09**	.02	.02	-	
7. Internalizing Problems	-.14***	.08*	-.12***	.02	.04	.53***	-
Sample Mean	3.59	2.38	-0.01	0.16	0.00	11.38	12.71
Standard Deviation	0.59	0.95	0.81	0.20	0.79	8.18	8.81

Note. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 5
Unstandardized Results from Hierarchical Linear Models Testing Main Effects for Externalizing Problems

Variable	Null	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual Level							
Intercept	11.35*	10.35*	10.91*	10.45*	10.99*	10.42*	10.99*
	(0.30)	(0.39)	(0.50)	(0.40)	(0.50)	(0.39)	(0.50)
Male		1.79*	0.98	1.61*	0.95	1.77*	0.95
		(0.50)	(0.55)	(0.50)	(0.54)	(0.50)	(0.95)
Immigrant		1.00	1.00	1.00	0.76	0.75	0.76
		(0.64)	(0.74)	(0.69)	(0.78)	(0.67)	(0.78)
Affiliative Obedience		-5.02*	-4.61*			-5.14*	-4.76*
		(0.56)	(0.59)			(0.56)	(0.58)
Spanish Language Use				0.21	0.69	0.64	0.69
				(0.37)	(0.40)	(0.36)	(0.40)
Neighborhood Level							
Socioeconomic Status		-0.74*		-0.78*		-0.75*	
		(0.32)		(0.33)		(0.32)	
Neighborhood Violence			1.37		1.17		1.17
			(1.24)		(1.22)		(1.22)
-2 Log Likelihood	-3476.90	-3342.74	-2367.79	-3422.02	-2356.70	-3327.78	-2356.70
AIC	6959.80	6699.47	4749.58	6858.04	4729.39	6671.56	4729.39
ICC	0.03	0.04	0.04	0.03	0.02	0.04	0.03
σ^2	65.76	59.31	57.61	65.75	57.47	59.16	57.47
τ^2	2.15	2.56	2.04	1.26	2.06	2.52	2.06
Parameters	3	7	7	7	7	8	8

Note. *$p < .05$.
Models including neighborhood violence, $n = 707$. All other models, $n = 998$

Table 6
Unstandardized Results from Hierarchical Linear Models Testing Main Effects for Internalizing Problems

Variable	Null	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual Level							
Intercept	12.78*	13.54*	14.25*	13.52*	14.21*	13.50*	14.27*
	(0.32)	(0.43)	(0.60)	(0.42)	(0.60)	(0.47)	(0.54)
Male		-1.90*	-2.27*	-1.97*	-2.33*	-1.86*	-2.25*
		(0.53)	(0.62)	(0.52)	(0.62)	(0.54)	(0.62)
Immigrant		0.96	0.92	0.94	0.95	0.84	0.92
		(0.76)	(0.88)	(0.76)	(0.88)	(0.76)	(0.90)
Affiliative Obedience		-2.47*	-1.56			-2.52*	-1.60
		(0.78)	(1.05)			(0.80)	(1.08)
Spanish Language Use				0.07	0.06	0.25	0.16
				(0.36)	(0.45)	(0.37)	(0.47)
Neighborhood Level							
Socioeconomic Status		-1.26*		-1.30*		-1.23*	
		(0.04)		(0.06)		(0.36)	
Neighborhood Violence			0.70		0.99		0.70
			(1.33)		(1.42)		(1.30)
-2 Log Likelihood	-3548.03	-3436.75	-2459.01	-3485.61	-2490.86	-3422.25	-2447.96
AIC	7102.06	6887.49	4932.04	6985.21	4995.71	6860.50	4911.91
ICC	0.04	0.02	0.01	0.02	0.01	0.02	0.01
σ^2	75.96	74.78	76.68	76.26	78.27	73.95	77.59
τ^2	2.58	0.00[a]	1.09	0.00[a]	0.08	0.91	0.00[a]
Parameters	3	7	7	7	7	9	9

Note. * $p < .05$.
Models including neighborhood violence, $n = 707$. All other models, $n = 998$.
Standard errors in parentheses.
[a] $\tau^2 < .001$

Study Aim 2. Buffering Effects of Individual Cultural Variables

The second aim of the present study was to examine cross-level interactions between individual level cultural dimensions and neighborhood level SES and violence. Specifically, individual level affiliative obedience and Spanish language use were tested for moderation of the relationship between neighborhood SES, or neighborhood violence, on mental health symptoms. The first set of models included cross-level interactions examining externalizing symptoms as outcomes (see Table 7). All models controlled for generational status and gender at the individual level. Models 1 and 2 examined the cross-level interactions between affiliative obedience and neighborhood SES or neighborhood violence on externalizing symptoms. Models 3 and 4 were similar but replaced affiliative obedience with Spanish language use. The same four models were then re-run with internalizing problems as the outcome (see Table 8).

Affiliative obedience was not found to moderate the relationship between either neighborhood SES or neighborhood violence, and youth mental health problems. In addition, Spanish language use did not moderate the relationship between neighborhood SES and externalizing problems. Thus, the results did not provide support for Hypotheses 2a – 2c.

However, for internalizing problems, a significant cross-level interaction was found between Spanish language use and neighborhood violence. When probing the simple slopes the interactive effects proved to be significant at low levels (-1 SD) of Spanish language use (b = 0.44, Z = 2.60, p = .009), at moderate levels (mean) of Spanish language use (b = 0.98, Z = 5.24, $p < .001$), and at high levels (+1 SD) of Spanish language use (b = 1.53, Z = 4.59, $p < .001$). The interaction suggests that at higher levels of neighborhood violence, higher Spanish language use is associated with *increased* internalizing problems, while at lower levels of neighborhood violence, high Spanish language use is associated with *decreased* internalizing problems (see

Figure 1). However, Spanish language use did not moderate the relationship between neighborhood violence and externalizing problems, thus the results only provide partial support for Hypothesis 2d as Spanish language use was only found to be a moderator for internalizing problems.

Table 7
Unstandardized Results from Hierarchical Linear Models Testing Two-Way Interaction Effects between Individual Cultural Dimensions and Neighborhood SES or Violence for Externalizing Problems

Variable	Model 1	Model 2	Model 3	Model 4
Individual Level				
Intercept	10.34*	10.94*	10.42*	10.94*
	(0.40)	(0.51)	(0.40)	(0.52)
Male	1.77*	0.94	1.63*	0.88
	(0.50)	(0.55)	(0.50)	(0.56)
Immigrant	0.99	0.96	0.97	0.95
	(0.64)	(0.75)	(0.69)	(0.81)
Affiliative Obedience	-4.68*	-4.31*		
	(0.53)	(0.97)		
Spanish Language Use			0.18	0.17
			(0.36)	(0.52)
Neighborhood Level				
Socioeconomic Status	-0.77*		-0.76*	
	(0.33)		(0.33)	
Neighborhood Violence		1.43		1.33
		(1.24)		(1.30)
Interactions				
AO X SES	0.23			
	(0.71)			
AO X NV		-0.18		
		(3.75)		
SLU X SES			-0.22	
			(0.43)	
SLU X NV				0.95
				(1.96)
-2 Log Likelihood	-3341.37	-2367.58	-3421.52	-2416.67
AIC	6702.74	4755.17	6863.04	4853.33
ICC	0.04	0.04	0.03	0.02
σ^2	58.40	57.02	64.96	61.48
τ^2	2.80	2.44	1.64	1.48
Parameters	10	10	10	10

Note. * $p < .05$. SES = Socioeconomic status; AO = Affiliative Obedience; SLU = Spanish Language Use; NV = Neighborhood Violence.
Models including neighborhood violence, $n = 707$. All other models, $n = 998$.
Standard errors in parentheses.

Table 8
Unstandardized Results from Hierarchical Linear Models Testing Two-way Cross-level Interaction Effects between Individual Cultural Dimensions and Neighborhood SES or Violence for Internalizing Problems

Variable	Model 1	Model 2	Model 3	Model 4
Individual Level				
Intercept	13.64*	14.39*	13.48*	14.18*
	(0.47)	(0.62)	(0.46)	(0.48)
Male	-2.08*	-2.49*	-1.93*	-2.31*
	(0.55)	(0.63)	(0.53)	(0.61)
Immigrant	0.87	0.88	0.92	0.96
	(0.77)	(0.90)	(0.75)	(0.88)
Affiliative Obedience	-2.37*	-2.64*		
	(0.74)	(1.23)		
Spanish Language Use			0.09	0.02
			(0.35)	(0.45)
Neighborhood Level				
Socioeconomic Status	-1.24*		-1.27*	
	(0.35)		(0.35)	
Neighborhood Violence		0.61		0.98*
		(1.49)		(0.19)
Interactions				
AO X SES	-0.56			
	(0.90)			
AO X NV		4.89		
		(5.66)		
SLU X SES			0.16	
			(0.46)	
SLU X NV				0.58*
				(0.20)
-2 Log Likelihood	-3430.86	-2452.84	-3486.00	2490.82
AIC	6881.72	4925.68	6991.99	5001.64
ICC	0.02	0.01	0.02	0.01
σ^2	70.84	72.64	75.40	77.97
τ^2	0.36	0.42	0.80	0.23
Parameters	10	10	10	10

Note. * $p < .05$. SES = Socioeconomic status; AO = Affiliative Obedience; SLU = Spanish Language Use; NV = Neighborhood Violence.
Models including neighborhood violence, $n = 707$. All other models, $n = 998$.
Standard errors in parentheses.

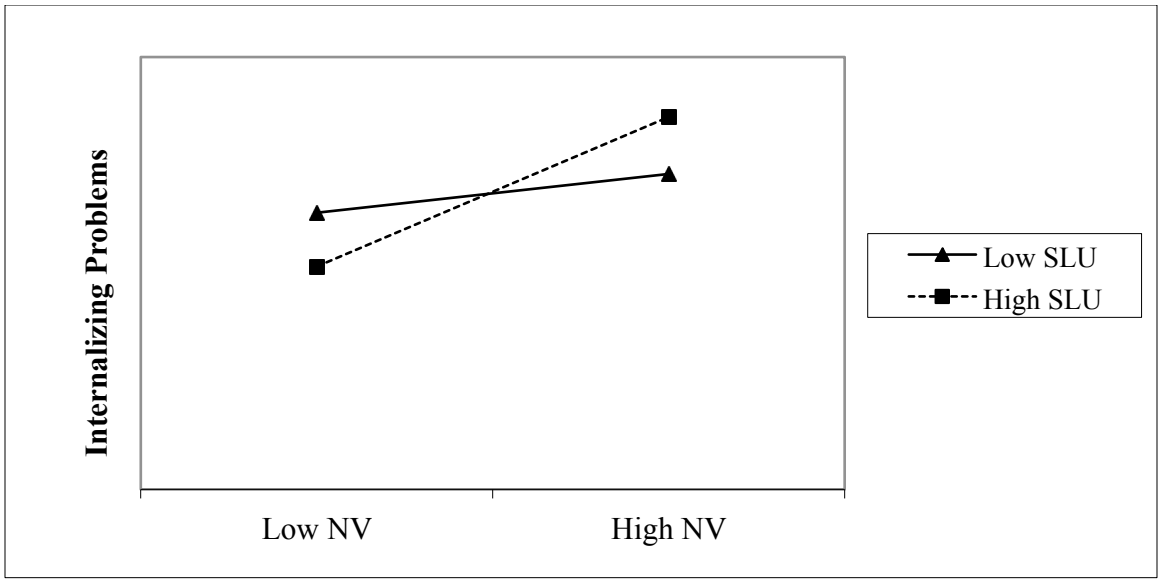

Figure 1. Plot of two-way interaction between Spanish language use (SLU) and neighborhood violence (NV) on internalizing problems.

Study Aim 3. Individual and Neighborhood Cultural Fit

To examine Hypotheses 3a and 3b, multilevel modeling analyses were employed to test two-way interactions between individual cultural dimensions and neighborhood Latino immigrant density on externalizing problems in models 1 and 2. In addition, the analyses explored the buffering effects of this fit on the relationship between neighborhood SES and violence, and youth internalizing and externalizing problems. The next four models tested three-way interactions for externalizing problems (see Table 9). Hypothesis 3c was tested through models 3 and 5, which tested the effects of affiliative obedience and neighborhood Latino immigrant density on the relationship between neighborhood SES (or neighborhood violence) and externalizing problems. Similarly, Hypothesis 3d was tested through models 4 and 6 which substituted Spanish language use for affiliative obedience. All models controlled for generational status and gender at the individual level. All six models were then re-run with internalizing problems as the outcome (see Table 10).

Table 4 provides associations between the neighborhood Latino immigrant density and associated study variables. Neighborhood Latino immigrant density was strongly negatively associated with neighborhood SES but there was no association with neighborhood violence. Further examining neighborhood Latino immigrant density indicates that there is a positive association between a neighborhood's Latino immigrant density and Spanish language use, but there is no association with affiliative obedience.

No significant two-way interactions were found between affiliative obedience and neighborhood Latino immigrant density on youth mental health problems, thus failing to provide support for Hypothesis 3a. For internalizing problems, a significant two-way interaction was found between individual Spanish language use and neighborhood Latino immigrant density (see

Table 10). Simple slopes probes were significant at low levels (-1 SD) of Spanish language use ($b = 0.36$, $Z = 17.03$, $p < .001$), at moderate levels (mean) of Spanish language use ($b = 0.23$, $Z = 29.69$, $p < .001$), and at high levels (+1 SD) of Spanish language use ($b = 0.10$, $Z = 3.52$, $p < .001$). The interaction suggests that high levels of Spanish language use are associated with more internalizing problems but only in neighborhoods of low Latino immigrant density (see Figure 2). As a neighborhood's Latino immigrant density increases, Spanish language use starts to become associated with *less* internalizing problems. No significant moderating relationship for Spanish language use was found for externalizing problems. Thus, Hypothesis 3b was only partially supported.

For externalizing problems, a significant three-way interaction was found between affiliative obedience, neighborhood Latino immigrant density, and neighborhood SES. The interaction was probed and the simple slopes at low levels (-1 SD) of neighborhood Latino immigrant density and low levels (-1 SD) of neighborhood SES were significant ($b = -5.77$, $Z = -4.97$, $p < .001$), as well as the simple slope at low levels (-1 SD) of neighborhood Latino immigrant density and high levels (+1 SD) of neighborhood SES ($b = -4.29$, $Z = -3.83$, $p < .001$). In addition, the simple slopes at high levels (+1 SD) of neighborhood Latino immigrant density and low levels (-1 SD; $b = -4.07$, $Z = -2.32$, $p = .021$), and high levels (+1 SD; $b = -8.88$, $Z = -5.37$, $p < .001$) of neighborhood SES were also significant. Figure 3 provides a visual representation of the three-way interaction effect. The results suggest that at low levels of SES, having high affiliative obedience and living in a neighborhood with low Latino immigrant density is the most protective effect, while the greatest risk is to have low affiliative obedience but reside in a neighborhood with high Latino immigrant density. The results are almost the inverse for high SES neighborhoods. In these environments, the most protective effect overall

was for youth with high affiliative obedience who also resided in neighborhoods with high Latino immigrant density. The greatest risk was for youth with low affiliative obedience who resided in neighborhoods with low Latino immigrant density. No significant three-way interaction between affiliative obedience, neighborhood Latino immigrant density, and neighborhood SES was found for internalizing problems. Thus, the results only provide partial support for Hypothesis 3c.

No significant three-way interactions were found between Spanish language use, neighborhood SES, and neighborhood Latino immigrant density for either internalizing or externalizing problems. Similarly, no significant three-way interaction was found between affiliative obedience, neighborhood violence, and neighborhood Latino immigrant density for either internalizing or externalizing problems. Finally, no significant three-way interaction was found between Spanish language use, neighborhood violence, and neighborhood Latino immigrant density for either internalizing or externalizing problems. Thus, these results do not lend support to Hypotheses 3d – 3f.

Table 9

Unstandardized Results from Hierarchical Linear Models Testing Three-Way Interaction Effects between Individual Cultural Dimensions, Neighborhood Latino Immigrant Density and Neighborhood SES or Violence for Externalizing Problems

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual Level						
Intercept	10.33*	10.43*	10.88*	10.91*	10.99*	11.03*
	(0.41)	(0.41)	(0.40)	(0.40)	(0.51)	(0.54)
Male	1.80*	1.62*	1.77*	1.62*	1.00	0.89
	(0.50)	(0.50)	(0.50)	(0.50)	(0.56)	(0.57)
Immigrant	1.11	1.10	0.98	0.93	1.01	0.98
	(0.64)	(0.70)	(0.63)	(0.68)	(0.74)	(0.81)
Affiliative Obedience	-4.70*		-5.76*		-4.36*	
	(0.53)		(0.70)		(1.11)	
Spanish Language Use		0.19		0.04		0.11
		(0.37)		(0.49)		(0.56)
Neighborhood Level						
Latino immigrant density	-0.02	0.00	-0.16	-0.18	-0.66	-0.62
	(0.35)	(0.33)	(0.51)	(0.75)	(0.45)	(0.44)
Socioeconomic Status			-0.69	-0.72		
			(0.48)	(0.49)		
Neighborhood Violence					1.79	1.61
					(1.38)	(1.45)
Interactions						
LID X AO	-.01		-0.93		0.42	
	(0.66)		(0.97)		(0.63)	
LID X SLU		0.46		0.35		0.08
		(0.44)		(0.50)		(0.53)
LID x SES			1.10*	1.03*		
			(0.38)	(0.38)		
LID x NV					-0.35	-0.33
					(1.18)	(1.14)
AO x SES			-1.03			
			(1.04)			
AO x NV					-0.32	
					(4.29)	
SLU x SES				-0.18		
				(0.75)		
SLU x NV						.059
						(1.90)
LID X AO X SES			-2.45*			
			(1.19)			
LID X SLU X SES				-0.47		
				(1.08)		
LID X AO X NV					-0.27	
					(3.58)	
LID X SLU X NV						3.27
						(2.58)

-2 Log Likelihood	-3343.71	-3423.56	-3335.07	-3416.71	-2365.78	-2413.95
AIC	6707.42	6867.11	6698.14	6861.41	4759.56	4855.89
ICC	0.05	0.03	0.05	0.04	0.04	0.03
σ^2	58.17	64.85	58.10	64.54	56.71	61.14
τ^2	3.50	2.11	2.41	1.37	2.44	1.35
Parameters	10	10	14	14	14	14

Note. $^{*}p < .05$. SES = Socioeconomic status; AO = Affiliative Obedience; SLU = Spanish Language Use; NV = Neighborhood Violence; LID = Latino Immigrant Density
Models including neighborhood violence, $n = 707$. All other models, $n = 998$.
Standard errors in parentheses.

Table 10

Unstandardized Results from Hierarchical Linear Models Testing Three-Way Interaction Effects between Individual Cultural Dimensions, Neighborhood Latino Immigrant Density and Neighborhood SES or Violence for Internalizing Problems

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual Level						
Intercept	13.60*	13.46*	14.40*	14.20*	14.39*	14.22*
	(0.48)	(0.45)	(0.49)	(0.48)	(0.60)	(0.56)
Male	-2.06*	-1.92*	-2.07*	-1.90*	-2.41*	-2.28*
	(0.56)	(0.52)	(0.55)	(0.53)	(0.63)	(0.61)
Immigrant	0.98	1.13	0.77	0.86	0.90	1.00
	(0.78)	(0.78)	(0.76)	(0.75)	(0.89)	(0.88)
Affiliative Obedience	2.69		-2.79*		-2.58*	
	(3.07)		(1.07)		(1.25)	
Spanish Language Use		0.06		-0.08		0.06
		(0.36)		(0.73)		(0.45)
Neighborhood Level						
Latino immigrant density	0.13	0.23*	0.13	0.06	-0.29	-0.19*
	(0.43)	(0.18)	(0.60)	(0.60)	(0.60)	(0.02)
Socioeconomic Status			-0.85	-0.08		
			(0.58)	(0.73)		
Neighborhood Violence					1.33	1.73
					(1.75)	(1.57)
Interactions						
LID X AO	0.03		-0.81		-0.33	
	(0.80)		(1.33)		(1.39)	
LID X SLU		-0.14*		-0.23		-0.57*
		(0.01)		(0.72)		(0.00)
LID x SES			1.71*	1.65*		
			(0.43)	(0.43)		
LID x NV					-2.48	-2.76*
					(1.79)	(0.22)
AO x SES			-1.32			
			(1.55)			
AO x NV					4.59	
					(6.38)	
SLU x SES				-0.08		
				(0.73)		
SLU x NV						0.06
						(0.12)
LID X AO X SES			-0.96			
			(1.47)			
LID X SLU X SES				-0.49		
				(0.99)		
LID X AO X NV					0.62	
					(5.72)	
LID X SLU X NV						3.37*
						(0.02)

-2 Log Likelihood	-3436.28	-3491.61	-3422.76	-3478.92	-2450.60	-2488.43
AIC	6892.57	7003.23	6873.52	6985.84	4929.20	5004.87
ICC	0.02	0.02	0.04	0.04	0.02	0.02
σ^2	69.54	75.60	69.16	74.13	71.48	76.14
τ^2	2.69	1.79	0.76	0.96	1.01	1.43
Parameters	10	10	14	14	14	14

Note. $^{*}p < .05$. SES = Socioeconomic status; AO = Affiliative Obedience; SLU = Spanish Language Use; NV = Neighborhood Violence; LID = Latino Immigrant Density
Models including neighborhood violence, $n = 707$. All other models, $n = 998$.
Standard errors in parentheses.

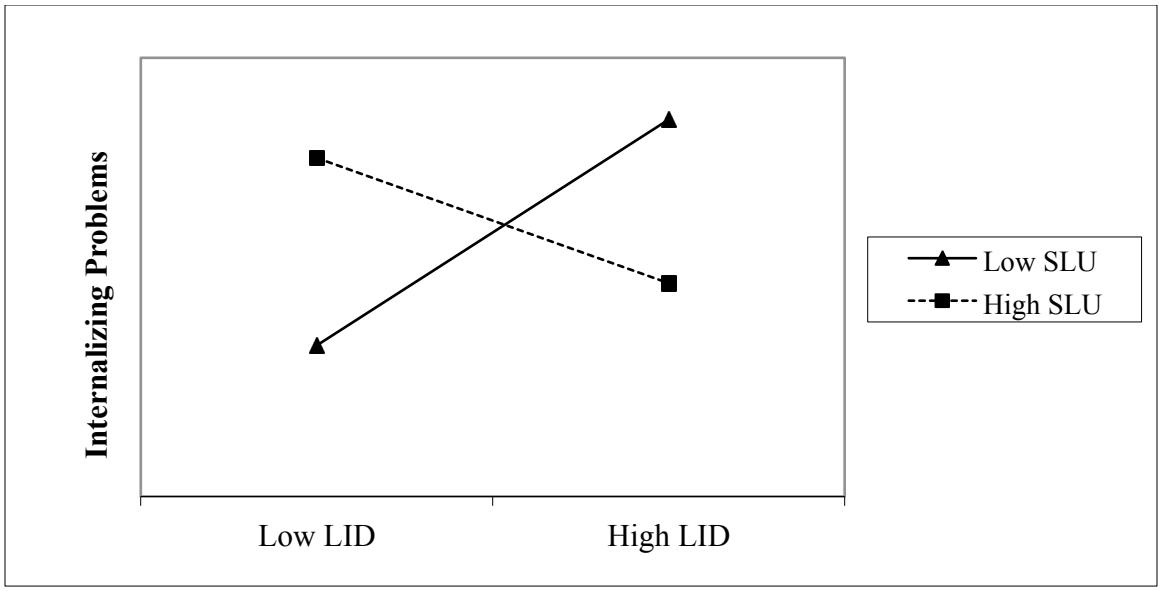

Figure 2. Plot of two-way interaction between Spanish language use (SLU) and neighborhood Latino immigrant density (LID) on internalizing problems.

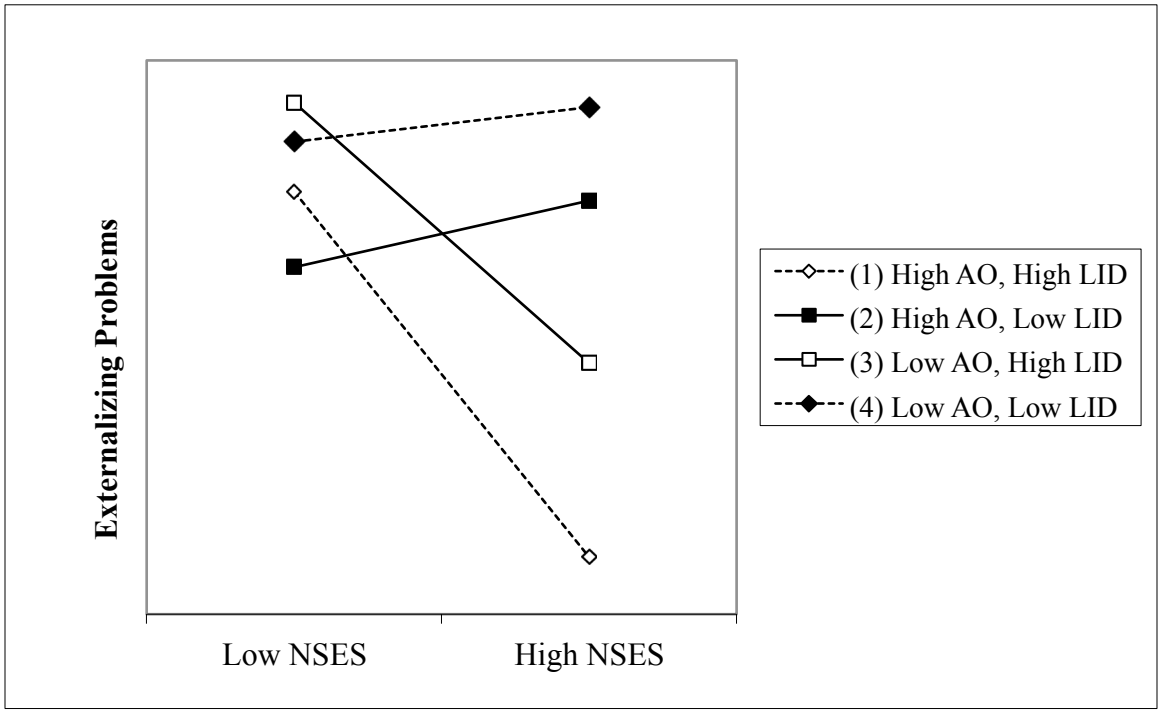

Figure 3. Plot of three-way interaction between affiliative obedience (AO), neighborhood Latino immigrant density (LID), and neighborhood socioeconomic status (NSES) on externalizing problems.

Discussion

Research has demonstrated that Latino youth share similar values, customs, beliefs, and, often, the Spanish language, that may serve as protective factors for some of these youth (e.g., Polo & López, 2009). The extent to which these individual factors are protective across neighborhood contexts has yet to be explored. Multilevel modeling techniques were employed to examine the protective function of individual cultural dimensions across neighborhood SES and violence contexts. Specifically, it was hypothesized that lower neighborhood SES and higher neighborhood violence would be associated with increased internalizing and externalizing problems, higher affiliative obedience and Spanish language use would be associated less internalizing and externalizing concerns. The present study is exemplary in that it includes a diverse sample with significant heterogeneity both in regards to neighborhood contexts and Latino ethnic background. Further adding to the generalizability of the results, the youth in the study resided in three different metropolitan areas across the United States.

The hypotheses for SES were supported in that lower neighborhood SES was associated with increased youth mental health concerns, aligned with previous literature (e.g., Katz et al., 2012). The magnitude of the neighborhood effect was significant across both internalizing and externalizing concerns contrary to the findings of a previous review indicating neighborhood effects may be strongest for externalizing problems (Leventhal & Brooks-Gunn, 2000). In addition, while correlations indicated higher neighborhood Latino immigrant density was significantly associated with decreased neighborhood SES, only lower neighborhood SES was associated with increased internalizing and externalizing problems. The main effects of neighborhood SES also suggested the same pattern, even when including other factors in the multilevel models. Thus, the results suggest that despite Latino immigrants being generally of

lower SES, their immigrant status may actually be associated with less mental health problems (e.g., Alegría et al., 2008). Therefore, it is important that researchers continue to conduct research with Latinos and Latino immigrants across the SES spectrum in order to better understand what about these neighborhood contexts may be driving these influences.

Contrary to the hypotheses, higher neighborhood violence was not associated with higher internalizing or externalizing problems. One limitation of the present study is that neighborhood violence data were unable to be gathered for all neighborhoods in the study and the missing data appeared to be biased in the direction of neighborhoods with higher SES and decreased Latino immigrant density. Therefore, this study's neighborhood violence data could have lacked the heterogeneity found within the neighborhood SES data to find any effects. However, associations in the present study between neighborhood SES and neighborhood violence are in the expected direction, in that lower neighborhood SES is associated with higher neighborhood violence. Homicide rate may also not be as sensitive a predictor of the effects of community violence and future studies should include other violent crime, such as shootings (Finkelhor et al., 2005), to better account for the effects of neighborhood violence on mental health in this population. In addition, homicide data were based on Census tracts, which may not be the most ideal way to establish boundaries, although widely used. Examining the more proximal effects of crime, by, for example, modeling crime spatially using Geographical Information Systems, may allow for a more nuanced understanding of how crime impacts persons in their neighborhood.

The next set of hypotheses focused on the protective effects of the individual cultural factors of affiliative obedience and Spanish language use, which were predicted to be associated with less externalizing and internalizing symptoms. The focus was on both the main effects of these cultural factors, as well as their buffering effects on the relationship between neighborhood

SES and neighborhood violence. Specifically, correlational analyses indicated that increased affiliative obedience was associated with decreased internalizing and externalizing problems. The effects remained when controlling for neighborhood SES or neighborhood violence in multilevel models. These results aligned with Luthar et al.'s (2000) definition of simple protective effects. In addition, affiliative obedience was protective of internalizing problems but only in regards to neighborhood SES, not neighborhood violence. However, no support was found for the buffering effects of affiliative obedience in regards to the relationship between neighborhood SES (or neighborhood violence) and youth mental health concerns. The results support previous studies examining the protective effects of family values in Latino youth for both externalizing (e.g., Smokowski & Bacallao, 2006) and internalizing symptoms (e.g., Polo & López, 2009). The results were significant even when controlling for generational status suggesting that this may be an important and universal protective factor in this population. Therefore, any prevention and intervention programs targeting externalizing and internalizing problems in Latino youth should take into consideration the protective role of traditional family values, and the importance of these values to this community of youth.

The hypotheses regarding the protective effects of Spanish language use were not supported. No significant main effects were found for Spanish language use across neighborhood SES and violence contexts. Additionally, the associations between Spanish language use, neighborhood violence, and neighborhood SES indicate it may actually be associated with *increased* internalizing concerns, a relationship a previous study also found with some types of anxiety symptoms (Martinez et al., 2012). However, when interactions were probed, Spanish language use was found to be protective for internalizing problems in youth residing in neighborhoods low in violence. However, youth high in Spanish language use residing in

neighborhoods high in violence displayed increased internalizing problems. Thus, Spanish language use fits the protective-reactive profile (Luthar et al., 2000) in which its protective effect decreases as risk, in this case, neighborhood violence, increases. Latino youth, and in particular, immigrants, residing in neighborhoods plagued with violence may be at increased risk of fears, anxiety, and other internalizing distress (Gudiño et al., 2011). In addition, immigrant Latino youth are more likely to be Spanish speaking, and may feel less confident reaching out for support, or feel alienated in a hostile and foreign environment. Resources may only be available in English and therefore, these youth are not accessing the supportive services they need (Kataoka, Zhang, & Wells, 2002).

Previous studies examining the impact of cultural values and neighborhood contexts on Latino youth mental health have, for the most part, focused primarily on parental and family factors (Gonzales et al., 2011; Roosa et al., 2009). Thus, another unique contribution of this study included being the first to examine the cultural and language use characteristics of Latino youth, and how these interact with their neighborhood contexts. Specifically, the aim was to test the cross-level interactions between individual cultural factors and neighborhood Latino immigrant density. The results demonstrate that in neighborhoods where Latino immigrant density was low, Spanish language use was associated with increased internalizing problems. However, increased Spanish language use was associated with decreased internalizing problems in neighborhoods with higher Latino immigrant density. Spanish language use may play a more functional, day-to-day role in these youth's lives, particularly for youth in high Latino density neighborhoods, which make its effects much more complex to tease out. For example, Spanish language use may increase family cohesion and its protective effects (Phinney, Ong, & Madden, 2000), yet if your peers are non-Spanish speaking or not Latino, you are more likely to feel

isolated, or even alienated. Therefore, future studies should be careful when using Spanish language use alone as a proxy for culture, and include other variables, such as affiliative obedience, to get a more nuanced picture of the role of culture on the expression of symptoms in Latino youth.

Furthermore, a central aim of this study was to test whether a stronger "fit" between a youth's individual cultural factors and the Latino cultural density of their neighborhood would be more protective of externalizing and internalizing problems in neighborhoods low in SES and high in violence. While there was some support of the person-environment fit theory, the results suggest a more complex relationship between Latino youth and their neighborhood contexts. Aligned with the person-environment fit theory, the protective impact of affiliative obedience was more evident when children resided in neighborhoods that were more oriented toward Latino immigrant culture in neighborhoods of high SES. In other words, youth endorsing high levels of affiliative obedience reported the lowest levels of externalizing problems when they resided in high SES neighborhoods with high concentrations of other immigrant Latinos. The implication is that Latino youth with more traditional values may be less at risk of externalizing problems if they reside in neighborhoods where other individuals are more similar to them, and where unemployment is low and resources are high. These results are similar to previous studies finding that immigrant youth residing in neighborhoods with other immigrant youth displayed less behavioral health concerns (Georgiades et al., 2007; Roosa et al., 2009). It should also be noted that neighborhoods that are high in both SES and Latino immigrant density are rare (Suro & Tafoya, 2004), thus making these results even more impactful.

However, the results do not suggest that these youth should reside in environments with other people like them, but rather, that living among people who may share similar values and

beliefs may serve a protective function due to increased opportunities for social cohesion (e.g., Suárez-Orozco et al., 2010). In addition, youth in environments that are similar in cultural values and beliefs to their own may be better equipped through social resources to achieve upward mobility relative to their parents, particularly for second-generation youth (Portes & Rumbaut, 2001; Portes & Zhou, 1993). Furthermore, it is possible that when neighborhoods are more homogenous in nature, there are fewer instances of youth being exposed to discrimination and racism, two social forces associated with poor adjustment in Latino youth (Umaña-Taylor & Updegraff, 2007).

In contrast, youth endorsing low affiliative obedience residing in high SES neighborhoods with low Latino immigrant concentrations displayed higher externalizing problems. Thus, these results do not support the person-environment fit theory in that the cultural match between person and environment results in greater risk of externalizing problems. Most Latino youth residing in the United States are children of immigrant parents (Suro & Passel, 2003). Thus, one possibility is that Latino youth with low affiliative obedience values residing in neighborhoods with lower concentration of Latinos may be experiencing dissonance associated with their values not matching that of their family members, further augmented by the effects of residing in an environment that is dissimilar to their own cultural backgrounds. The mismatch in affiliative obedience values between family and youth may create conflict in the family, and thus, put the child at risk for externalizing concerns.

The effects for youth in low SES neighborhoods also fail to provide support for the person-environment fit model. Youth endorsing high affiliative obedience values, but residing in low SES neighborhoods with low Latino immigrant density neighborhoods displayed less externalizing problems. These youth may be protected from the adverse conditions found in low

SES neighborhoods due to strong family cohesion represented by their high traditional family values. Support for the protective effects of affiliative obedience is further augmented by the increased externalizing problems for youth endorsing low affiliative obedience values, again, possibly representing familial conflict, as well as dissonance with the greater neighborhood culture, and possibly putting them at greater risk for externalizing problems. It should also be noted that in low SES neighborhoods, youth with low affiliative obedience values, regardless of the neighborhood Latino immigrant density, displayed the greatest risk for externalizing problems.

One possibility is that the person-environment fit theory, as currently constructed, does not adequately capture all the nuances and complexities of how an individual could "fit" within their environment. For example, the theory posits that when neighborhoods and individuals match on a similar characteristic (e.g., immigrant status and neighborhood immigrant density), the match is associated with more positive outcomes. However, there is a possibility that a person may be a good fit for an environment, yet not match the characteristics of that environment entirely. For example, in the present study Latino youth in high SES neighborhoods endorsing less traditional values and residing in neighborhoods of low Latino density should, according to the person-environment fit theory, display less externalizing symptoms. However, the match was associated with the greatest risk of externalizing problems in this subsample of youth. The person-environment fit theory may not be accurately capturing the nuances of why these youth may not be good matches for this neighborhood. While the youth may fit with the overall values of the neighborhood, they may look physically different than their neighbors, thus being more likely to experience racism and discrimination. Or, it is also possible that another characteristic not evaluated may actually more important for examining this fit. For instance, the

family's SES may not be matching that of their neighbors, and this may be a more important fit for mental health outcomes then the family and neighborhood's cultural characteristics. Therefore, further work is needed to better understand what is meant by "fit" and ways that this fit could be more accurately measured.

Additionally, the person-environment fit theory may not be the most appropriate theory to describe the interactions between the individual culture and neighborhood contexts, and their impact on the mental health of Latino youth. In actuality, the interactions between individual cultural dimensions, Latino immigrant density contexts, and neighborhood SES were more complex than could be explained simply through "fit." The results appear to be more aligned with the segmented assimilation theory (Portes & Rumbaut, 2001; Portes & Zhou, 1993) which argues that outcomes for immigrant and second generation youth is predicated on three social forces: the ethnic make-up of their neighborhood, governmental policy, and the youth's own race and ethnicity. The context of the areas where these youth reside, both at the micro (neighborhood) and macro (political) level, becomes more important, and assimilating, or becoming more like the group in their neighborhood, could be predictive of both positive and negative outcomes. Future studies should continue to explore the complexities of neighborhood effects on Latino youth by directly testing established theories to see how they translate to youth mental health.

Further limiting the interpretation of the present findings is the lack of inclusion of mediators of the relationship between neighborhood contexts and internalizing and externalizing symptoms. Future studies should examine some of the mechanisms by which the increased association between a youth's traditional family values and a neighborhood's Latino immigrant density is protective for externalizing problems. Specifically, mediators such as perceived

discrimination, neighborhood social cohesion, and neighborhood access to sociocultural resources would provide further information regarding the mechanisms by which context and culture interact to protect youth from externalizing and internalizing problems. In addition, the present study focused on individual and neighborhood level data, failing to account for the family or school context, two other influential systems that can impact youth mental health. Future studies should build upon the research to examine how individual, familial, school, and neighborhood contexts all interact to impact Latino youth mental health.

Another potential limitation when examining neighborhood effects generally is the association between perceived and actual neighborhood contexts. Specifically, the perceptions of youths regarding their neighborhood conditions would add another key layer to understanding the mechanisms by which neighborhoods impact mental health. For example, youth immigrating from rural to urban areas in the U.S. may perceive their neighborhoods as more dangerous than youth who immigrated from other urban metropolises. Therefore, a violent neighborhood in an urban area in the U.S. may be especially toxic to these youth and their families.

The present study has implications for the development and dissemination of prevention and intervention programs targeting these youth. The delivery of programming does not occur within a social vacuum, and the study results suggest how neighborhood contexts should be considered in the dissemination of prevention and intervention programs. Celebrating cultural diversity and helping youth and families embrace multicultural values may facilitate the ability of youth who are minorities in their neighborhoods, whether ethnically or culturally, to maintain and appreciate their cultural values and beliefs.

Finally, the results have a number of policy implications. As mentioned, the results do not suggest that youth should only live in neighborhoods with others that are just like them. The

results instead support the need to understand what about the association between neighborhood Latino immigrant contexts and individual cultural dimensions helps to be protective of Latino youth mental health concerns. Policy targeting the building of social support mechanisms, such as neighborhood cultural centers or other forms of social engagement, could help with increasing social cohesion and reducing neighborhood tensions in heterogeneous neighborhood environments. Social programming aimed at increasing this cohesion may also, in turn, reduce discrimination and racism. Providing adequate social infrastructure to not only support and maintain cultural values, but help share those values and structures with other ethnic groups, will help foster the same cohesion and protective effects that are found in more homogenous neighborhoods environments.

Additionally, the effects of low socioeconomic status and access to resources are also important to consider in any policy targeting this population of youth. Neighborhood SES in the present study was comprised of a number of factors including education and unemployment, and the results support the deleterious impact that poverty can have on Latino youth mental health. Economic downturns, neighborhood blight, and high unemployment have a direct impact on these youth. Therefore, revitalizing policies are needed to help buffer the impact on ethnic minority urban youth, the most at risk youth of experiencing poverty in the United States.

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