

STRESS AND ADJUSTMENT IN EMERGING ADULTHOOD:
THE MODERATING EFFECT OF SIBLINGS

by

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I. INTRODUCTION

When looking at the field of developmental psychopathology, no concept is perhaps more important than stress (Grant et al., 2006). Stress has been defined as a hardship, adversity, or affliction that impacts individuals' sense of well-being (Lazarus, 1966; Lazarus & Folkman, 1984). One developmental stage that has been shown to be particularly stressful is emerging adulthood (American Psychological Association, 2016 [APA]; Arnett, 2000; Foster, Hagan, & Brooks-Gunn, 2008). In 2015, emerging adults indicated that personal health concerns and the economy were among the top sources of significant stress (APA, 2016), and that these experiences have been associated with poor adjustment, including depressive symptoms & anxiety symptoms (Hicks & Heastie, 2008).

In addition, there has been a rapid increase in the Latino population over the last several years, with a 43% increase between 2000 and 2010, with Mexican-Americans making up three-fourths of this increase (U.S. Census Bureau, 2011). Given the high instances of economic hardship and physical health symptoms in the Latino population as well as the fact that the research literature has shown associations between the two, these stressors are of particular importance to this population (U.S. Census Bureau, 2013). As a result of these data, there is a growing research literature on the effects of various stressors, such as economic hardship and physical health symptoms, on emerging adult internalization (e.g., depressive symptoms and anxiety symptoms) among the Latino population (Mossakowski, 2008; Wickrama, Noh, & Elder, 2009). However, there is a lack of current research on possible moderators that may minimize the association between these stressors and internalization (Riggs & Han, 2009).

Resiliency theory (Zimmerman, 2013) informs this thesis by highlighting the importance of family related resources, such as sibling warmth, that might help emerging adults cope (Milevsky, 2004; Scharf, Shulman, & Avigad-Spitz, 2005; Sherman, Lansford, & Volling, 2006). Therefore, this thesis will focus on testing how two important stressors to the Latino community (i.e., economic hardship and physical health symptoms) are associated with adjustment in emerging adulthood, and how sibling warmth may buffer such risks. In accordance with this previous research, the gaps in the research, and the supporting theoretical evidence, this thesis will explore a new possible model detailing the relations between economic hardship and physical health symptoms, including the quantity and quality of physical health symptoms, anxiety symptoms, depressive symptoms, and sibling warmth (see Figure 1).

Stress and Emerging Adulthood

Emerging adulthood has been distinguished from adolescence and young adulthood both theoretically and empirically (Arnett, 2000). This developmental period is theoretically defined as a period (age 18-25) in which adult responsibilities are delayed, but the experimentation that began in adolescence continues and intensifies (Arnett, 2000). Emerging adulthood differs from adolescence (age 13-17) in that there is a variety of legal transitions (being able to vote and sign legal documents), but also differs from young adulthood in that these emerging adults are still in the process of obtaining training and education for occupations, whereas young adults (age 26-30) have settled into a more stable job path (Arnett, 2000).

This developmental stage of emerging adulthood is a particularly stressful time in life (APA, 2016; Arnett, 2000; Foster, Hagan, & Brooks-Gunn, 2008). In 2015, emerging

adults in the Millennial generation, 18-36 years old, reported higher stress on a scale from 1 to 10 (6.0) than older adults, aged 37 and older (3.5) (APA, 2016). These emerging adults indicated that among the many sources of stress, money (67%), work (65%), personal health concerns (51%), and the economy (50%) were the top sources of very or somewhat significant stress (APA, 2016). These significant stressful experiences have been, in turn, associated with poor adjustment, including internalization (i.e., depressive symptoms & anxiety symptoms), among emerging adults (Hicks & Heastie, 2008).

According to the National Institute of Mental Health (NIMH), depressive and anxiety symptoms are two of the most commonly reported mental health concerns by the U.S. population (NIMH, 2013). Depressive symptoms involve various physical and mental symptoms, including feelings of hopelessness or irritability as well as decreased energy, fatigue, and aches or pains without clear medical physical cause (NIMH, 2016). Often depressive symptoms have been linked to stressful experiences including physical illness, economic hardship, and major life transitions, such as losing a job or moving (Bouma, Ormel, Verhulst, & Oldehinkel, 2008; Orth, Robins, & Meier, 2009). Anxiety symptoms involve symptoms such as irritability, worrying, sleep problems, and sweating, and are typically long-lasting (NIMH, 2016). Often anxiety symptoms have been linked to stressful experiences such as parental divorce, serious physical illness, or economic hardship (Michl, McLaughlin, Shepherd, & Nolen-Hoeksema, 2013; Orth, Robins, & Meier, 2009). One of the main differences between anxiety symptoms and depressive symptoms is that those suffering from anxiety symptoms experience are worried that something bad might happen whereas someone suffering from depressive symptoms may

assume that something bad will happen but that there is nothing they could do to prevent it (Substance Abuse and Mental Health Services Administration, 2015).

Stress and Resilience

Researchers have explored different stressors that impact emerging adults, including life changes (e.g., transition to college) and various stressors (e.g., economic hardship, long-term illness; Brougham, Zail, Mendoza, & Miller, 2009; Luyckx et al., 2008; Lynch, Kaplan, & Shema, 1997). These stressors have been consistently linked to internalization problems in emerging adulthood (Goodwin, Fergusson, & Horwood, 2004; Hobbie et al., 2000; Luyckx et al., 2008; Lynch et al., 1997). Internalization is often characterized as anxious or depressed symptoms (Chicchetti & Toth, 1997). Although this association between stress (i.e., economic hardship and physical health symptoms) and internalization (i.e., depressive symptoms and anxiety symptoms) in emerging adulthood is consistent across studies, research on possible protective factors need to be more fully explored (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006).

Resiliency theory focuses on the positive factors that interfere in the typically detrimental path from risk to negative outcomes (Zimmerman, 2013). According to resiliency theory, positive or promotive variables, including internal factors and external resources, serve as protective factors against any negative outcomes, such as depressive symptoms and anxiety symptoms (Zimmerman, 2013). Internal factors, or individual qualities, can include self-esteem or self-efficacy and external factors (Zimmerman, 2013) can include educational programs or sibling warmth. While research has focused on studying internal factors among adolescents (Umaña-Taylor & Updegraff, 2007),

emerging adults (Milevsky, 2005), and young adults (Miranda & Matheny, 2000), external resources have not been explored in such detail or among Latino emerging adults. Resiliency theory serves as an underlying foundation to inform the proposed model, which suggests the association between stress and adjustment could be moderated by an external resource, such as sibling warmth.

Economic Hardship

Researchers have explored different stressors in emerging adulthood (Brougham, Zail, Mendoza, & Miller, 2009; Luyckx et al., 2008; Lynch, Kaplan, & Shema, 1997). One such stressor is economic hardship (Lynch, Kaplan, & Shema, 1997). Economic hardship refers to aspects of economic life that are potential stressors for individuals and families (Voydanoff, 1984). These aspects can include: employment instability, economic deprivation, and financial strain (Voydanoff, 1984). Economic hardship is an important stressor to consider given that one in five emerging adults (age 18-24) and 23.6% of Latinos living in the U.S. experience economic hardship (U.S. Census Bureau, 2015). Further, this type of stress has been associated with different internalization problems in emerging adulthood, including depressive symptoms and low self-esteem, among ethnically diverse samples (Elliot, 1996; Mossakowski, 2008; Wickerama et al., 2013).

Among Latino emerging adults, economic hardship has been linked to internalization problems, such as depressive symptoms and anxiety symptoms (Mossakowski, 2008; Solberg & Villarreal, 1997; Wickerama et al., 2013). In particular, Wickerama and colleagues (2013) study of 14,058 emerging adults (17% Latino; ages 19-23) showed that Latino emerging adults who were from low socioeconomic households (a proxy measure of economic hardship) also reported more depressive

symptoms. Because low socioeconomic status has been linked to more depressive symptoms in Latino emerging adults (Mossakowski, 2008; Solberg & Villarreal, 1997; Wickerama et al., 2013), and economic hardship has been associated with more internalization problems (i.e., depressive symptoms and anxiety symptoms) in Latino *adolescents* (Barrera et al., 2002; Parke et al., 2004), I hypothesize that economic hardship will be associated with higher anxiety and depressive symptoms in Latino *emerging adults*.

Physical Health Symptoms

Physical health symptoms (i.e., various illnesses, acute physical symptoms), and the quantity and severity of such symptoms, are another significant stressor for emerging adults (Luyckx et al., 2008; Vila, Nollet-Clemençon, de Blic, Mouren-Simeoni, & Scheinmann, 2000). Various illnesses, such as asthma and obesity are of particular significance to the Latino population, as they are 24% more at risk for high blood pressure, 50% more likely to die from diabetes, and 23% more at risk for obesity (U.S. Department of Health and Human Services [DHHS], 2015). The little research that has explored physical health symptoms and adjustment has discovered an association between the stress of physical health symptoms and internalization problems in Latino emerging adults (Solberg & Villarreal, 1997). Specifically, Solberg and Villarreal's (1997) study of 311 second- and third-year Latino college students found that there was an association between the stress of physical health symptoms and depressive symptoms in these Latino emerging adults, but that self-efficacy and social support were related to better adjustment.

Few studies have explored the stress of acute physical health symptoms on internalization in emerging adults, although one study showed that the experience of having multiple physical health symptoms was linked to more internalization problems, such as depressive symptoms and anxiety symptoms, in emerging adults (David et al., 1994). Although there is no research on the association between the quantity of physical symptoms and internalization problems in Latino emerging adults, one study which explored this association in Latino children and adolescents discovered that the quantity of physical health symptoms, including abdominal pain and headaches, were linked to more anxiety symptoms and depressive symptoms (Feldman et al., 2010). Feldman's (2010) study of Puerto Rican children, five to thirteen years old, discovered that there was a strong association between the number of experienced physical symptoms, such as headaches and abdominal pain, and higher levels of depressive and anxiety symptoms.

These data suggest that there may be an association between the quantity and severity of physical symptoms and internalization problems, such as depressive and anxiety symptoms among Latino emerging adults. Although this research suggests the existence of this link between quality and quantity of physical symptoms and internalization problems (Feldman et al., 2010), the amount of research on this topic in Latino emerging adults is lacking. For example, although studies have noted the number of physical symptoms is associated with internalizing problems, studies have not explored other factors that may also link physical health (e.g., symptom severity) to adjustment.

The severity of physical health symptoms may impact emerging adults' adjustment as previous research has suggested that more severe physical symptoms in

adolescents can lead to higher levels of both anxiety symptoms and depressive symptoms (Vila et al., 2000). Vila and colleagues' (2000) study of 82 asthmatic and 82 healthy children and adolescents aged eight to fifteen years discovered that children and adolescents with moderate or severe asthma had more anxiety symptoms and more depressive symptoms than children and adolescents with mild to no cases of asthma. Of course, these findings are few and far between, and the severity of physical symptoms among Latino emerging adults has yet to be explored. This significant gap in the literature must be more thoroughly investigated in order to better understand how the quantity and severity of physical health symptoms is associated with internalization problems in Latino emerging adults (Feldman et al., 2010; Grant et al., 2003). For the purposes of this thesis, therefore, the aim is to focus on exploring the association between the number of symptoms, severity of symptoms, and emerging adult internalization (i.e., depressive symptoms and anxiety symptoms). Based on the research described above, I hypothesize that the quantity and severity of physical health symptoms will be positively associated with higher levels of depressive and anxiety symptoms.

Sibling Relationships

In the complex nature of the family, the relationships with siblings are the longest and most closely intertwined throughout life (Cicirelli, 1995). Siblings tend to spend more time together than with any other family member (Davies, 2001). In fact, by the time children are eleven years old, they spend 33% of their free time with their siblings (Kluger, Carsen, Cole, & Staptoe, 2006). Even emerging adults, who are constantly trying to dissociate themselves from their siblings, spend 10 hours a week with their siblings (Kluger et al., 2006). The family is the most common support system, or external

factor, for emerging adults undergoing stress, but siblings are of particular help during stressful situations by providing security, comfort, and a source of social support for their siblings (Milevsky, 2004; Milevsky, 2005; Conger & Little, 2010).

These sibling relationships are made up of many underlying factors, including warmth, status, conflict, and rivalry (Furman & Buhrmester, 1985). Although many different aspects of the sibling relationship have been explored, sibling warmth has been specifically identified as a protective factor for the internalization of siblings during stressful events (Fisman et al. 1996; Gass et al., 2007; Richmond, Stocker, & Rienks, 2005). Most studies that have focused on the effects of generally positive sibling relationships (e.g., trust and support) have found that positive sibling relationships are associated with lower depressive symptoms (Pike, Coldwell, & Dunn, 2005; McHale, Whiteman, Kim, & Crouter, 2007) and this supportive relationship positively impacts both siblings (Branje, Van Lieshout, Van Aken, & Haselager, 2004; Gamble, Yu, & Keuhn, 2011). Furthermore, sibling warmth has been shown to be more influential than parental warmth on minimizing depressive symptoms in siblings (Gass et al., 2007; Shanahan, McHale, Crouter, & Osgood, 2008). In addition, sibling warmth has been associated with positive adjustment in emerging adults (Milevsky, 2005). Taken together, these results suggest that sibling warmth is an important possible moderator for emerging adults experiencing stress.

Sibling relationships may be especially important to Latino families (Updegraff, McHale, Whiteman, Thayer, & Delgado, 2005). On average, Latino families are generally larger, with more children per household (4.22 children), than their European American counterparts (3.93 children; U.S. Census Bureau, 2012). Further, Latino

families' endorsement of values that enforce family unity, cohesion, support (Freeberg & Stein, 1996; Marín & Marín, 1991; Sabogal et al., 1987) strengthen the possible impact of siblings on youth development. There are few data concerning sibling warmth and adjustment among Latino emerging adults (Campos et al., 2014; Killoren, Wheeler, Updegraff, Rodriguez de Jesús, & McHale, 2015; Whiteman, Zeiders, Killoren, Rodriguez, & Updegraff, 2014), but Campos et al. (2014) explored close sibling relationships among 1,245 participants (17.5% Latino) and discovered that higher sibling closeness predicted better psychological health in terms of anxiety symptoms and depressive symptoms among Latino adolescents.

Sibling warmth has also been shown to be a moderator of relations between stress and adjustment (Luthar, Cicchetti, & Becker, 2000; Thoits, 2010; Waite, Shanahan, Calkins, Keane, & O'Brien, 2011). Specifically, Waite and colleagues; (2010) study of 187 youths aged nine to eighteen, found that sibling warmth served as a protective factor from depressive symptoms after family-wide stressful events. In addition, sibling warmth has been shown to be a moderator of the association between stress and adjustment among emerging adults (Tucker, Holt, & Wiesen-Martin, 2013) but previous research has yet to be explore among *Latino* emerging adults. These findings may be attributed to the possibility that siblings may serve as confidants or advisors in the face of stress, such as economic hardship or physical health symptoms. This study will address the gap in the literature, exploring sibling warmth and its moderating capabilities in the relationship between stress and adjustment among Latino emerging adults. According to resiliency theory, positive sibling relationships, sibling warmth in particular, should serve as one of the external factors through which the impact of stress on adjustment is reduced

(Zimmerman, 2013). Therefore, this external factor should serve as a moderator or protective factor of the relation between stress (i.e., economic hardship and physical health symptoms) and internalization (i.e., anxiety symptoms and depressive symptoms) among Latino emerging adults.

II. THE CURRENT STUDY

In order to address these gaps in the research literature (Feldman et al., 2010; Grant et al., 2003; Zimmerman, 2013), the current study examined the effects of physical health symptoms and economic hardship on internalizing outcomes and the moderating effect of sibling warmth in Latino emerging adults. In accordance with research regarding the adverse impact of economic hardship (Conger et al., 1994; Dennis et al., 2003) and physical health (Feldman et al., 2010; Grant et al., 2003) on adjustment, economic hardship and physical health symptoms (i.e., quantity and severity) were hypothesized to be positively related to internalization problems, namely anxiety symptoms and depressive symptoms.

Next, a resiliency perspective guides in the second goal of this study: to explore an external resource that can moderate the impact of stress on adjustment (Zimmerman, 2013). Research on sibling warmth (Fisman et al. 1996; Gass, Jenkins, & Dunn, 2007; McHale, Whiteman, Kim, & Crouter, 2007; Pike, Coldwell, & Dunn, 2005; Rivers & Stoneman, 2003) and the importance of siblings to Latino emerging adults (Campos et al., 2014; Gamble & Modry-Mandell, 2008; Moore, 1970), in particular, informed the hypothesis that the quality of sibling relationships (i.e., warmth) would moderate the relation between stress and adjustment. Specifically, higher sibling warmth was hypothesized to weaken the relation between the stress of physical health symptoms and economic hardship and internalization problems (i.e., anxiety symptoms and depressive symptoms). In addition, some control variables were included, such as immigration status, socioeconomic status, and target emerging adult gender as these variables have been shown to be associated with depressive symptoms and anxiety symptoms in

previous research (Dyson & Renk, 2006; Miech, Capsi, Moffitt, Wright, & Silva, 1999; Tillman & Weiss, 2009).

III. METHODS

Procedures

The current study included data from Phase 3 (P3) of a larger longitudinal study focused on Mexican-origin emerging adult adjustment and family relationships (Updegraff, Umaña-Taylor, McHale, Wheeler, & Perez-Brena, 2012). Families were originally recruited to participate in 2001. To participate, target emerging adults had to be in the seventh grade, be living at home, have an older sibling also living at home, and have no learning disabilities; in addition, their mother had to be of Mexican origin and living at home, and their biological father or long time step-father had to work at least 20 hours per week. Although it was not required, 93% of fathers were of Mexican origin. Emerging adults were recruited from five middle schools in an Arizonan metropolitan area. Letters were sent to 1,856 families with a Hispanic or Latino seventh grader who was not learning disabled, 521 of the families were identified as eligible, 284 families agreed to participate, and 246 of those families completed interviews at Phase 1 (P1).

Participants were told that they would be interviewed about family socialization and emerging adult development. Consent and assent were obtained for parents and emerging adults, respectively. P1 data were collected from target emerging adults, older siblings, mothers, and fathers when the target emerging adult was 13 years old ($M = 13.02$, $SD = 0.49$) and the older sibling was 16 years old ($M = 15.96$, $SD = 1.52$). The average difference in age between the target emerging adult and the older sibling was 2.94 years ($SD = 1.55$). Among target emerging adult, both genders were equally represented (51% girls, 49% boys). Of the 246 sibling dyads, 68 were sister-sister dyads,

66 were brother-brother dyads, 55 older sister-younger brother dyads, and 57 older brother-younger sister dyads. The percentage of siblings born in the U.S. was 62%.

At P1, families represented a broad range of income and education levels. Of the families, 18.3% met the federal poverty guidelines. Family incomes varied from \$5,000 to \$100,000, with a mean family income of \$41,000. Fathers and mothers both had approximately 10 years of education ($M = 10.33$, $SD = 3.73$, for mothers; $M = 9.87$, $SD = 4.37$, for fathers). With regard to parents, 71% of mothers and 69% of fathers were born in countries other than the United States.

The current study is using Phase 3 (P3) data of the target emerging adults, when the students were 18 year old ($M = 18.18$, $SD = 0.47$) and the older sibling was 21 years old ($M = 21.11$, $SD = 1.54$). Of the 246 families, 184 families were retained at P3, reflecting a retention rate of 75%. The number of families where the target emerging adult participated ($n = 176$ families) differed from the number of families retained at P3. The students that participated at P3 differed from the non-participants at P3 in socioeconomic status (SES) and immigration status, such that non-participating students in P3 had a lower household income ($t(241) = -3.56$; $p < .05$), lower mother education ($t(244) = -3.28$, $p < .01$), lower father education ($t(243) = -2.91$, $p < .01$), were more likely to have been born outside of the United States ($t(244) = 2.56$, $p < .05$), and were more likely to speak Spanish ($t(244) = 3.36$, $p < .01$).

At P3, in-home computer-assisted interviews were conducted by a trained interviewer and lasted approximately 2 hours with each participant. Interviewers were trained to prevent any experimenter bias due to unintentional non-verbal communication. Interviews were conducted individually using close-ended survey questionnaires that

were read aloud to each participant to control possible literacy concerns. After each interview was completed, they were thanked for their participation and any questions were answered before they were dismissed. At P2, target emerging adults were invited to complete another interview two years after P1. Also, all family members were interviewed five (P3) and seven (P4) years after P1. For purposes of this study, we use data from target emerging adults' interview at P3 when they were asked about economic hardship and physical health. Each family received \$125 for participation in the in-home interviews at P3.

Measures

Measures were forward and back-translated into Spanish for local Mexican dialect (Knight, Roosa, & Umaña-Taylor, 2009) and reviewed by a third Mexican-origin translator. Discrepancies were resolved by the research team. Descriptive statistics for all study variables are presented in Table 1.

Economic hardship. Perceptions of economic hardship from siblings was assessed with a 6-item Adolescent Perceptions of Economic Hardship Scale (Conger, Conger et al., 1999) with four subscales in which siblings utilized a 4-point Likert scale (1 = *A great deal of difficulty*, 4 = *No difficulty at all*) for the Economic Constraint subscale (e.g., "Tell us how much difficulty you had with paying your bills."), a 5-point Likert scale (1 = *Strongly Agree*, 5 = *Strongly Disagree*) for the Lack of Money for Necessities subscale (e.g., "I had enough money to afford the kind of home I should have."), a 2-point dichotomous questions (1 = *Yes*, 2 = *No*) for the Economic Cutbacks subscale (e.g., "In the last 3 months, have you...changed food shopping or eating habits a lot to save money?"), and a 5-point Likert scale (1 = *Almost Never*, 5 = *Almost Always*)

for the Financial Strain subscale (e.g., “In the next three months, how often do you think that you will experience bad times such as poor housing or not having enough food?”). Each of the subscales were weighted and then summed together to create the larger Economic Hardship scale and higher scores indicated more economic hardship. Cronbach’s alpha for this scale was .81 and it has been shown to be reliable ($\alpha = .77$) and valid with a sample of emerging adults (Conger et al., 1999).

Physical health symptoms. Physical health symptoms were assessed using two subscales of a questionnaire of daily symptoms (Larsen & Kasimatis, 1991). The physical symptoms subscale was a 12-item scale used to quantify the number of physical symptoms target emerging adults experienced (e.g., headache, backache, fatigue, nausea, etc.). Next, target emerging adults noted the severity of the above mentioned symptoms using a 10-point Likert scale (1 = *Very mild*, 10 = *Very severe*) to report the severity of the physical symptom (e.g., “Headache – How severe has it been?”). Scores for the severity of symptoms subscale were averaged across items. Higher scores indicated more physical symptom severity. This scale has been shown to be reliable ($\alpha = .71$) and valid with an equally gender-represented sample (Charles & Almeida, 2006).

Sibling warmth. Sibling warmth was assessed using the 8-item Sibling Intimacy Subscale of the Sibling Relationship Quality Scale (Blyth & Foster-Clark, 1987). Target emerging adults utilized a 5-point Likert scale (1 = *Not at all*, 5 = *Very much*) to report their perceptions of emotional closeness in their sibling relationships (e.g., “How much do you go to your sibling for advice or support?”). Items were averaged together and higher scores indicated more sibling warmth. Cronbach’s alpha for this scale was .79.

This scale has been shown to be reliable ($\alpha = .77$) and valid with a sample of emerging adults (Blyth & Foster-Clark, 1987).

Anxiety symptoms. Target emerging adults' anxiety symptoms were assessed using the 21-item Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988) using a 5-point Likert scale (1 = *Not at all*, 5 = *Severely I could barely stand it*). Target emerging adults reported on the severity of their symptoms of anxiety (e.g., "Indicate how much each symptom has bothered you during the past week, including today: heart pounding or racing"). Items were summed together and higher scores indicated more anxiety. Cronbach's alpha for this scale was .89. This scale has been shown to be reliable ($\alpha = .89$) and valid with a sample of Latino participants (Contreras, Fernandez, Malcarne, Ingram, & Vaccarino, 2004).

Depressive symptoms. Emerging adults' depressive symptoms were assessed using the 20-item Center for Epidemiological Studies Depression Scale (Radloff, 1977) in which target emerging adults utilized a 4-point Likert scale (1 = *Rarely or None of the time*, 4 = *Most of the time*) to report the existence and severity of their symptoms of depression (e.g., "During the past month, I did not feel like eating; my appetite was poor"). Items were averaged together and higher scores indicated more depressive symptoms. Cronbach's alpha for this scale was .85. This scale has been shown to be reliable ($\alpha = .82$) and valid with a sample of Latino participants (Contreras et al., 2004).

Control variables. Socioeconomic status (SES) was assessed using the parents' reports of their annual family income and mother's and father's highest completed education level. The *SES* variable was created by standardizing the three variables and then creating an average score. Higher scores indicated higher SES ($\alpha = .78$). Mothers

reported on emerging adult's immigration status (0 = born in the United States, 1 = born in a foreign country) and gender (0 = female, 1 = male) at P1.

Plan of Analysis

Multiple regression models were used to test the study hypotheses that economic hardship, quantity of physical health symptoms, and severity of physical health symptoms would be positively related to anxiety symptoms and depressive symptoms. In addition, interaction terms between independent variables (economic hardship, quantity of physical symptoms, and severity of physical symptoms) and the moderating variable (sibling warmth) were included in the model to test the hypothesis that higher sibling warmth would result in a weaker relation between the independent variables and dependent variables. To avoid potentially problematic high multicollinearity, all independent variables were centered and interaction terms between economic hardship X sibling warmth, physical symptom quantity X sibling warmth, and physical symptom severity X sibling warmth were created (Aiken & West, 1991). All independent variables and interaction terms, including control variables (i.e., SES, immigration status, and target adolescent gender) were included in one model order to avoid possible Type I error caused by estimating multiple analyses. For parsimony, only significant higher order interaction variables were included in the final model.

IV. RESULTS

Table 2 provides estimates for the final models predicting anxiety symptoms and depressive symptoms. The final model predicting anxiety symptoms produced $R^2 = .327$, $F(6, 123) = 9.964$, $p < .001$, indicating this was a good model. In support of Hypothesis 1, economic hardship, quantity of physical symptoms, and severity of physical symptoms were significantly positively associated with anxiety symptoms, indicating that emerging adults who reported more economic hardship, more physical symptoms, and more severe physical symptoms, also reported more anxiety symptoms. In contrast, Hypothesis 2 was not supported. Although sibling warmth was significantly negatively associated with anxiety symptoms, indicating that emerging adults with higher scores of sibling warmth had lower levels of anxiety, no interaction terms showcasing the moderating role of sibling warmth were significant and, thus, were removed from the final model.

The final model predicting depressive symptoms produced $R^2 = .458$, $F(6, 123) = 5.44$, $p < .001$, indicating that this was a good model. In partial support of Hypothesis 1, the severity of physical symptoms was significantly positively associated with depressive symptoms, indicating that emerging adults who reported experiencing more severe physical symptoms also reported more depressive symptoms (Table 2). Economic hardship and the quantity of physical health symptoms were not associated with depressive symptoms. Once again, Hypothesis 2 was not supported. Whereas the main effect of sibling warmth was significantly negatively associated with depressive symptoms, interaction terms were not significant and were removed from the final model. This indicated that emerging adults experiencing higher levels of sibling warmth reported

lower levels of depressive symptoms, but sibling warmth did not moderate the association between economic or physical health stressors and depressive symptoms.

V. DISCUSSION

This study aimed to identify possible stressors for Latino emerging adults, and to identify possible family moderators that can buffer the relation between stress and internalization (Feldman et al., 2010; Grant et al., 2003; Zimmerman, 2013). This study benefited from a large sample size, culturally appropriate measures, and a community sample. The findings suggest that although sibling warmth did not moderate the relations between stress and adjustment, economic hardship and quantity of physical health symptoms selectively affected anxiety symptoms whereas severity of physical symptoms significantly affected both anxiety symptoms and depressive symptoms.

Stress and Adjustment

In accordance with previous research (Conger et al., 1994; Dennis et al., 2003), the study findings revealed that emerging adults who reported higher levels of economic hardship reported significantly higher levels of anxiety symptoms, suggesting the importance of reducing the impact of socioeconomic pressure in order to reduce anxiety among this population (Mossakowski, 2008). Moreover, these results revealed that emerging adults who reported higher levels of economic hardship did not report significantly higher levels of depressive symptoms, although the associations were positive. This finding is in contrast to the first hypothesis as well as previous research (Feldman et al., 2010; Wickerama et al., 2009). As this result suggests, anxiety and depression are differentiated such that anxiety is a reaction to stress whereas depression is a mood disorder (NIMH, 2016).

One possible explanation is that emerging adults tend to be either young professionals or attending college, and thus anxiety may be a much more likely response

to this stressor. Emerging adults are constantly functioning at a high rate of speed with high expectations, and therefore depression may not be as likely as anxiety. This population may be in a state of constant anxiety because of their stage in life, worrying about assignments and future careers, but they are not experiencing depression because they feel that they can do something about it. In addition, the parents to these emerging adults may be attempting to protect their children from the sources of stress, which may lead to the emerging adults perceiving the anxiety from their parents, but not the actual source of the stress. Moreover, this finding may be the outcome of the process of measuring economic hardship in this study. Economic hardship was measured by asking emerging adults about how worried they were about their family's financial situation, which may have resulted in the association between economic hardship and anxiety symptoms, but the lack of an association between economic hardship and depressive symptoms. Future research should explore this association in order to understand why economic hardship is associated with anxiety but not depression.

A similar pattern emerged when assessing the relation between the number of physical symptoms and adjustment. Emerging adults who reported more physical symptoms also reported significantly higher levels of anxiety, highlighting the need to further understand the influence of quantity of physical symptoms on anxiety among emerging adults (Solberg & Villarreal, 1997). Moreover, emerging adults who reported more physical symptoms did not report significantly higher levels of depressive symptoms although the association was positive. This pattern may be the result of the high stress environment (i.e., deciding which career path to pursue) in which emerging adults find themselves (Arnett, 2000; Foster, Hagan, & Brooks-Gunn, 2008). This may

also be the result of the nature of the variables examined in this study. As stressors are concepts that emerging adults worry about, it may be more closely related to anxiety than depression, which is more of a mood disorder (NIMH, 2016). This finding may also be the outcome of the method used to measure anxiety in this study. Anxiety symptoms were measured by asking emerging adults about various physical symptoms (i.e., heart racing or wobbliness in legs), which may have resulted in the association between quantity of physical symptoms and anxiety symptoms, but the lack of an association between quantity of physical symptoms and depressive symptoms.

Also consistent with previous research (Feldman et al., 2010; Grant et al., 2003), emerging adults who reported more severe physical symptoms reported significantly higher levels of both depressive symptoms *and* anxiety symptoms, a pattern that is consistent with the literature on Latino emerging adults (Solberg & Villarreal, 1997). Being affected by more severe physical symptoms may be particularly stressful due to the increased number of resources needed to address them (i.e., stronger treatments and more social support), which could result in increased anxiety symptoms as well as increased depressive symptoms. This may be because severity of physical symptoms are something that emerging adults tend to worry about but may feel that there is nothing they can do to prevent it, resulting in both increased anxiety and depressive symptoms. Although, this particular finding may be the result of depressive symptoms affecting the severity of physical symptoms. More depressive symptoms may lead to the manifestation of more severe physical symptoms, as depression has shown to be associated with the somatization of more severe physical symptoms (Trivedi, 2004). Nevertheless, this

finding conveys the importance of discerning the effects of quantity and severity of physical symptoms when predicting depressive and anxiety symptoms.

Sibling Warmth and Adjustment

The second hypothesis, that sibling warmth would serve as a protective factor between any economic and physical health stressors and adjustment, was not supported. Nonetheless, the findings demonstrate that emerging adults who reported higher levels of sibling warmth reported significantly lower levels of depressive and anxiety symptoms, a finding congruous with previous research (Pike et al., 2005; McHale et al., 2007; Milevsky, 2005). This pattern suggests that although having sibling relationships with high sibling warmth is associated with less depressive symptoms and anxiety symptoms among emerging adults, these high warmth relationships do not protect emerging adults from anxiety symptoms and depressive symptoms in the face of certain stressors (economic hardship, quantity of physical symptoms, and severity of physical symptoms).

This finding may be the result of the population examined in the current study. Latino emerging adults tend to be closer with their siblings (Freeberg & Stein, 1996; Marín & Marín, 1991; Sabogal et al., 1987), and thus tend to have higher sibling warmth, which may suggest that they are at lower risk for clinical levels of anxiety symptoms and depressive symptoms. Future research should examine the relationship between the cohesion of the sibling relationships and adjustment among this population. In addition, the current study examined chronic stressors, which could have resulted in adjustment problems for the siblings, as well as the target emerging adults, diminishing any possible moderation by sibling warmth. For example, if an emerging adult is diagnosed with a chronic illness, their sibling may be affected by anxiety for the situation and for

themselves and thus may not serve as effective support for the emerging adult diagnosed. Future studies should explore sibling warmth as a protective factor from acute stressors in order to tease apart the effects of sibling warmth on emerging adults in the face of acute stressors from its effects on emerging adults in the face of chronic stressors. Furthermore, this finding also indicates that the warmth of a sibling relationship may not be imperative in protecting against negative internalization outcomes.

Limitations and Future Directions

This study contributes to the further understanding of the effects of stress on the internalization of Latino emerging adults and provides many directions for future research, especially with respect to possible protective factors for an at-risk population. Nevertheless, it is not without limitations. First, the ethnically homogenous design of the study can pose limitations with respect to the generalizability of the findings to other parts of the emerging adult population. However, given the standpoint of this ethnic group on family and sibling relationships (Campos et al., 2014; Gamble & Modry-Mandell, 2008; Moore, 1970), the focus on this population is warranted and may be instrumental in possible intervention programs. In addition, the use of data collection during a single time point may limit the findings of this research study. Moreover, future studies should examine effects of gender on these findings, as previous research has highlighted associations between gender and anxiety and depressive symptoms (Dyson & Renk, 2006). Gender constellation (i.e. older sister-younger brother, older brother-younger sister, etc.) should also be explored in the context of these variables as previous studies have shown that gender affects the type of social support siblings can offer during stressful situations (Barbee et al., 1993).

The lack of significant moderation among the variables may be the result of the design of the study. Future research should explore a longitudinal design looking at these variables in order to better understand the possible protection of sibling warmth against such stressors. In addition, future research should explore the possibility of sibling warmth as a mediator between stress and adjustment among this population, as previous research has found that this variable is more influential than parental warmth in reducing depressive symptoms in siblings (Gass et al., 2007; Shanahan, McHale, Crouter, & Osgood, 2008).

Finally, it would be useful for future research to examine the possible moderating effect of other qualities of the sibling relationship among this population. Sibling relationship qualities such as conflict and rivalry have been shown to be associated with increases in risky behavior, school problems, and internalizing symptoms (Bank, Burraston, & Snyder, 2004; Sherman et al., 2006). It is possible that these different qualities of sibling relationships may significantly minimize the negative effects of such stressors on emerging adults' adjustment.

VI. IMPLICATIONS

These results can inform future practice when working with Latino emerging adults, including classes, programs, and prevention. Firstly, these findings can advise classes to educate Latino emerging adults about typical reactions to stress as well as importance of managing and coping with stressful situations. In addition, these results can serve to design programs to address these stressors by preparing Latino emerging adults with the tools they need to begin to combat stress. These programs could work to strengthen the sibling bond, which would start them toward the path to less anxiety and depression in the face of these stressors. And lastly, these findings recommend that prevention efforts be put in place for this population to restrict the impact of stress among these emerging adults. As these stressors were shown in this study to be associated with more anxiety symptoms and one stressor was shown to be associated with more depressive symptoms, more efforts need to be put forth to prevent these effects.

VII. CONCLUSION

The period of emerging adulthood is challenging for individuals as they are in a time of intense experimentation while under the stress of education and training for future occupations (Arnett, 2000). These demands put them at risk to develop internalizing problems (Goodwin et al., 2004; Hicks & Heastie, 2008; Hobbie et al., 2000). Consistent with previous research (Dennis et al., 2003; Feldman et al., 2010), the current study found that economic hardship and quantity of physical health symptoms were significantly related to anxiety symptoms, whereas the severity of physical health symptoms was significantly related to both anxiety symptoms and depressive symptoms. In addition, this study advances the existing research on stressors that are important to Latino emerging adults and further informs future models surrounding the positive, but not buffering, effect of sibling relationships on adjustment in this population. In sum, the findings from this study significantly contribute to the field of Latino emerging adults by beginning to discern the effects of various health and economic stressors on depressive symptoms and anxiety symptoms.

Table 1.

Correlations, means (M), and standard deviations (SD) for all study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Depressive Symptoms	-								
2. Anxiety Symptoms	.61**	-							
3. Economic Hardship	.25**	.28**	-						
4. Quantity of Physical Symptoms	.24**	.46**	.06	-					
5. Severity of Physical Symptom	.35**	.39**	.23**	.20**	-				
6. Sibling Warmth	-.16	-.16*	-.10	-0.02	-0.09				
7. Gender	-.17*	-.13	-.29	-.08	-.10	-.25**	-		
8. Immigration Status	.19	.04	.05	-.07	-.15	.05	.04	-	
9. Socioeconomic Status	-.04	.08	-.12	.08	.06	.09	-.04	-.32**	-
<i>M</i>	13.26	7.94	1.93	3.11	4.17	3.58	1.49	.38	-.03
<i>(SD)</i>	(9.47)	(7.24)	(0.74)	(2.06)	(1.67)	(0.79)	(0.50)	(0.49)	(0.86)

Note. * $p < .05$. ** $p < .01$.

Table 2.

Final regression model predicting anxiety and depressive symptoms.

	<u>Anxiety Symptoms</u>					<u>Depressive Symptoms</u>				
	<i>b</i>	(<i>SE</i>)	β	<i>t</i>	<i>p</i>	<i>b</i>	(<i>SE</i>)	β	<i>t</i>	<i>p</i>
Intercept	8.497	(0.745)	-	11.410	0.000	14.557	(1.008)	-	14.442	0.000
Controls										
Immigrant Status	2.424	(1.253)	0.154	1.934	0.056	3.263	(1.697)	0.166	1.923	0.057
Socioeconomic Status	0.827	(0.641)	0.097	1.290	0.199	0.089	(0.867)	0.008	0.103	0.918
Gender	-1.638	(1.129)	-0.110	-1.451	0.149	-3.251	(1.528)	-0.176	-2.128	0.035
Main Effects										
Economic Hardship	1.980	(0.768)	0.201	2.579	0.011	1.641	(1.039)	0.134	1.580	0.117
Quantity of Physical Symptoms	1.374	(0.304)	0.346	4.525	0.000	0.632	(0.411)	0.127	1.537	0.127
Severity of Physical Symptoms	0.954	(0.356)	0.213	2.680	0.008	1.467	(0.482)	0.263	3.047	0.003
Sibling Warmth	-1.482	(0.710)	-0.160	-2.086	0.039	-1.988	(0.962)	-0.172	-2.067	0.041
Interaction Terms										
Economic Hardship X Sibling Warmth	0.070	(1.075)	0.005	0.066	0.948	0.432	(1.455)	0.025	0.297	0.767
Quantity of Physical Symptoms X Sibling Warmth	-0.354	(0.501)	-0.060	-0.707	0.481	-0.508	(0.678)	-0.069	-0.749	0.456
Severity of Physical Symptoms X Sibling Warmth	-0.144	(0.444)	-0.028	-0.324	0.747	0.143	(0.601)	0.022	0.238	0.831

Note. The table includes the unstandardized beta (*b*), the standard error for the unstandardized beta (*SE*), the standardized beta (β), the t-test statistic (*t*), and the statistical significance (*p*).

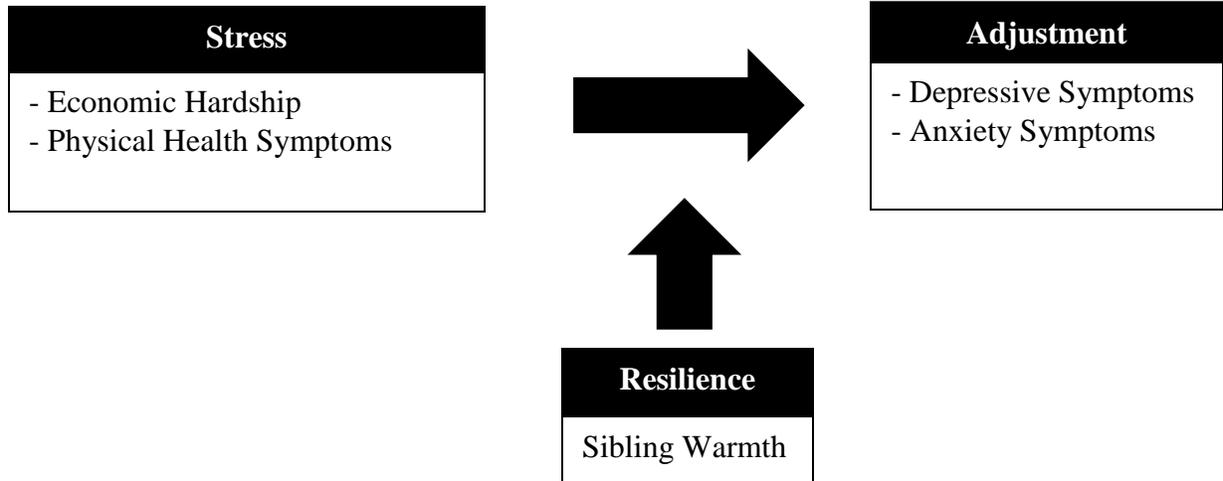


Figure 1. Theoretical Model Conveying the Relation Between Stress, Adjustment, and Resilience Factors.

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