

Social Connectedness, Self-esteem, Suicidal Ideation, and Suicide Attempts among Latina/o Adolescents
in the United States

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ABSTRACT

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The purpose of this dissertation is to investigate interpersonal and sociocultural factors associated with suicide ideation and attempts among Latinx adolescents. In this dissertation, the term Latinx is used to include gender non-conforming youth. Latina/o or Latinx refer to adolescents of Latin American origin who speak Spanish. Hispanics are those with Spanish language heritage including countries such as Spain that are not in Latin America. Thus, the terms Latino/a and Latinx captured best the ethnic group represented in this dissertation.

This dissertation is composed of three papers. Paper one (#1) examines the association between social connectedness, in the family and school domains, self-esteem, and suicidal ideation among Latinx adolescents. This paper provides context for the second and third papers. Paper two (#2) examines whether immigration generational status moderates the relationship between social connectedness, self-esteem, and suicidal ideation among this group of adolescents. Paper three (#3) focuses on only those adolescents who have reported histories of suicidal ideation in the previous year and examines prospectively the degree to which social connectedness and self-esteem are associated with the transition from suicidal ideation to attempt a year later. This dissertation is guided by the Interpersonal Theory of Suicide (IPTS) and the Sociocultural Model of Suicide. The IPTS provides the constructs to understand who is at risk for suicidal ideation and the Sociocultural Model of Suicide provides the cultural lenses through which these constructs are examined. Dr. Thomas Joiner, the developer of IPTS (personal communication, April 18,2019) confirmed that the variables selected in this study captured the IPTS constructs of social connectedness and self-esteem, the latter a dimension of burdensomeness.

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DEDICATION

This is dedicated to Michael.

Te amo

Preface:

Suicide is the second leading cause of death for the age group 13 to 19-years-old. From 1999 to 2014, deaths by suicide increased among adolescents 10 to 14-years old (200% for females and 37% for males)(Curtin, Warner, & Hedegaard, 2016a) suggesting that this is a period of heightened vulnerability, but also an opportunity to implement preventive strategies. Findings from the 2017 Youth Risk Behavior Surveillance System (YRBSS), indicated that nationwide 17.2% of students seriously considered attempting suicide in the last 12 months, 13.6% made a suicide plan (active suicidal ideation), and 7.4% attempted suicide. The same survey shows that 16.4% of Latinx students seriously consider attempting suicide, and 8.2% attempted suicide in the previous year (Kann et al., 2018). Additionally, Latinx adolescents reported higher sadness and hopelessness compared with their racial/ethnic counterparts (Kann et al., 2016; Kann et al., 2018). This is concerning given that sadness and previous suicide ideation and attempts are the strongest predictors of suicide death (Bridge, Goldstein, & Brent, 2006; Nock et al., 2008). Lack of social connectedness and low self-esteem, which can increase feelings of burdensomeness, are factors associated with increased risk for suicide. However, these factors have not been fully examined among Latinx youth. Guided by the Interpersonal Theory of Suicide and the Sociocultural Model of Suicide, this dissertation aims to examine the role of self-esteem and social connectedness in the family and school domains in suicidal ideation among Latina and Latino adolescents aged 13 to 19. I also examine potential gender differences in these relationships as well as other social determinants pertaining to the Latinx experience such as generational status. In this dissertation, connectedness to the family was defined as feeling part of, cared for, and loved by the family. Connectedness to school was defined as feeling close to people and part of the school. Self-esteem was defined as recognizing good qualities in oneself, being proud and liking oneself, feeling socially accepted and wanted. Papers # 1 and # 2 focus on suicidal ideation as the primary outcome. If suicide risk is considered as a continuum where suicidal ideation precedes suicide attempts, I take an upstream perspective where suicidal ideation could potentially be addressed first to avoid more serious consequences such as suicide attempts. Finally, I account for Latin American-origin subgroup membership (e.g., Mexican, Puerto Rican, Cuban, other Latin American) to investigate whether there are variations among this growing and diverse U.S. population.

The analysis employed data from in-home questionnaires conducted in the academic year of 1995-1996 (Wave 1) and a follow-up interview a year later (Wave 2), from the National Longitudinal Study of Adolescent Health (Add Health). Papers #1 and #2 analyze social connectedness and self-esteem at one point in time (Wave 1) and paper #3 analyzes these constructs over time (Wave 2).

The present dissertation addresses gaps in the literature by using a national sample of Latinx adolescents, an understudied population, to examine individual and contextual factors associated with suicidal ideation and suicide attempts and by using a theoretical framework that combines two theories that have the potential to explain who is at risk and what cultural components may be associated with that risk. Focusing on potentially modifiable factors such as social connectedness and self-esteem may shed light on culturally appropriate strategies for suicide assessment and prevention among these high-risk youth

Paper # 1

The role of social connectedness and self-esteem in suicidal ideation among Latino/a adolescents living in the United States

Background

In the United States (U.S.), suicide is one of the ten leading causes of death, and it is the second leading cause of death for the age group 13-19 years old (CDC, 2018). Suicide among adolescents has steadily increased since 1999 through 2014 with the largest increase for females ages 10-14 years old (200%) (Curtin et al., 2016a). Suicidal ideation and suicide attempts increase significantly around age 12 and become more prevalent as adolescents age, reaching a peak from 16 to 18 years old (Kessler, Borges, & Walters, 1999; Nock et al., 2008). Latinx groups are disproportionately affected by suicidal ideation and suicide attempts, and it is unclear what factors are associated with this disparity (Bridge et al., 2006; Canino & Roberts, 2001; Curtin et al., 2016a; Curtin, Warner, & Hedegaard, 2016b).

Findings from The Youth Risk Behavior Surveillance System (YRBSS), a U.S. nationally representative survey of students in 9th to 12th grades developed by the Center for Disease Control (CDC) conducted in 2017, indicated that nationwide 17.2% of students seriously considered attempting suicide in the last 12 months, 13.6% made a suicide plan (active suicidal ideation), and 7.4% attempted suicide. Additionally, 31.5% of students experienced sadness or hopelessness (Kann et al., 2018). Latinx youth (33.7%) reported higher rates of sadness or hopelessness compared to Whites (30.2%) and Blacks (29.2%). These disparities have not changed significantly since 2007 (CDC, 2017). Reports of suicide ideation and attempts have been consistently higher for Latinx youth, especially for Latinas since 2001 (Kann et al., 2016). However, the last report, from the year 2017 of the YRBSS, shows slightly lower rates in both ideation and attempts for both Latinos and Latinas. For example, in 2015, 25.6% of the Latinas reported having considered attempting suicide compared with White females (22.8%) and Black females (18.7%), while in 2017, 22.1% of Latinas reported having considered attempting suicide, compared to Black females (22.4%) and White females (21.2%). These positive changes were also observed among Latinx youth. In 2015, Latinos (12.4%) reported the highest rates of having considered attempting suicide,

compared with White males (11.5%) and Black males (11%). In 2017, these rates slightly decreased for Latinos (10.8%) and Black males (6.6%) and increased for White males (13%).

In terms of suicide attempts in 2015, Latinas (15.1%) had the highest prevalence, compared with White females (9.8%) and Black females (10.2%). Likewise, Latinos (7.6%) had the highest prevalence compared with White males (3.7%) and Black males (7.2%). In 2017, Latinas (10.5%) and Black females (12.5%) were more likely to report having attempted suicide compared to White females (7.3%). Latinos (5.8%) and Black males (6.7%) were also more likely to report having attempted suicide compared to White males (4.6%) (Kann et al., 2016; Kann et al., 2018). Importantly, the rates of having made a suicide attempt that needed medical attention continued to be highest for Latinx youth, particularly for females in both 2015 and 2017. In 2017, Latinas (3.8%) had higher rates of having made a suicide attempt that needed medical attention compared with White females (2.3%), White male (1.3%) and Latinos (1.7%), which demonstrated the potential lethality of the methods used by Latina/o adolescents. Though reduction in rates of suicidal ideation and attempts reported by the YBRSS in the last survey are encouraging, it is important to highlight that ideation and attempts have remained a consistent problem for Latinx youth, particularly for Latinas in the last two decades. These epidemiological studies suggest gender differences in suicide ideation and attempts among youth; however, there is limited understanding about the factors that may account for this difference. It is well established that suicidal ideation and suicide attempts are the strongest predictors of death by suicide (Bridge et al., 2006; Gould, Greenberg, Velting, & Shaffer, 2006; Joiner, 2005; Nock et al., 2008; Turecki & Brent, 2016), placing Latinx youth at increased risk. Nonetheless, little is known about the predictors of suicidal ideation and suicide attempts that place this particular population at risk (Franklin et al., 2017).

Studying Latinx youth becomes a priority considering that they are at high risk for thinking about and attempting suicide and that they are a growing population in the U.S. In 2016, Latinos made up 18% of the total population of the U.S. and were the largest ethnic minority in the U.S (U.S, Bureau Census, 2017; Pew Research Center, 2016). Latinos are expected to be 25% of the total population by 2060 (Pew Research Center, 2016). Importantly, fifty-eight percent of Latin families have children younger than 18

years old, compared with forty percent of the general population and nearly half (47%) of U.S born Latino/a are under age 18 (Pew Research Center, 2016).

This paper fills in the literature gaps by examining the role of social connectedness and self-esteem in suicidal ideation among Latinos and Latinas¹ and whether these factors differ for females and males. This study focuses on suicidal ideation based on empirical theories such as the Interpersonal Theory of Suicide (Joiner, 2005) that support different factors associated with suicidal ideation (i.e., social disconnection and feeling a burden) and suicide attempts (i.e., suicidal ideation simultaneously with the acquired capability to self-harm). Moreover, predictors of suicidal ideation, such as the ones investigated in the present study, are modifiable (Joiner, 2019) and may be in alignment with upstream prevention, which focuses on addressing low levels of risk in order to prevent more serious behaviors such as suicide attempts (Pisani et al., 2013; Wyman, 2014). Finally, this study controls for Latin American subgroup membership (e.g., Mexican, Puerto Rican, Cuban, other Latin American) to investigate whether there are variations among the subgroups of this growing and diverse U.S. population.

Social Connectedness and Suicide

Promoting connectedness to family and community has been proposed by the Centers for Disease Control and Prevention as a suicide preventive strategy among adolescents (CDC, 2012). Social connectedness defined as the subjective emotional sense of belonging to, being cared for, and understood and valued by others in the family and school contexts (Whitlock, Wyman, & Moore, 2014) has been identified as a protective factor against suicide among adolescents in general (Bridge et al., 2006; Gould et al., 2006; Joiner, 2005; King & Merchant, 2008; Nock et al., 2008; Whitlock et al., 2014) and minority adolescents (Leong & Leach, 2010). Although there is a paucity of studies examining family connectedness and suicide risk among minority adolescents, studies examining this relationship have consistently found that lack of family support, poor communication, and less time spent with family were associated with suicidal ideation and/or attempts (King & Merchant, 2008; Opperman, Czyz, Gipson, &

¹ This study focuses only on Latinas (females) and Latinos (males) due to the binary nature of the gender variable of Add Health wave 1.

King, 2015). Family connectedness or familism, described as loyalty, reciprocity, and physical closeness (Kuhlberg, Peña, & Zayas, 2010; Steidel & Contreras, 2003), is a central aspect of the Latin American culture. Familism has been found to be a protective factor against suicidal ideation and attempts among female adolescents (Bridge et al., 2006; Canino & Roberts, 2001; Fortuna, Perez, Canino, Sribney, & Alegria, 2007; Gulbas et al., 2011; Peña et al., 2011; Piña-Watson, Castillo, Rodriguez, & Ray, 2014), while disconnection from family and parents has been associated with depression, increased suicidal ideation and suicide attempts among Latina/o adolescents (Canino & Roberts, 2001; Feldman, Trupin, Walker, & Hansen, 2010; Fortuna et al., 2007; Piña-Watson et al., 2014; Zayas, Lester, Cabassa, & Fortuna, 2005).

School is an important social system in the life of adolescents and has increasingly been recognized as a place for upstream suicide prevention (Wyman, 2014). Difficulties in school and a lack of connection to school have been associated with risk for suicide (Bridge et al., 2006; Gould et al., 2006). School connectedness, defined as feeling close to and supported by people in school, was found to be a protective factor against suicidal ideation among high school students in California (Benbenishty, Astor, & Roziner, 2018). A study using the Youth Risk Behavior Survey in Texas, identified school bullying, feeling unsafe, and being threatened or injured at school increased the likelihood of suicidal behaviors among this sample of high school students (Olcoñ, Kim, & Gulbas, 2017). Adult-adolescent interactions such as the ones formed in school settings have protective effects by providing adolescents with strong support networks from adults who know them, guide them and are in a position to notice and address signs of distress or suicidal behavior (Pisani et al., 2013; Whitlock et al., 2014). Sources of Strength (Wyman et al., 2010) a school-based program, focused on enhancing connectedness between students and trusted adults through educating in suicide, positive coping, connectedness, and help-seeking behaviors, was shown to be effective in increasing help-seeking, connectedness with adults and school engagement, all protective factors of suicide. Moreover, results assessing the efficacy of Sources of Strength showed the largest positive effect was on students who were thinking about suicide, demonstrating the importance of upstream interventions. However, in spite of these encouraging results, there is limited understanding

about the role of school in the emergence of suicidal ideation among adolescents of Latin American origin.

In the general population of adolescents, low self-esteem has been found to be associated with depression, hopelessness and suicidal behaviors (Overholser, Adams, Lehnert, & Brinkman, 1995). Low self-esteem, can lead to feelings of self-derogation and unworthiness impacting adolescents' perception of self and their relationship with others (Rosenberg, 1965). Moreover, low self-esteem is associated with cognitions and feelings that one is a burden to others, which increases the risk for suicidal ideation (Van Orden et al., 2010). High self-esteem was found to be a protective factor against depression and discrimination among Latinx youth (Behnke, Plunkett, Sands, & Bámaca-Colbert, 2011; Umaña-Taylor & Updegraff, 2007) and low self-concept was found to be an important risk factor for suicidal ideation among Puerto Rican adolescents (Duarté-Vélez, Lorenzo-Luaces, & Rosselló, 2016). Parental involvement has also been associated with the development of positive self-esteem (Behnke et al., 2011). Within Latin American values, children develop a sense of competence and self-worth, through the process of collectivism and familism, which is helping, giving, and respecting family and community members. Latin American parents reinforced social connectedness more than independence and autonomy (Santiago-Rivera, Arredondo, & Gallardo-Cooper, 2002). Although there is limited information about self-esteem and suicide among Latinx youth, a study comparing Latina adolescents with and without histories of suicide attempts found that the latter group reported higher levels of self-esteem (Kuhlberg et al., 2010). To the authors' knowledge, there are no studies examining the association between self-esteem and suicidal ideation among Latinx youth.

Gender differences

Gender differences in suicidal ideation and attempts are relevant for youth, including Latinx adolescents. Females across ethnic groups are approximately twice as likely as males to think about and attempt suicide (CDC, 2012; Gould et al., 2006; Kann et al., 2016; Kann et al., 2018). Gender differences in suicide may be explained by social constructs assigned to female and male roles. For example, male gender role is associated with risk-taking behaviors and individualism; whereas female gender role stresses the importance of interdependence and relatedness (Payne, Swami, & Stanistreet, 2008). Low

levels of family and school connectedness, as well as low self-esteem have been associated with suicide risk for both female and male adolescents (Resnick et al., 1997); yet how these factors affect females different from males remains poorly understood. In a study examining the association between self-esteem and suicidal ideation among high school students and adolescents with history of inpatient psychiatric treatment, the levels of self-esteem were significantly higher among males than females, although no significant gender differences were found regarding self-esteem and suicidal ideation (Overholser et al., 1995). There is limited understanding about whether social connectedness and self-esteem have differential impact on suicidal ideation between females and males of Latin American background. Although, the protective effect of family connectedness (e.g. familism) on suicide behavior among Latinx youth has been documented (Peña et al., 2011); the majority of suicide studies examining connectedness among Latinx youth focus on Latinas because they are at high risk relative to Latino adolescents (Piña-Watson et al., 2014; Zayas & Pilat, 2008). Likewise, high self-esteem was found to be an important protective factor against suicide attempts among Latinas (Kuhlberg et al., 2010); but studies about Latino adolescents are scarce.

Depression and suicide

Depressive disorders are highly prevalent among adolescents who completed suicide (Bridge et al., 2006; Gould et al., 2006; Nock et al., 2008) and are the most common mental health symptoms among Latinx youth (Canino & Roberts, 2001; Fortuna et al., 2007; Peña et al., 2011). Rosselló, Duarté-Vélez, Bernal, and Zuluaga (2011) found a strong association between suicidal ideation and depressive symptoms among Puerto Rican adolescents and the Center for Disease Control (CDC) found that Latinx students in the U.S. reported higher rates of sadness and hopelessness than any other ethnicity (Kann, et al., 2000, 2016). Depression is associated with suicidal ideation and behaviors (Gould et al., 2006; Kessler et al., 1999; Miranda et al., 2008; Nock et al., 2008) and Latinx are at high risk for both (Canino & Roberts, 2001).

Latin American subgroups and suicidal ideation and attempts

Individuals of Latin American background come from diverse ethnicities and from different countries, each influenced by their own socio-cultural and political histories. Migration patterns, place of arrival, settlement and opportunities offered to them by the host country impact the way in which individuals from each Latin American subgroup adapt to the new environment (Santiago-Rivera et al., 2002). Available studies examining suicide among Latin American youth living in the U.S. suggest differences across subgroups (e.g. Mexican, Cubans, Puerto Ricans). For example, Dominican girls were more likely to engage in suicidal behaviors and reported higher family cultural discrepancies compared to Colombian girls who were less likely to engage in suicide attempts and more likely to report family support (Baumann, Kuhlberg, & Zayas, 2010). Given that the examination of these differences could have implications for suicide prevention and intervention development, this study controls for Latin American subgroups.

Theoretical Framework

This study was guided by the Interpersonal Theory of Suicide (IPTS) (Joiner, 2005) and the Sociocultural Model of Suicide (Zayas et al., 2005). IPTS postulates that a combination of perceived feelings of disconnection and burdensomeness result in the desire to die (i.e., suicidal ideation). Belongingness involves positive connections with others, as well as feelings of being cared for. Burdensomeness encompasses feeling ineffective to the point of perceiving oneself as a burden to others (Van Orden et al., 2010). However, not everyone moves from thinking to acting upon those thoughts; the acquired capability to enact self-harm is necessary for this transition to take place. This capability involves relative fearlessness about death, and it may be acquired through the exposure to painful emotional and physical experiences, which, in turn, desensitize individuals to pain, making them more likely to engage in self harmful behaviors (Gunn & Lester, 2015; Joiner, 2005). This study focuses only on the first part of the IPTS in an effort to understand the factors associated with suicidal ideation among Latina/o adolescents. Joiner's theory was chosen because it postulates distinct pathways associated with suicidal ideation and suicide attempts. Additionally, IPTS has specific hypotheses to test and has been empirically tested with different populations (Gunn & Lester, 2015; Joiner, 2005). However, this theory has not been fully examined with Latinx youth.

The Sociocultural Model of Suicide (Zayas et al., 2005), on the other hand, was designed to understand suicide among Latinx adolescents, particularly Latinas. This theory emphasizes an ecological approach (e.g., individual, micro, and meso systems) to understand suicide among Latina adolescents. It postulates that adolescent development, individual characteristics (i.e. emotional vulnerability), family functioning, and cultural factors all play a role in the development of suicide. Zayas underscored the parent-child conflict, resulting from cultural dissonance between U.S.-born adolescents and their foreign-born parents, coupled with the adolescents' emotional vulnerability, as the culprits for suicide attempts. This model is valuable because it focuses on the socio-cultural aspects related to Latin American families. However, this model focuses only on females and has been difficult to examine due to lack of specificity of the different dimensions and variables in the model (Gulbas, Hausmann-Stabile, Szlyk & Zayas, 2018).

Based on the tenets of the IPTS, this study proposes that low social connectedness in the family and school domains and low self-esteem are associated with suicidal ideation among Latina/o adolescents. In this study, social connectedness includes feeling care for, part of and spending time with family and parents, which captures the concept of belongingness (Thomas Joiner, personal communication, April 18, 2019). Although self-esteem may not answer directly the question whether a person is a burden to others, this study adopts the stance that an individual who reports low self-esteem is more likely to feel a burden to others (Van Orden et al., 2010). Perceived burdensomeness is a multi-dimensional construct and low self-esteem is an observable indicator of self-hate, a dimension of perceived burdensomeness (Van Orden, Cukrowicz, Witte, & Joiner Jr, 2012) and an important protective factor against suicide risk among adolescents (Overholser et al., 1995). In this study, IPTS provides the constructs to explain who is at risk for suicidal ideation and the Sociocultural Model provides the cultural lenses through which these constructs would be examined. Gender differences will be explained using a social constructionist perspective, where gender is defined as a social construct that fits dominant norms of masculine and feminine roles (Payne et al., 2008). Two hypotheses are posited: (1) low self-esteem and low connectedness to family and school are associated with suicidal ideation among Latinx youth, even after

adjusting for depression and (2) females are more negatively impacted by low social connectedness and low self-esteem relative to males.

Method

This study employs data from the National Longitudinal Study of Adolescent Health (Add Health) (Harris & Udry, 2014), a nationally representative longitudinal study of U.S. adolescents enrolled in 7th through 12th grade in the 1994-1995 academic year. Add Health was designed to measure the impact of social environment on adolescent health. The primary sampling frame was originated from the Quality Education Database (QED) containing more than 26,000 High Schools across United States. A stratified sample of 80 schools—with 11th grade and at least 30 students—was selected proportional to school size and stratified by geographic region, urban or rural location, school type, and ethnic composition. In addition, for each high school selected, a feeder school was identified and recruited for a total of 52 junior and middle schools (Harris & Udry, 2014). The study has followed respondents into young adulthood with five in-home interviews, the most recently completed in 2008, when participants were approximately 24 to 32 years old. Add Health just completed wave 5 in 2018. The current study utilizes data from wave 1 in-home data, collected in 1994-1995. Add Health was chosen because it has a large number of Latin American background adolescents allowing for subgroup comparison (e.g., Mexican-, Cuban-, and Puerto Rican-origin). The sample for this study comprised 3,380 Latina and Latino adolescents who 1) self-reported as being of Latin origin; 2) were between 13 and 19 years old, and 3) answered the question whether they have had suicidal ideation in the past year. The study was reviewed and accepted by the Columbia University Institutional Review Board and determined to be exempt.

Measures

Dependent variable

Suicidal ideation

Suicidal ideation (dichotomous) was measured with the question “during the past 12 months, did you ever seriously think about committing suicide? In the present study this variable was dichotomized. Zero (0) indicates no ideation in the past year, and one (1) indicates any ideation in the past year.

Independent variables

Self-esteem

Six-items from the Add Health survey that correspond to the Rosenberg Self-esteem Inventory (Rosenberg, 1965) were used to measure self-esteem. These items included, “You have a lot of good qualities,” “You have a lot to be proud of,” “You like your-self just the way you are,” “You feel like you are doing everything just right,” “You feel socially accepted,” and “You feel loved and wanted.” These items were assessed on a 5-point response scale with answers ranging from 1 (strongly agree) to 5 (strongly disagree). High scores represent higher self-esteem. In this study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = .84$. These items were selected based on previous studies assessing adolescents self-esteem using Add Health (Costello, Swendsen, Rose, & Dierker, 2008; Resnick et al., 1997). Rosenberg’s scale has been validated with diverse samples of ethnic minority adolescents (Umaña-Taylor & Updegraff, 2007) and has been found to have a strong relationship with global self-worth, a domain of self-esteem (Hagborg, 1993) and an important component of burdensomeness as suggested by the Interpersonal Theory of Suicide (Van Orden et al., 2012).

Family and School connectedness

Family and school connectedness were measured using items from the protective factors section of Add Health. The section contains 8 items on a 5-point Likert scale (ranging from “strongly disagree” to “strongly agree”) assessing the extent to which adolescents perceived themselves as being supported by parents, teachers and friends. To measure family connectedness, four items were selected. These items included, “How much do you feel parents care about you,” “How much do you feel that people in your family understand you,” “How much do you feel that you and your family have fun together”, and “How much do you feel that your family pay attention to you.” A higher score corresponds to higher family and parental support or connectedness. These items were selected to capture the concept of belongingness (Van Orden et al., 2010) and were based on previous studies examining family support using Add Health (Borowsky, Ireland, & Resnick, 2001). In the current study Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.75$.

School connectedness was measured with two items on a 5-point Likert scale (ranging from “strongly disagree” to “strongly agree”) measuring adolescents’ perceptions of school connectedness. These items include, “You feel close to people at your school,” and “You feel like you are part of your school.” Items were selected to capture belongingness (Van Orden et al., 2010) and based on previous studies examining school connectedness and suicidal behaviors using Add Health (Kidd et al., 2006; Resnick et al., 1997). In the present study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.72$

The items of self-esteem, family and school connectedness were analyzed using factor analysis. Principal component analysis was selected as the extraction method and orthogonal rotation (Varimax) as the rotation method. Self-esteem, family connectedness, and school connectedness subscales formed three strong distinctive factors with eigenvalues higher than one. Factor loadings for the scales were high, with loadings ranging from 0.706 to 0.769; 0.561 to 0.831; and 0.833 to 0.870 on the three factors respectively. Previous studies have examined self-esteem, family and school connectedness as continuous variables, where higher scores correspond to higher levels in self-esteem, family and school connectedness respectively. To try to address the question about at which point perceptions of disconnectedness and burdensomeness result in suicidal ideation (Van Orden et al., 2010), self-esteem and connectedness to family and school variables were trichotomized, dividing the factors in tertiles (low, medium, and high) by using cutoffs of 33.3rd percentile and 66.7th percentile. This decision was also made considering the advantage that categories offer for clinical interpretation of the results and the potential to understand useful cutoffs for low, medium, and high as thresholds of risk.

Covariates

Depressive symptoms

In Add Health depressive symptoms (continuous) were measured by using the 19-item modified version of the original 20-item Center for Epidemiologic Studies Depressive Symptoms Scale (CES-D) instrument (Radloff, 1977), which has been used on adolescent populations to measure depressive symptoms (Garrison, Addy, Jackson, McKeown, & Waller, 1991). Following previous studies examining

Latinx adolescents (Peña et al., 2008), this study used 5 of these 19 items because they have been tested with multiple ethnicities among adolescents and across generations with good external validity (Perreira, Deeb-Sossa, Harris, & Bollen, 2005). These items include: 1) “You could not shake off blues even with help from your family and friends”; 2) “You felt depressed”; 3) “You were happy” (reversed code); 4) “You felt sad”; and 5) “You felt life was not worth living.” Items were scored from 0 (never) to 3 (daily) with a range of possible score between 0 to 15. In the present study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.77$

Demographic variables

Four main Latin American-origin subgroups (i.e., Mexican, Puerto Rican, Cuban, Central/South American) were selected based on adolescents’ self-reported responses to the following questions: “Are you of Mexican-origin,” “Are you Cuban-origin,” “Are you Puerto-Rican-origin,” “Are you Central or South American-origin,” “Are you other.” In the current study answers were coded (1) “yes” and (0) “no”. Those who responded “other” were coded in the same group as Central and South American. Age was calculated in years from the date of birth and interview. Gender was a binary option reported by adolescents and measured by the question, “Biological sex female or male”. In this study this variable was coded (0) male and (1) female. Income was based on parental self-report of annual household income using the question “about how much total income, before taxes did your family receive in 1994.”

Analytic Strategy

Using wave 1, in-home questionnaire of Add Health, logistic regression models (Menard, 2002) were used to examine the relationship between self-esteem, family and school connectedness and suicidal ideation controlling for socio-demographic characteristics and depressive symptoms. Odd ratios (ORs) and confidence intervals (CI) were examined in three different set of models. To understand the effects of each of the main predictors (i.e., self-esteem, family, and school connectedness) on the dependent variable (i.e., suicidal ideation), the first set of models analyzed individually each factor, controlling for socio-demographics (e.g. income, age, Latin American subgroup). To examine the adjusted effects of depression, the second set of models analyzed each individual factor, added depression, and

included sociodemographic characteristics. Finally, the third model analyzed simultaneously the main factors, depression, and sociodemographic characteristics.

To examine gender differences, a fourth model analyzed the interactions between self-esteem against gender, family connectedness against gender, and school connectedness against gender with suicidal ideation as the dependent variable. Subsequently, stratified analysis by gender was conducted on the significant interactions. Finally, to statistically validate the theoretical model and identify the variables with the largest effects, stepwise (backward) logistic regression was used. SPSS (BM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp) was used to conduct all the analyses.

Missing data

Patterns of missing data were analyzed. The percentage of missing data ranged from 3.6% (family connectedness) to 28% (income). Multiple imputation for missing data was used as the recommended strategy to eliminate or minimize bias related to different causes of missing data (Allison, 2001). Variables used for imputation included the key main factors, as well as covariates in the model. Analyses were performed using Fully Conditional Specification, an iterative Markov chain Monte Carlo (MCMC) method that can be used when the pattern of missing data is at random, with twenty imputations, and model for scale variables was Predictive Mean Matching, all functions of SPSS (IMB Knowledge Center, 2018).

Results

Sociodemographic characteristics

The sample of the present study consisted of 3,380 Latin American-origin adolescents, evenly distributed between Latinos (50.1%) and Latinas (49.9%). Of the total sample almost 14% reported having thought about committing suicide in the past year, with Latina adolescents (17%) reporting a higher percentage than Latino adolescents (10%). Mean age for this group of adolescents was 16 years old and for self-reported depression was 2.9 in a scale between 0 and 15. The largest group were

adolescents of Mexican descent (49.3%), followed by Puerto Ricans (16.8%) and Cubans (13.7%). A significant percentage of adolescents were from any other country in Central and South America (20.2%). In 1994, the average annual income, reported by adolescents' parents, was \$33,600.

Self-esteem, social connectedness (family and school), and suicidal ideation

The first set of models show the odds ratios and confidence intervals for each factor. The factors included in each model are as follows: (1) self-esteem; (2) family connectedness; and (3) school connectedness, individually, controlling for gender, income, age, and Latin American subgroups (e.g., Mexican, Puerto Rican, Cuban, Central/South American) (see Table 1-1).

Results from the logistic regression of suicidal ideation on self-esteem (Model 1) indicated that compared to youth who reported high self-esteem, adolescents who reported low self-esteem (OR=2.298, 95% CI 1.773-2.978, $p=0.000$) and medium self-esteem (OR=1.321, 95% CI 1.002-1.742, $p=0.048$) were more likely to report suicidal ideation during the past year and compared to females, males (OR=0.552, 95% CI 0.449-0.677, $p=0.000$) were less likely to report suicidal ideation. In terms of Latin American subgroups, compared with adolescents who were non-Mexican-origin (OR=1.581, 95% CI 1.009-2.479, $p=0.046$) Mexican-origin adolescents were more likely to think about suicide. Likewise, compared with non-Puerto Rican-origin adolescents (OR=1.676, 95% CI 1.071-2.623, $P=0.024$) Puerto Rican-origin adolescents were more likely to think about suicide. Results from the regression model entering only family connectedness (Model 2) with covariates (gender, income, age, and Latin American subgroups) showed that compared to adolescents who reported high family connectedness, adolescents with low family connectedness (OR=3.779, 95% CI 2.853-5.004, $p=0.000$) and medium family connectedness (OR=2.239, 95% CI 1.670-3.002, $p=0.000$) were more likely to report suicidal ideation in the previous year and males (OR=0.533, 95% CI 0.434-0.655, $p=0.000$) were less likely to report suicidal ideation compared with females. Additionally, compared to adolescents who were non-Mexican-origin and non-Puerto Rican-origin, Mexican-origin adolescents (OR=1.671, 95% CI 1.064-2.625, $p=0.026$) and Puerto Rican-origin adolescents (OR=1.605, 95% CI 1.023-2.516, $P=0.040$) were more likely to think about suicide. Finally, the results of the regression with only school connectedness (Model 3) and covariates

mentioned above, indicated that compared to adolescents who reported high school connectedness, those who reported low school connectedness (OR=1.663, 95% CI 1.300-2.128, p=0.000) were more likely to report suicidal ideation in the previous year and compared to females, males (OR=0.500, 95% CI 0.408-0.614, p= 0.000) were less likely to report suicidal ideation. In terms of Latin American subgroups, compared to adolescents from non-Mexican or non-Puerto Rican-origin, Mexican-origin (OR=1.653, 95% CI 1.056-2.586, p=0.028) and Puerto Rican-origin adolescents (OR=1.659, 95% CI 1.063-2.589, p=0.026) were more likely to think about suicide. These results show that each of the main factors namely self-esteem, family, and school connectedness independently were significantly associated with suicidal ideation among this group of adolescents, when controlling for demographic characteristics such as income, age, gender and Latin American subgroups. Likewise, medium levels of self-esteem and family connectedness were also associated with increased risk for suicidal ideation. In addition, gender, being Mexican-origin and Puerto Rican-origin were factors associated with suicidal ideation (Table 1-1).

Table 1-1. Logistic Regressions of suicidal ideation on self-esteem, family and school connectedness in sequential order (n=3,380)

	Models								
	(1)			(2)			(3)		
	OR	95% CI	p value	OR	95% CI	p value	OR	95% CI	p value
Self Esteem (Ref= High)									
low	2.298	1.773-2.978	0.000						
Medium	1.321	1.002-1.742	0.048						
Family Connectedness (Ref= High)									
Low				3.779	2.853-5.004	0.000			
Medium				2.239	1.670-3.002	0.000			
School Connectedness (Ref= High)									
Low							1.663	1.300-2.128	0.000
Medium							0.940	0.719-1.228	0.648
Latin American subgroup									
Mexican (ref: non-Mexican)	1.581	1.009-2.479	0.046	1.671	1.064-2.625	0.026	1.653	1.056-2.586	0.028
PRicans (ref: non-PRicans)	1.676	1.071-2.623	0.024	1.605	1.023-2.516	0.040	1.659	1.063-2.589	0.026
Cubans (ref: non-Cubans)	1.397	0.873-2.237	0.164	1.452	0.902-2.339	0.125	1.360	0.851-2.174	0.199
Central/South (ref: non-C/S)	1.284	0.851-1.939	0.234	1.278	0.842-1.939	0.249	1.323	0.877-1.998	0.182
Gender (Ref: Females)	0.552	0.449-0.677	0.000	0.533	0.434-0.655	0.000	0.500	0.408-0.614	0.000
Age	0.996	0.937-1.059	0.890	0.977	0.918-1.040	0.465	0.993	0.934-1.055	0.816
Income	0.998	0.994-1.002	0.258	0.997	0.993-1.001	0.163	0.998	0.994-1.002	0.230

Note: CI = confidence interval. OR = Odds ratio

Self-esteem, social connectedness (family and school), and depression

To adjust for the effects of depression, the next set of models (see Table 1-2) analyzed each factor self-esteem (Model 4), family connectedness (Model 5), and school connectedness (Model 6) independently, adding depression as well as the other demographics. Results from the logistic regression entering only self-esteem and covariates, show that compared to youth who reported high self-esteem, adolescents who reported low self-esteem (OR=1.266, 95% CI 0.962-1.684, $p=0.104$) and those who reported medium self-esteem (OR=1.107, 95% CI, 0.828-1.481, $p=0.493$) were more likely to report suicidal ideation during the past year. However, when adjusting for depression, these results became not significant. Compared to females, males (OR=0.716, 95% CI 0.575-0.892, $p=0.003$) were less likely to think about suicide. Depression was a significant factor ($p=0.000$); the odds of thinking about suicide among those with high levels of depression were 1.37 times higher than for those with low levels of depression. Additionally, compared to adolescents who were not from Mexican or Puerto Rican origin, Mexican (OR=1.781, 95% CI 1.105-2.869, $p=0.018$) and Puerto Rican-origin adolescents (OR=1.658, 95% CI 1.072-2.565, $p=0.036$) were more likely to think about suicide in the last year, even when controlling for depression. Results from the regression entering family connectedness only with other covariates, including depression, indicated that compared with youth who reported high family connectedness, adolescents who reported low family connectedness (OR=2.415, 95% CI 1.790-3.258, $p=0.000$) and medium family connectedness (OR=1.960, 95% CI 1.444-2.662, $p=0.000$) were more likely to report suicidal ideation during the past year. Males (OR=0.722, 95% CI 0.579-0.900, $p=0.004$) were less likely to report suicidal ideation compared with females. Additionally, the odds of thinking about suicide among older adolescents were 0.92 times lower compared to younger adolescents and this was significant ($p=0.030$). Compared with non-Mexican-origin adolescents, Mexican-origin adolescents (OR=1.781, 95% CI 1.103-2.875, $p=0.018$) were more likely to think about suicide in the last year, even when controlling for depression. At the school level, adolescents who reported low school connectedness (OR=1.348, 95% CI 1.033-1.759, $p=0.028$) were more likely to report suicidal ideation compared with youth with high school connectedness and these results were significant, but there was no significant association for adolescents at the medium level of connectedness. In this model, the odds of thinking

about suicide among those with high levels of depression were 1.37 times higher than those with low levels of depression, and this result was significant ($p=0.000$). Males ($OR=0.692$, 95% CI 0.555-0.861, $p=0.001$) were less likely to report suicidal ideation compared with females; and those who were older ($OR=0.936$, 95% CI 0.876-1.000, $p=0.049$) were less likely to think about suicide compared with those who were younger. In terms of Latin American subgroups, compared with non-Mexican-origin adolescents, Mexican-origin adolescents ($OR=1.813$, 95% CI 1.126-2.921, $P=0.015$) were more likely to think about suicide in the last year, even when controlling for depression. Likewise, compared with non-Puerto Rican-origin adolescents, Puerto Rican-origin adolescents ($OR=1.655$, 95% CI 1.035-2.649, $p=0.036$) were more likely to think about suicide and compared with non-Central and South American-origin adolescents, Central/South American adolescents ($OR=1.568$, 95% CI 1.010-2.436, $p=0.045$) were more likely to think about suicide. The results in this model show that social connectedness in the family and school domains were significantly associated with suicidal ideation among Latino/a adolescents, even when controlling for depression. In addition, adolescents of Mexican-origin, Puerto Rican-origin, and other countries in Central and South American were at risk.

Table 1-2. Logistic Regressions of suicidal ideation on self-esteem, family and school connectedness in sequential order and depression (n=3,380)

	Models								
	(4)			(5)			(6)		
	OR	95% CI	p value	OR	95% CI	p value	OR	95% CI	p value
Self Esteem (Ref= High)									
low	1.266	0.962-1.684	0.104						
Medium	1.107	0.828-1.481	0.493						
Family Connectedness (Ref= High)									
Low				2.415	1.790-3.258	0.000			
Medium				1.960	1.444-2.662	0.000			
School Connectedness (Ref= High)									
Low							1.348	1.033-1.759	0.028
Medium							0.996	0.749-1.323	0.976
Latin American subgroup									
Mexican (ref: non-Mexican)	1.781	1.105-2.869	0.018	1.781	1.103-2.875	0.018	1.813	1.126-2.921	0.015
PRicans (ref: non-PRicans)	1.658	1.072-2.565	0.036	1.605	0.998-2.581	0.051	1.655	1.035-2.649	0.036
Cuban (ref: non-Cuban)	1.583	1.072-2.565	0.072	1.601	0.967-2.653	0.068	1.582	0.981-2.552	0.072
Central/South American (ref: non-C/S)	1.534	0.991-2.376	0.056	1.503	0.965-2.340	0.071	1.568	1.010-2.436	0.045
Depression	1.372	1.321-1.425	0.000	1.355	1.305-1.406	0.000	1.376	1.326-1.427	0.000
Gender (Ref: Females)	0.716	0.575-0.892	0.003	0.722	0.579-0.900	0.004	0.692	0.555-0.861	0.001
Age	0.942	0.880-1.009	0.078	0.929	0.869-0.993	0.030	0.936	0.876-1.000	0.049
Income	0.999	0.995-1.003	0.593	0.999	0.995-1.002	0.485	0.999	0.994-1.003	0.633

Note: CI = confidence interval; OR = odds ratio

Self-esteem, social connectedness (family and school), depressive symptoms, and suicidal ideation simultaneously

Results from the logistic regression of suicidal ideation on all factors simultaneously controlling for age, gender, income, Latin American subgroups (e.g., Mexican, Puerto Rican, Cuban, Central/South American), and depression (see Table 1-3), indicated that: 1) Adolescents with low self-esteem (OR=1.367, 95% CI 1.024-1.824, $p=0.034$) were significantly more likely to report suicidal ideation compared with those with high self-esteem. No significant results were found at the medium level of self-esteem. 2) Adolescents who reported low family connectedness (OR=2.491, 95% CI 1.843-3.365, $p=0.000$) and medium family connectedness (OR=1.984, 95% CI 1.460-2.697, $p=0.000$) were more likely to report suicidal ideation compared with adolescents who reported high family connectedness. 3) Adolescents who reported low school connectedness (OR=1.412, 95% CI 1.080-1.855, $p=0.012$) were more likely to report suicidal ideation compared with adolescents with high school connectedness; however, no significant results were found at the medium school connectedness. The coefficients of low self-esteem, low and medium family connectedness, and low school connectedness decreased after controlling for demographics, depressive symptoms, and the three key independent variables in the model. In addition, results in this model indicated that the odds of thinking about suicide among those with high levels of depression were 1.32 times higher than those with low levels of depression, and this result was significant ($p=0.000$). Males (OR=0.719, 95% CI 0.576-0.898, $p=0.004$) were less likely to think about suicide compared to females, and age (OR=0.921, 95% CI 0.861-0.986, $p=0.017$) was a protective factor, signifying that as age increases the likelihood of adolescents thinking about suicide decreases. Additionally, Mexican-origin adolescents were more likely to think about suicide compared with those of non-Mexican-origin (OR=1.718, 95% CI 1.059-2.787, $p=0.028$). As indicated by the coefficients, adolescents who perceived low connectedness to their family, had almost double the risk of thinking about suicide compared with those who perceived medium connectedness to their family. Additionally, Mexican-origin adolescents were at higher risk of thinking about suicide than any other Latin American subgroup. Stepwise (backward) logistic regression, statistically validated the model and shows that family connectedness had the largest effect on suicidal ideation among this group of adolescents.

Table 1-3. Logistic Regression of suicidal ideation on self-esteem, family and school connectedness with covariates, and depression simultaneously (n=3,380)

	Model 7		
	OR	95% CI	p value
Self Esteem (Ref= High)			
low	1.367	1.024-1.824	0.034
Medium	1.114	0.831-1.494	0.470
Family Connectedness (Ref= High)			
Low	2.491	1.843-3.365	0.000
Medium	1.984	1.460-2.697	0.000
School Connectedness (Ref= High)			
Low	1.415	1.080-1.855	0.012
Medium	1.047	0.784-1.397	0.757
Latin American subgroup			
Mexican (ref: non-Mexican)	1.718	1.059-2.787	0.028
PRican (ref: non-PRican)	1.585	0.982-2.559	0.059
Cuban (ref: non-Cuban)	1.576	0.948-2.619	0.080
Central/South American (ref: non-C/S)	1.498	0.959-2.342	0.076
Depression	1.328	1.277-1.381	0.000
Gender (Ref: females)	0.719	0.576-0.898	0.004
Age	0.921	0.861-0.986	0.017
Income	0.999	0.995-1.003	0.493

Note: CI = confidence interval; OR = odds ratio

Gender and suicidal ideation

Table 1-4 shows the results of the interactions between gender (female, male) and each factor self-esteem, family, and school connectedness (high, medium, low). These results indicated that gender impacts the relationship between social connectedness and suicidal ideation, but not self-esteem and suicidal ideation. Females with low and medium family connectedness are at higher risk of thinking about suicide compared to their male counterparts who have low and medium family connectedness.

Table 1-4. Logistic regression of suicidal ideation on the interactions self-esteem*gender, family*gender, and school connectedness*gender (n=3,380)

	OR	95% CI	p value	OR	95% CI	p value
Self Esteem (Ref=high)						
low	1.367	1.024-1.824	0.034	1.369	0.881-2.128	0.163
Medium	1.114	0.831-1.494	0.470	1.325	0.853-2.056	0.210
Family Connectedness (Ref=high)						
Low	2.491	1.843-3.365	0.000	1.776	1.151-2.740	0.009
Medium	1.984	1.460-2.716	0.000	1.303	0.831-2.022	0.248
School Connectedness (Ref=high)						
Low	1.415	1.080-1.855	0.012	1.413	0.935-2.134	0.101
Medium	1.047	0.784-1.397	0.757	0.590	0.357-0.975	0.040
Depression	1.328	1.277-1.381	0.000	1.327	1.275-1.380	0.000
Age	0.921	0.861-0.985	0.017	0.922	0.862-0.986	0.018
Income	0.999	0.995-1.003	0.493	0.999	0.995-1.002	0.491
Gender (ref: male)	1.390	1.113-1.737	0.004	1.269	0.764-2.105	0.357
Latin American subgroup						
Mexican (ref: non-Mexican)	1.718	1.059-2.787	0.028	1.748	1.074-2.848	0.025
Cuban (ref: non-Cuban)	1.576	0.948-2.619	0.080	1.645	0.985-2.749	0.057
PRican (ref: non-PRican)	1.585	0.982-2.559	0.059	1.609	0.994-2.606	0.053
Central/South American (ref: non-C/S)	1.798	0.959-2.342	0.076	1.516	0.968-2.376	0.069
Self-esteem*gender						
Self-esteem low*female				0.969	0.555-1.693	0.912
Self-esteem medium*female				0.727	0.400-1.321	0.295
Family Connectedness*gender						
Family Connectedness low*female				1.906	1.049-3.462	0.034
Family Connectedness medium*female				2.197	1.173-4.115	0.014
School Connectedness*gender						
School Connectedness low*female				0.976	0.571-1.668	0.930
School Connectedness medium*female				2.477	1.340-4.579	0.004

Note: CI= confidence interval; OR=odds ratio

To further understand gender differences, gender was stratified, and the main significant variables were entered into the equations (see Table 1-5). The results indicated that there were significant gender differences in terms of low and medium family connectedness and medium school connectedness. The effect size of having low family connectedness for females was larger compared with their male counterparts with low family connectedness and this difference was significant ($p=0.034$). Likewise, the effect size of having medium family connectedness was larger for females than for males with medium family connectedness and this difference was significant ($p=0.009$). The odds ratio for adolescents who fell into the medium connectedness to school, were in the opposite direction for females and males. Females with medium school connectedness ($OR=1.436$, 95% CI 1.008-2.045, $p=0.045$) were more likely to think about suicide compared with females with high school connectedness. However, males with medium school connectedness ($OR=0.610$, 95% CI 0.370-1.006, $p=0.053$) were less likely to think about suicide compared with males with high school connectedness, but this result was not significant. Comparing Latinas with Latinos, the difference in medium school connectedness was significant ($p=0.006$). In summary, Latina adolescents were more vulnerable to thinking about suicide having low and medium family connectedness, compared to Latino adolescents. Likewise, Latinas were also more vulnerable to thinking about suicide having medium school connectedness compared to Latinos. There were no gender differences in terms of depression, age, or income.

Table 1-5. Logistic regression on suicidal ideation on family and school connectedness for females and males

	Females (n=1688)			Males (n=1692)			Significance
	OR	95% CI	p value	OR	95% CI	p value	
Family Connectedness (Ref= high)							
Low	3.360	2.204-5.124	0.000	1.725	1.110-2.678	0.015	0.034
Medium	2.924	1.886-4.535	0.000	1.276	0.811-2.006	0.292	0.009
School Connectedness (Ref= high)							
Low	1.364	0.967-1.924	0.077	1.401	0.940-2.088	0.098	0.870
Medium	1.436	1.008-2.045	0.045	0.610	0.370-1.006	0.053	0.006
Depression	1.344	1.282-1.408	0.000	1.345	1.264-1.430	0.000	0.903
Age	0.902	0.828-0.982	0.018	0.950	0.853-1.057	0.344	0.423
Income	0.996	0.990-1.002	0.191	1.001	0.997-1.005	0.637	0.165

Note: CI= confidence interval; OR=odds ratio

Discussion

The present study expands the knowledge of the specific factors associated with suicidal ideation among Latina/o adolescents by examining whether social connectedness and self-esteem were associated with suicidal ideation among this understudied population and whether these factors differed by gender. Social connectedness was examined in the family and school domains. Family connectedness was defined as perceived feelings of being part of, cared, valued, and understood by parents and family members. School connectedness was defined as perceived feelings of being part of and close to people in school. Self-esteem, a dimension of burdensomeness, was defined as having good qualities, being proud of and like self, feelings of doing things right, and being socially accepted and loved. The results of this study support the first hypothesis that low self-esteem and low social connectedness in the family and school domains are associated with suicidal ideation among Latina/o adolescents. Unlike adolescents who fell in the medium category of self-esteem and school connectedness, those who fell in the medium category of family connectedness are also at risk of suicidal ideation compared with those who reported high connectedness to their family. This suggests the important role of strong family ties and parental support in the lives of Latinx adolescents. This is consistent with previous research showing that lack of parental support had greater negative impact on Latino/a children than on children from other ethnicities (Behnke et al., 2011). The protective role that supportive adults play in the lives of adolescents cannot be underestimated (Borowsky et al., 2001; Kidd et al., 2006; Pisani et al., 2013; Wyman, 2014). For adolescents in general, school offers an important opportunity to interact with such adults. This study found evidence of the protective effects of school connectedness on suicidal ideation among Latinx adolescents and support the potential of adapting interventions that are proven effective in enhancing school connectedness in the general population such as Sources of Strength (Wyman, 2014)

This study found support for the two explanatory components associated with suicidal ideation of the Interpersonal Theory of Suicide (Joiner, 2005). Latinx adolescents who perceive low connectedness to their family and school and perceive themselves to have low self-esteem, a dimension of perceived burdensomeness (Van Orden et al., 2010) are at highest risk of thinking about suicide beyond depression. However, for this sample of Latinas and Latinos, low family connectedness has the largest impact on suicidal ideation, providing support of the pivotal role of the family in the Latin culture

(Santiago-Rivera et al., 2002). Additionally, in this sample, increases in age appear to be a protective factor which is consistent with findings in the general population of adolescents (Nock et al., 2008).

The processes by which social connectedness and self-esteem are associated with suicidal ideation in the Latinx adolescents may be explained by the convergence of individual, familial and cultural factors proposed by the Sociocultural Model (Zayas et al., 2005). Familism, which can be seen as connectedness to family, is an important value for Latin American families, but for these families living in the United States, familism is challenged by the acculturation process—which individuals go through when they interact with a new culture—and the developmental stage of the adolescents. In these families, the expected parent-adolescent conflicts around independence, autonomy, commitment and respect for the family are intensified by the cultural dissonance between more acculturated adolescents and their less acculturated parents (Zayas et al., 2005). In addition to developmental and cultural discrepancies, limited meaningful communication between less English-proficient parents and less Spanish-proficient adolescents, as well as socio-economic disadvantages pose additional challenges for the parent-adolescent interaction. It is likely that in this stressful context the parent-adolescent relationship is disrupted, hampering positive communication and conflict resolution, which, in turn, may negatively affect the adolescent's self-esteem. Social connectedness and self-esteem cannot be studied in isolation because these constructs are intertwined. For example, it may be that Latinx adolescents experience high self-esteem via family connectedness whereas other adolescents experience high self-esteem via their level of autonomy and independence (Santiago-Rivera et al., 2002). There is a need for empirical studies to fully understand the overlapping relationship between social connectedness and self-esteem among Latinx adolescents living in the U.S and its relevance to suicide risk.

Consistent with the suicide literature that suggests gender differences in suicide risk, the results of this study support the second hypothesis that there are gender differences between Latina adolescents and Latino adolescents. However, this difference is only significant with respect to social connectedness. In the family domain, Latinas appear to be more vulnerable to the effects of not being cared for, valued, and understood by parents and family members compared to Latinos. Using Zayas et al. (2005) framework, which aligns with the social constructivism framework (Payne et al., 2008), this gender

disparity can be explained by how Latina/o adolescents, especially girls, are socialized within the Latin American cultural values. As mentioned before, family is a central value and women are at its center. Women play an important role in supporting and keeping the welfare of the families, in many cases, by placing their individual needs secondary to those of the family (Katiria Perez & Cruess, 2014; Menard, 2002; Nolle, Gulbas, Kuhlberg, & Zayas, 2012). Girls are socialized to be interdependent on their families, deferent towards parents, and are expected to maintain harmonious relationships with their family. Thus, girls' normal adolescent development towards more independence and autonomy, a value greatly reinforced in the host culture, may challenge cultural traditional Latin American gender roles and family values. As Zayas et al. (2005) contended, parents may become highly critical of their daughters' strides for independence, resulting in the Latinas' internal tension between their autonomous and relational selves. This internal tension in an emotionally vulnerable girl can result in suicidal thoughts and behaviors. The results of this study indicated that depression is an important contributing factor in suicidal ideation. Thus, further studies need to continue examining whether depression is what Zayas et al. (2005) called emotional vulnerability. It may be that depressive symptoms among girls, impact the way they feel about their families and themselves. Further studies should examine the mediational and moderating effects of depression between self-esteem, social connectedness, and suicidal ideation among Latina and Latino adolescents.

Within the school domain a counterintuitive result was found only for those adolescents who fell in the category of medium connectedness to the school. Latina adolescents in this category were more likely to think about suicide, whereas Latino adolescents were less likely to think about suicide. Although not significant for Latinos, the comparison between Latinas and Latinos was significant. This may indicate that there is something in the school domain that places girls at higher risk and boys at lower risk for suicidal ideation compared with those who are highly connected to school. In the absence of research literature understanding gender differences in terms of suicide among Latina/o adolescents, the present study hypothesize that cultural gender expectations may be in part responsible for this difference. As noted before, girls are socialized to be socially interdependent; thus, the perception of feeling they are not part of the school or close to people in school may create internal conflict, which may motivate the desire

to die. In addition, social influence such as peer rejection may affect girls more than males. Indeed, it has been documented that girls are more vulnerable to the detrimental effects of bullying and more likely to think about suicide compared with males. Bullying victimization was associated with suicide attempts for females, but not for males (Shain, 2016). Additionally, males may be more connected to other social spaces such as sport teams; thus, social interconnectedness in school may not be as important. Gender differences in the school domain with respect to suicide risks warrant further investigation and clarification.

An important contribution of this study is the identification of Latin American subgroups who appear to be at highest risk for thinking about suicide. Consistent with previous research (Canino & Roberts, 2001), in this study, Mexican-origin and Puerto Rican-origin adolescents were at higher risk to think about suicide than other subgroups. Previous research suggested that sociocultural, psychological, economic factors, and acculturative stress are associated with the differential rates in suicide risk among Latino subgroups (Canino & Roberts, 2001). Although, the explanation about these subgroup differences is beyond the scope of this study, comprehensive studies aiming to understand differential factors associated with risk for suicide among this diverse group of Latin American adolescents are needed for prevention and intervention.

Implications for practice

Current suicide intervention and prevention practices have overlooked ethnic differences (Leong & Leach, 2010) and have focused on those who are already suicidal or at high risk (Gould, Greenberg, Velting, & Shaffer, 2003). This study highlighted the role of self-esteem and social connectedness—factors derived from empirical theories—in suicidal ideation among a national sample of Latinx adolescents. Previous studies have shown the role of self-esteem and connectedness in buffering adolescents from the effects of risk factors in their lives (Foster et al., 2017; Overholser et al., 1995; Resnick et al., 1997; Umaña-Taylor & Updegraff, 2007). If suicide is looked as a continuum where suicidal ideation precedes attempts, it may be that prevention efforts can be directed to those with low social connectedness and self-esteem. This study indicated that among Latina/o adolescents,

connectedness to families and parents may have the largest buffering effect, suggesting that preventive and therapeutic efforts should be greatly allocated in the family unit. The protective value of social connectedness on suicidal thoughts may result from feeling interpersonally connected to others, which in turn have a positive effect on cognitions (e.g., one is valued, cared and loved) and emotional regulation (Whitlock et al., 2014). Thus, interventions targeting social connectedness, especially in the family domain, may reduce suicidal thoughts among Latinx adolescents. In this regard, cultural adaptations of cognitive behavioral therapy to target Latinx adolescents who think about suicide (Rosselló et al., 2011) and family-based interventions to decrease risk behaviors among this youth such as Familias Unidas (Vidot et al., 2016), may be good alternatives for practitioners working with Latinx youth presenting with suicidal ideation.

Finally, the results of this study showed that depression is an important contributor of suicidal ideation among this sample of Latina/o youth, but the mechanisms by which depression affected adolescents were not the focus of the present study. Thus, future studies should look at whether depression reinforce negative cognitions (feeling unwanted or does not belong) and behaviors that may impact interpersonal relationships.

Implications for Research

This study examined factors associated with suicidal ideation among Latina/o adolescents by using components of the IPTS, an empirical theory that has not been examined in a national sample of Latinx adolescents to understand who is at risk of suicidal ideation. The sociocultural model was used to give cultural meaning to these components. This study lays the foundation for future studies that investigate further and more precisely the components of the IPTS. For example, to examine burdensomeness on suicidal ideation among Latinx adolescents, a study that uses theory-derived measures such as the Interpersonal Needs Questionnaire (Van Orden, et al. 2012) is recommended. Additionally, there is a need for qualitative studies to explore the mechanisms by which connectedness, self-esteem, ethnic identity, burden to others, and acculturative status impact suicide among Latinx adolescents. This study lay the groundwork for developing culturally-appropriate interventions aim to

reduce suicidal ideation among this understudied and underserved population of adolescents. Acknowledging that the relation between self-esteem and social connectedness may be far more complex as demonstrated in a meta-analysis study showing that self-esteem may be rooted in interpersonal experiences and that self-esteem predicts later interpersonal experiences (Cameron & Granger, 2018), this study proposes the need to further investigate the potential use and efficacy of culturally-adapted interventions that focus on enhancing interpersonal relationships and cognitions related to these relationships. For example, a cultural adaptation of the Interpersonal Psychotherapy for Adolescents (IPT-A) (Mufson et al., 2004) to target social interactions and the resulting cognitions and feelings to reduce distorted cognitions that one is not valued or loved may reduce suicidal thoughts among Latinx adolescents. In addition, further investigation is needed to assess the potential benefits of adding service to others as an integral component of interventions for suicide based on the assumption that contributing to others enhance sense of purpose and the experience of positive emotions (Whitlock et al., 2014). This study did not include important life stressors such as immigration, generational status, and discrimination, which are integral to the experience of being Latina/o in the United States. Further studies examining the relationship between these stressors, social connectedness, self-esteem and suicidal ideation are recommended.

Limitations

Some important limitations of this study rest on the nature of the data. First, Add Health data collected in wave 1 are twenty years old and might not reflect current contextual factors that may impact adolescents' health. For example, the current political climate of racial discrimination may heighten adolescents' sense of not belonging and negatively affect their self-esteem. Second, the data do not capture the cultural nuances of being a Latina/o in the U.S. Additionally, the gender variable was defined in strict binary terms (i.e., male and female) which limits the understanding of suicide for an important at-risk group such as LGBT youth. Owing to the study design (e.g. survey was conducted on a school day with only those who were present, which might have excluded adolescents who were absent from school; therefore, missing the opportunity to include adolescents who may be more isolate and in greater need of help. Finally, it is known that the definition or means of measuring suicidal ideation have the potential to

cause inconsistent results (O'Connor, 2016). Current suicide assessment tools have moved from terms such as “committing” to more all-encompassing terms such as thinking about death or thoughts about dying (Posner et al., 2011). Thus, this measure of suicidal ideation in Add Health may have different meanings for adolescents and may result in underestimating the number of adolescents who think about suicide in this sample. Finally, the cross-sectional data do not allow for claims of causality. In terms of the proposed theories, an important limitation is that significant covariates of suicide risk such as substance use and family history of suicide were not included in the models because they are not explicit in the IPTS or the Sociocultural Model of Suicide.

Conclusion

The first study to examine the components of IPTS, an empirical theory of suicide, using a national sample of Latina/o adolescents from Add Health and explain these components within the sociocultural context of Latin American values, showed that social connectedness, particularly in the family and school domains, and self-esteem are associated with suicidal ideation among this population. However, for adolescents in this sample, perceived feelings of being unvalued, uncared and unloved by family had the largest impact on suicidal ideation, particularly for Latinas. In addition to being the first study that examines an empirical theory in a national sample of adolescents from Latin American origin, this study contributes to the current literature by identifying potential modifiable factors that place this youth at risk for suicidal ideation and by laying the groundwork for a much needed culturally-tailored suicide prevention strategy designed for Latinx adolescents. Such strategy should tap into culturally identified protective factors relevant to this group such as parent-adolescent connectedness and family ties. In addition, aspects of ethnic identity and cultural integration that can impact the development of self-esteem among Latinx adolescents should be considered

Paper # 2

Social connectedness, self-esteem, generational status, and suicidal ideation among Latina/o adolescents living in the United States

Background

Latinos/as—individuals from Latin American countries—are the second-largest ethnic minority group in the United States and the second fastest growing racial or ethnic group (U.S. Bureau Census, 2017; Pew Research Center, 2016). In 2014, thirty-two percent of the children under 18 were of Latin American origin (Pew Research Center, 2016), making this population the youngest in the United States. Mexican-origin youth (68%) is the Latin American subgroup, followed by Puerto Rican-origin (9%), Central American-origin (6%), and South American-origin youth (4%) (Child Trends, 2019).

Individuals from Latin American countries tend to be viewed as a homogenous group because they share Spanish as their common language. Despite this commonality, Latin Americans come from diverse ethnicities and from different countries, each influenced by their own socio-cultural and political histories. In addition, migration patterns, place of arrival, settlement and opportunities offered to them by the host country impact the way in which individuals from each Latin American subgroup adapt to the new environment (Santiago-Rivera et al., 2002). In the United States, Latinx have longer life expectancy relative to Whites, despite the fact that Latinx, on average, are less educated, have lower income and wealth, and have less access to health care than Whites, a phenomenon known as the Latino Paradox (Salas-Wright, Vaughn, Goings, Miller, & Schwartz, 2018; Turra & Goldman, 2007). Strong social networks and healthy behaviors at the start of their migration are some of the factors associated with this advantage; yet, the health of this immigrants tend to decline with time living in the United States. It is likely that the stresses of the process of migration and acculturation have detrimental effects on the health and mental health of Latinos/as (Rubalcava, Teruel, Thomas, & Goldman, 2008). Findings from a study examining the Latino paradox in mental health disorders across subgroups showed that the rates of mental illness varied according to nativity, demographics and socioeconomic status and type of mental illness. For example, U.S.-born Mexican-origin individuals reported higher rates of mood, anxiety, and

substance abuse disorders than their foreign-born Mexican-origin counterparts; however, for Cubans the Latino paradox was observed only for substance disorders (Alegría et al., 2008). One of the few studies reporting on suicide risk among Latinas indicated that there are differences across subgroups. For example, Dominican girls were more likely to engage in suicidal behaviors and reported higher family cultural discrepancies compared to Colombian girls who were less likely to engage in suicide attempts and more likely to report family support (Baumann et al., 2010). These studies highlight differences across Latin American subgroups. The examination of these differences could have implications for suicide prevention and intervention development that acknowledge the needs of each Latinx subgroup.

Immigration Generational Status

Immigration generational status refers to the place of birth (U.S.-born or foreign-born) and a parents' place of birth. The three main categories are “first generation” which includes foreign-born individuals (immigrants); “second generation” are U.S.-born individuals who have at least one foreign-born parent; and “third generation or higher” includes individuals who are U.S.- born with both parents born in U.S. (Census Bureau, 2019). Migration from most Latin American countries to the U.S. began in the 1960s and has increased since 1990s. However, Puerto Rico, considered a U.S. territory, and Mexico have both different migration patterns that go back to the nineteenth century and a different socio-political relationship with the United States. In 2012, a large number of adult Latinos/as in the U.S. were first generation (47%), followed by second generation (35%) and third generation (6%) (Pew Research Center, 2013).

Immigration generational status is positively correlated with acculturation (Perez & Padilla, 2000); however, these concepts are not the same. Acculturation encompasses the process of change in beliefs, traditions, and perceptions as the result of the contact individuals have with a new society with different cultural traditions (Escobar & Vega, 2000; Perez & Padilla, 2000). Generational status, the focus of the present study, is a proxy of acculturation as it reflects time spent in the new culture. It is recommended as a measure of acculturation because it produces consistent effects on dependent variables such depression or other psychiatric disorders (Escobar & Vega, 2000).

Generational status is known to be an important factor in suicide risk (Brown, Cohen, & Mezuk, 2015; Canino & Roberts, 2001; Fortuna et al., 2016). Previous literature examining the association between suicide-related behaviors and immigration status among Latinx concur that first-generation are at lower risk of suicide-related behaviors compared to latter generations (Borges et al., 2009; Fortuna et al., 2007; Hovey & King, 1996; Peña et al., 2008; Sorenson & Shen, 1996). Furthermore, there is evidence that exposure to the U.S. culture and time spent in the U.S. increases the risk for suicide among this group (Borges et al., 2009; Brown et al., 2015; Peña, Zayas, Cabrera-Nguyen, & Vega, 2012; Sorenson & Shen, 1996). For example, using a national sample of Latinx adolescents, Peña et al. (2008) found that third-generation adolescents were three times more likely to attempt suicide than first-generation adolescents. Likewise, Baumann et al. (2010) also found that second-generation immigrant Latinas were more likely to attempt suicide than first-generation Latinas living in New York City.

Some aspects of acculturation such as acculturation stressors and cultural involvement play an important role in the mental health of Latinx adolescents. Social supports, such as those obtained from family, have been proposed as major variables linking immigration generation status and suicide risk. For instance, family cohesion has been consistently associated with lower rates of suicide among first-generation immigrant adolescents compared to later immigrant youth (Pottie, Dahal, Georgiades, Premji, & Hassan, 2015). Acculturation stressors such as parent-child conflicts derived from intergenerational dissonance has been postulated as a risk of suicide behaviors (Bridge et al., 2006; Zayas et al., 2005). Acculturation conflict increases the likelihood of parent-child conflict (Smokowski, Rose, & Bacallao, 2008), which, in turn increases the risk of suicidal behaviors. In a study examining a clinical sample of adolescent ethnic minorities, Ortin, Miranda, Polanco-Roman, and Shaffer (2018) found that higher parent-child acculturation gap was associated with increased suicidal ideation. Although this study did not use generational status as a measure of acculturation, it highlighted the importance of the acculturation gap as a risk factor for ethnic minorities including Latinx. In addition, parent-child conflict in the context of acculturation discrepancies is associated with lower self-esteem among Latinx youth (Smokowski & Bacallao, 2007). Many immigrant families experience poverty levels, less educational attainment, and

limited English proficiency, all risk factors that may lead to poor mental health outcomes in youth (Goforth, Pham, Chun, & Castro-Olivo, 2017).

Although, current literature does not explain the mechanisms by which generational status is related to suicide, some studies assert that acculturative stress and separation from country of origin play an important role. Joiner (2005) posits that, for immigrants, separating from their country heightens their risk for suicidal ideation by disrupting social connections with loved ones and increasing a sense of isolation. In a recent study, Fortuna et al. (2016) found that discrimination, family conflicts, and a low sense of belonging increased the likelihood of thinking about suicide among Latinos/as. Likewise, Silva and Van Orden (2018) argued that the stress immigrants go through in the process of acculturation decreases immigrants' participation in traditional social activities (e.g., church attendance and family gatherings), which are all well-known protective factors against suicide.

Given that acculturation is an important aspect of the life of Latinx immigrants and that family and school are crucial for the development of a child, research inquiry about generational status is important considering the impact that it has for the mental health of Latinx adolescents and the large percentage of these adolescents living in intergenerational households, being new immigrants in the U.S., and attending schools. Guide by the same theoretical framework explained in paper # 1, the present paper aims to examine the role of generational status on suicidal ideation, particularly exploring whether it moderates the relationship between self-esteem, social connectedness (in the family and school domains) and suicidal ideation. This study hypothesized that generational status would moderate the relationship between social connectedness, self-esteem, and suicidal ideation, after controlling for sociodemographic characteristics and depression. Understanding how generational status is associated with risk for suicide could have implications for prevention and intervention related to this growing segment of the population.

Methods

Data for this study drew from the National Longitudinal Study of Adolescent Health (Add Health), wave 1 in-home questionnaire, collected in 1994-1995. Add Health is a longitudinal study designed to

understand the role of micro and macro level factors in the lives of students in grades 7 through 12. A random sample of eighty high schools across U.S. was selected and stratified by region, urbanicity, school type, and racial percentage. For each high school, the largest middle feeder school was also selected (Harris & Udry, 2014). Add Health has collected data from multiple waves (five) the last one conducted in 2018. Wave 1 was chosen to examine adolescents between 13 and 19-years-old. The sample for this study comprised 2,196 students who 1) self-reported as being of Latin American origin; 2) were between 13 and 19-years-old; 3) answered the question whether they have had suicidal ideation in the past year; and 4) answered the questions about their birthplace and their residential parents' birthplace. This study was reviewed by Columbia University Institutional Review Board and determined to be exempt.

Measures

Dependent variable

Suicidal ideation

Suicidal ideation (dichotomous) was measured with the question "during the past 12 months, did you ever seriously think about committing suicide? In the present study this variable was dichotomized. Zero (0) indicates no ideation in the past year, and one (1) indicates any ideation in the past year.

Independent variables

Self-esteem

Six-items from the Add Health survey that correspond to the Rosenberg Self-esteem Inventory (Rosenberg, 1965) were used to measure self-esteem. These items included, "You have a lot of good qualities," "You have a lot to be proud of," "You like your-self just the way you are," "You feel like you are doing everything just right," "You feel socially accepted," and "You feel loved and wanted." These items were assessed on a 5-point response scale with answers ranging from 1 (strongly agree) to 5 (strongly disagree). High scores represent higher self-esteem. In this study, Cronbach's alpha showed these items to reach acceptable reliability, $\alpha = .84$. These items were selected based on previous studies assessing adolescents self-esteem using Add Health (Costello et al., 2008; Resnick et al., 1997). Rosenberg's scale

has been validated with diverse samples of ethnic minority adolescents (Umaña-Taylor & Updegraff, 2007) and has been found to have a strong relationship with global self-worth, a domain of self-esteem (Hagborg, 1993) and an important component of burdensomeness as suggested by the Interpersonal Theory of Suicide (Van Orden et al., 2012).

Family and School connectedness

Family and school connectedness were measured using items from the protective factors section of Add Health. The section contains 8 items on a 5-point Likert scale (ranging from “strongly disagree” to “strongly agree”) assessing the extent to which adolescents perceived themselves as being supported by parents, teachers and friends. To measure family connectedness, four items were selected. These items included, “How much do you feel parents care about you,” “How much do you feel that people in your family understand you,” “How much do you feel that you and your family have fun together”, and “How much do you feel that your family pay attention to you.” A higher score corresponds to higher family and parental support or connectedness. These items were selected to capture the concept of belongingness (Van Orden et al., 2010) and were based on previous studies examining family support using Add Health (Borowsky et al., 2001). In the current study Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.75$.

School connectedness was measured with two items on a 5-point Likert scale (ranging from “strongly disagree” to “strongly agree”) measuring adolescents’ perceptions of school connectedness. These items include, “You feel close to people at your school,” and “You feel like you are part of your school.” Items were selected to capture belongingness (Van Orden et al., 2010) and based on previous studies examining school connectedness and suicidal behaviors using Add Health (Kidd et al., 2006; Resnick et al., 1997). In the present study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.72$

The items of self-esteem, family and school connectedness were analyzed using factor analysis. Principal component analysis was selected as the extraction method and orthogonal rotation (Varimax) as

the rotation method. Self-esteem, family connectedness, and school connectedness subscales formed three strong distinctive factors with eigenvalues higher than one. Factor loadings for the scales were high, with loadings ranging from 0.706 to 0.769; 0.561 to 0.831; and 0.833 to 0.870 on the three factors respectively. Previous studies have examined self-esteem, family and school connectedness as continuous variables, where higher scores correspond to higher levels in self-esteem, family and school connectedness respectively. To try to address the question about at which point perceptions of disconnectedness and burdensomeness result in suicidal ideation (Van Orden et al., 2010), self-esteem and connectedness to family and school variables were trichotomized, dividing the factors in tertiles (low, medium, and high) by using cutoffs of 33.3rd percentile and 66.7th percentile. This decision was also made considering the advantage that categories offer for clinical interpretation of the results and the potential to understand useful cutoffs for low, medium, and high as thresholds of risk.

Immigration Generation Status

A variable with three categories (1st, 2nd and 3rd generation) was created using adolescents self-reports on their own and their parents' country of birth. Following conventions from a previous study examining generational status among Latin American adolescents with the same dataset (Peña et al., 2008) and definitions provided by Cervantes, Padilla, Napper, and Goldbach (2013), as well as the U.S. Census Bureau (2019), generations were coded as follows: 1) first generation represented foreign-born adolescents; 2) second generation denoted U.S.-born adolescents or those living since birth in the U.S., with both parents or at least one parent foreign-born; and 3) third generation comprised U.S.-born adolescents with both parents U.S.-born.

Covariates

Depressive symptoms

In Add Health depressive symptoms (continuous) were measured by using the 19-item modified version of the original 20-item Center for Epidemiologic Studies Depressive Symptoms Scale (CES-D) instrument (Radloff, 1977), which has been used on adolescent populations to measure depressive symptoms (Garrison et al., 1991). Following previous studies examining Latinx adolescents (Peña et al.,

2008), this study used 5 of these 19 items because they have been tested with multiple ethnicities among adolescents and across generations with good external validity (Perreira et al., 2005). These items include: 1) “You could not shake off blues even with help from your family and friends”; 2) “You felt depressed”; 3) “You were happy” (reversed code); 4) “You felt sad”; and 5) “You felt life was not worth living.” Items were scored from 0 (never) to 3 (daily) with a range of possible score between 0 to 15. In the present study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.77$

Demographic variables

Four main Latin American-origin subgroups (i.e., Mexican, Puerto Rican, Cuban, Central/South American) were selected based on adolescents’ self-reported responses to the following questions: “Are you of Mexican-origin,” “Are you Cuban-origin,” “Are you Puerto-Rican-origin,” “Are you Central or South American-origin,” “Are you other.” In the current study answers were coded (1) “yes” and (0) “no”. Those who responded “other” were coded in the same group as Central and South American. Age was calculated in years from the date of birth and interview. Gender was a binary option reported by adolescents and measured by the question, “Biological sex female or male”. In this study this variable was coded (0) male and (1) female. Income was based on parental self-report of annual household income using the question “about how much total income, before taxes did your family receive in 1994.”

Statistical Analysis

Logistic regressions were used to explain the relationship between the independent variables and the dependent variable (Menard, 2002) and to conduct moderation analysis predicting suicidal ideation (dichotomous). Main variables (i.e., self-esteem, social connectedness in the family and school domains) and covariates (i.e., age, gender, income and Latin American subgroups) were entered in the first step (Model 1) and interactions (i.e., self-esteem*generation, family connectedness*generation, school connectedness*generation) with covariates in the second step (Model 2) (see Table 2-1). Finally, to understand the role of variables relevant to the acculturation process, models 3,4,5 and 6 examined contextual variables individually, such as parents’ level of education, religious affiliation, feeling safe and knowing people in the neighborhood, and language spoken at home, controlling for generational status

and covariates. Tests of model effects were conducted to confirm the overall effect of the independent variables on the dependent variable. All analyses were conducted using SPSS (BM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp).

Missing data

Patterns of missing data were analyzed. The percentage of missing data ranged from 3.7% (family connectedness) to 28% (income). Multiple imputation for missing data was used as the recommended strategy to eliminate or minimize bias related to different causes of missing data (Allison, 2001). Variables used for imputation included the key main variables, as well as covariates in the model. Analyses were performed using Fully Conditional Specification, an iterative Markov chain Monte Carlo (MCMC) method that can be used when the pattern of missing data is at random, with twenty imputations, and model for scale variables was Predictive Mean Matching, all functions of SPSS (IBM Knowledge Center, 2018).

Results

Sociodemographic Characteristics

Among this sample of 2,196 Latinx adolescents, almost 13% reported having thought about committing suicide in the previous year. The mean age was 16.3 years old. Males (50.1%) and females (49.9%) were evenly distributed. More than half of the sample were youth of Mexican-origin (53%), followed by Puerto Rican-origin (15%), and Cuban-origin (13%), with a large percentage from Central and South American countries (19%). The preponderance of the adolescents were U.S.-born (74.6%) and the majority of the parents (70.4%) were foreign-born. The largest group of adolescents were second-generation (45.7%), followed by third-generation (28.9%) and first-generation (25.4%). A large proportion of adolescents reported Catholicism (58.1%) as their religious affiliation, and half of the sample reported they spoke Spanish at home (50.1%). The preponderance of adolescents reported feeling safe (81.8%) and knowing people in their neighborhood (63.9%). The majority of fathers (63.3%) and mothers (67.2%) had less than or high school education.

Outcomes

Table 2-1 presents the odds ratios (OR), 95% intervals (CI) and p values from the first step (Model 1). Results indicated that compared with adolescents with high self-esteem, adolescents with low self-esteem (OR 1.380, CI 1.021-1.864, $p=0.036$) were more likely to think about suicide, and this result was significant. In terms of social connectedness, compared with adolescents who reported high family connectedness, adolescents with low family connectedness (OR 2.068, CI 1.523-2.807, $p=0.000$) were more likely to think about suicide. Likewise, adolescents who reported low connectedness to school (OR 1.476, CI 1.102-1.969, $p=0.009$) were more likely to think about suicide compared with adolescents who reported high school connectedness. All these results were significant. In terms of generational status, compared with first-generation adolescents, third generation adolescents (OR 2.349, CI 1.447-3.736, $p=0.000$) were significantly more likely to think about suicide. Similarly, second-generation adolescents (OR 1.393, CI 0.928-2.091, $p=0.109$) were also more likely to think about suicide compared with first-generation, but this result was not significant. Characteristics such as age, gender, and being of Cuban-origin were all significantly associated with suicidal ideation among this sample. With increasing age, the odds of thinking about suicide were lower (OR 0.911, CI 0.833-0.998, $p=0.044$); compared with females, males had lower odds of thinking about suicide (OR 0.698, CI 0.521-0.935, $p=0.016$); and compared to non-Cuban-origin adolescents, those of Cuban-origin (OR 2.081, CI 1.056-4.101, $p=0.034$) were more likely to think about suicide. In addition, among adolescents with reported higher levels of depression (OR 1.394, CI 1.324-1.467, $p=0.000$) the odds of thinking about suicide significantly increased. Income was not significantly related to suicidal ideation. Test of model effects of model 1, confirmed that self-esteem ($p=0.022$); family ($p=0.000$) and school connectedness ($p=0.013$), and generational status ($p=0.000$) were significantly associated with suicidal ideation. In addition, age ($p=0.028$), depression ($p=0.000$), and Cuban-origin ($p=0.039$) were also significantly associated with suicidal ideation. Table 2-1 also shows the second step (Model 2) where interactions were probed by testing the conditional effects of generational status (first, second, and third) on self-esteem, family, and school connectedness (low and high), controlling for age, income, depression, and Latin American subgroups. The results indicated that second-generation adolescents with low self-esteem (OR 1.193, CI 0.524-2.719, $p=0.674$) were more likely to think about suicide compared with first-generation adolescents with low self-

esteem, although this result was not significant. Third-generation adolescents with low self-esteem (OR 0.774, CI 0.329-1.821 $p=0.558$) were less likely to think about suicide compared with first-generation adolescents with low self-esteem, but this result was not significant. In terms of social connectedness, second-generation (OR 1.976, CI 0.885-4.409, $p=0.097$) and third-generation (OR 1.939, CI 0.823-4.572, $p=0.130$) adolescents with low family connectedness were more likely to think about suicide compared to first-generation adolescents with low family connectedness. Although these results were not significant, family connectedness had a marginally significant impact on second-generation adolescents compared to the first-generation. The odds ratio indicated that second-generation adolescents who reported low family connectedness appear to have the highest risk of thinking about suicide. Additionally, compared to first-generation adolescents with low school connectedness, second-generation (OR 1.202, CI 0.548-2.639, $p=0.646$) and third-generation (OR 1.326, CI 0.579-3.036, $p=0.505$) adolescents with low school connectedness were more likely to think about suicide, but these results were not significant. In this model, gender, being of Cuban-origin and depressive symptoms remain significantly associated with suicidal ideation. Compared with females, males were less likely to report suicidal ideation in the previous year (OR 0.688, CI 0.513-0.924, $p=0.013$), and compared with non-Cuban-origin adolescents, Cuban-origin adolescents (OR 2.098, CI 1.061-4.148, $p=0.033$) were more likely to think about suicide in the past year. Additionally, higher depression increased the odds of thinking about suicide (OR 1.398, CI 1.328-1.472, $p=0.000$) compared with lower depression. Test of model effects in model 2 confirmed that generation status is not a function of the relationship between self-esteem and suicidal ideation ($p=0.387$); between family connectedness and suicidal ideation ($p=0.184$); or school connectedness and suicidal ideation ($p=0.511$). The effects of age ($p=0.036$), depression ($p=0.000$), gender ($p=0.012$), and Cuban-origin ($p=0.043$) remained significant. The results did not support the hypothesis that generational status would moderate the relationship between self-esteem, social connectedness and suicidal ideation among Latinx adolescents when controlling for age, gender, income, Latin American subgroups, and depression.

Table 2-1. Logistic regression of suicidal ideation on self-esteem, family and school connectedness (Model 1) and interactions (Model 2) (n=2,196)

	Model 1			Model 2		
	OR	95% CI	p value	OR	95% CI	p value
Self-esteem (ref: high)						
Low	1.380	1.021-1.864	0.036	1.377	0.683-2.775	0.371
Family Connectedness (ref: high)						
Low	2.068	1.523-2.807	0.000	1.228	0.631-2.391	0.545
School Connectedness (ref: high)						
Low	1.473	1.102-1.969	0.009	1.232	0.635-2.392	0.537
Generational Status (ref: 1 st generation)						
2 nd generation	1.393	0.928-2.091	0.109	0.738	0.284-1.917	0.533
3 rd generation	2.349	1.447-3.736	0.000	1.547	0.572-4.187	0.390
Latin American Subgroups						
Mexican (ref: non-Mexican)	1.861	0.996-3.588	0.064	1.847	0.956-3.569	0.068
Cuban (ref: non-Cuban)	2.081	1.056-4.101	0.034	2.098	1.061-4.148	0.033
Puerto Rican (ref: non-Puerto Rican)	1.471	0.760-2.844	0.252	1.477	0.759-2.874	0.251
Central/South American (ref: non-C/SA)	1.707	0.951-3.067	0.073	1.708	0.948-3.076	0.075
Age	0.911	0.833-0.998	0.044	0.912	0.833-0.999	0.047
Gender (ref: female)	0.698	0.521-0.935	0.016	0.688	0.513-0.924	0.013
Income	0.996	0.988-1.003	0.264	0.996	0.988-1.003	0.272
Depression	1.394	1.324-1.467	0.000	1.398	1.328-1.472	0.000
Self-esteem*Generation						
Self-esteem*2 nd generation				1.193	0.524-2.719	0.674
Self-esteem*3 rd generation				0.774	0.329-1.821	0.558
Family*Generation						
Family*2 nd generation				1.976	0.885-4.409	0.097
Family*3 rd generation				1.939	0.823-4.572	0.130
School*Generation						
School*2 nd generation				1.202	0.548-2.639	0.646
School*3 rd generation				1.326	0.579-3.036	0.505

Note: CI= confidence interval; OR=odds ratio

Finally, tables 2-2, 2-3, 2-4 and 2-5 present the results of the logistic regressions of suicidal ideation on each independent contextual variable (i.e., mother's and father's level of education, religious affiliation, feeling safe and knowing someone in the neighborhood, and spoken language at home), including the main factors (self-esteem, family, and school connectedness), generational status, and covariates (age, gender, income, depression, and Latin American subgroup). None of these factors were significantly associated with suicidal ideation among this group of Latinx adolescents. Only depression remained significant. However, in all these regression models, being third-generation adolescent was significantly positively associated with suicidal ideation, while age was significantly negatively associated with suicidal ideation and being female increased the odds of thinking about suicide.

Table 2-2. Logistic regression of suicidal ideation on parents' level of education and generational status (n=2,196)

	OR	95% CI	P value
Father's level of education (ref: other)			
High school or less	1.094	0.649-1.843	0.736
Some college	1.119	0.633-2.274	0.577
Graduate college or more	1.023	0.530-1.973	0.947
Mother's level of education (ref: other)			
High school or less	0.948	0.529-1.700	0.859
Some college	1.319	0.665-2.618	0.429
Graduate college or more	1.495	0.722-3.095	0.279
Generational Status (ref: 1 st generation)			
2 nd generation	1.393	0.928-2.091	0.109
3 rd generation	2.349	1.447-3.736	0.000
Latin American Subgroup			
Mexican (ref: non-Mexican)	1.985	1.039-3.793	0.038
Cuban (ref.: non-Cuban)	1.998	1.016-3.929	0.045
Puerto Rican (ref.: non-Puerto Rican)	1.528	0.801-2.916	0.198
Central/South American (ref: non-C/SA)	1.740	0.974-3.110	0.061
Age	0.932	0.853-1.018	0.119
Gender (ref: female)	0.669	0.501-0.892	0.006
Income	0.994	0.986-1.002	0.158
Depression	1.448	1.377-1.523	0.000

Note: OR=Odds ratio; CI= confidence interval

Table 2-3. Logistic regression of suicidal ideation on feeling safe, knowing people in the neighborhood and generational status (n=2,196)

	OR	95% CI	p value
Neighborhood (Yes)			
Know people in the neighborhood	1.015	0.759-1.357	0.921
Feel safe in the neighborhood	0.855	0.589-1.241	0.409
Generational Status (ref: 1st generation)			
2 nd generation	1.485	0.994-2.217	0.053
3 rd generation	2.479	1.567-3.921	0.000
Latin American Subgroup			
Mexican (ref: non-Mexican)	1.925	1.007-3.679	0.048
Cuban (ref.: non-Cuban)	2.058	1.051-4.031	0.035
Puerto Rican (ref.: non-Puerto Rican)	1.517	0.794-2.898	0.207
Central/South American (ref: non-C/SA)	1.768	0.990-3.155	0.054
Age	0.931	0.852-1.016	0.110
Gender (ref: female)	0.675	0.506-0.900	0.007
Income	0.996	0.988-1.003	0.259
Depression	1.442	1.372-1.515	0.000

Note: OR=Odds ratio; CI= confidence interval

Table 2-4. Logistic regression of suicidal ideation on religious affiliation and generational status (n=2,196)

	OR	95% CI	p value
Religious affiliation (ref: other)			
Catholic	0.842	0.621-1.142	0.269
None	1.011	0.612-1.670	0.966
Generational Status (ref: 1 st generation)			
2 nd generation	1.496	1.001-2.235	0.049
3 rd generation	2.501	1.581-3.957	0.000
Latin American Subgroup			
Mexican (ref: non-Mexican)	1.907	0.997-3.646	0.051
Cuban (ref: non-Cuban)	2.041	1.041-4.001	0.038
Puerto Rican (ref: non-Puerto Rican)	1.509	0.789-2.885	0.214
Central/South American (ref: non-C/SA)	1.759	0.984-3.144	0.057
Age	0.930	0.852-1.016	0.108
Gender (ref: female)	0.676	0.507-0.901	0.008
Income	0.996	0.988-1.003	0.256
Depression	1.443	1.373-1.516	0.000

Note: OR=Odds ratio; CI= confidence interval

Table 2-5. Logistic regression of suicidal ideation on language spoken at home and generational status (n=2,196)

	OR	95% CI	p value
Language spoken at home (ref: other)			
Spanish	0.963	0.264-3.518	0.955
English	1.678	0.456-6.181	0.436
Generational Status (ref: 1 st generation)			
2 nd generation	1.286	0.850-2.945	0.233
3 rd generation	1.698	1.016-2.838	0.043
Latin American Subgroup			
Mexican (ref: non-Mexican)	1.942	1.018-3.705	0.044
Cuban (ref: non-Cuban)	2.171	1.108-4.254	0.024
Puerto Rican (ref: non-Puerto Rican)	1.421	0.744-2.714	0.288
Central/South American (ref: non-C/SA)	1.748	0.979-3.121	0.059
Age	0.934	0.855-1.020	0.129
Gender (ref: female)	0.671	0.503-0.895	0.007
Income	0.994	0.986-1.002	0.121
Depression	1.449	1.379-1.523	0.000

Note: OR=Odds ratio; CI= confidence interval

Discussion

The results of the present study suggest that the antecedents of suicidal ideation proposed by the Interpersonal Theory of Suicide (Joiner, 2005): low social connectedness (in the family and school domains) and low self-esteem (i.e., a dimension of burdensomeness) are present in this sample of Latinx adolescents. Although low school connectedness and low self-esteem have a sizeable impact on suicidal ideation among Latinx youth, low family connectedness has the largest impact, suggesting the central role of family and family ties in the lives of Latin American-origin adolescents. In addition, this study found that generational status matters in terms of suicidal ideation. Third-generation adolescents are at higher risk of thinking about suicide compared with their first-generation counterparts. This finding is consistent with previous studies, showing generation status—measured by time spent in the U.S.— is a risk factor associated with suicide (Canino & Roberts, 2001; Hovey & King, 1997; Peña et al., 2008). Research studies have shown that with increased time spent in the U.S., Latin American cultural orientation decreases, and U.S. cultural orientation increases across generations. Despite this shift, adolescents tend to retain the value of family ties (Perez & Padilla, 2000). This cultural orientation shift may provide some explanation for why third-generation adolescents appear to be at higher risk. It is possible that more acculturated third-generation Latinx adolescents, who may be more in line with the individualistic values (e.g., self-efficacy, autonomy) of the U.S. culture, may rely more on themselves and less on their families for support which, in turn, may create a sense of isolation and disconnection from their families. It may also be that decreasing levels of familism (i.e., responsibility to family) across generations, which has been identified as a protective factor against suicide, place third-generation Latinx adolescents at higher risk (Oquendo et al., 2005; Perez & Padilla, 2000).

The effect of social connectedness and self-esteem on suicidal ideation among Latinx adolescents was not different across generations. However, family connectedness had a marginal effect for second-generation compared to first-generation adolescents. This result—even though non-significant—suggests that generational status might make a difference in the relationship between family connectedness and suicidal ideation, particularly for second-generation adolescents. Previous studies support the protective role of family ties or familism against suicide risk, but also the detrimental effects that family disruption

emerging from the cultural dissonance between more acculturated adolescents and their less acculturated parents have on Latin American families. Second generation adolescents in particular may face in-home intercultural discrepancies and subsequent parent-child conflict (Hovey & King, 1997; Oquendo et al., 2005; Zayas, Bright, Álvarez-Sánchez, & Cabassa, 2009) and low self-esteem (Smokowski & Bacallao, 2007), both risks for suicide. Taking the findings of the present study together, it may be that acculturation stress is the culprit of suicidal ideation among Latinx adolescents across generations. However, for second-generation youth, the stress may be more at the micro level, related to the parent-child acculturation discrepancies inside the home. While for third-generation adolescents, the stress may be more at the macro level, related to tensions outside the home. These macro level tensions may refer to the departure from collectivistic values to fit the individualistic values of the host culture, the perceptions of the society or community about ethnic minorities, socioeconomic disparities, and discrimination.

The present study also found that age, gender, and depression are associated with risk of suicidal ideation, which is consistent with the findings of the general population of adolescents (Nock et al., 2008). Interestingly, depression was the only variable that remained significant when interactions were added into the model. As proposed by the Sociocultural Model of Suicide (Zayas et al., 2005), this finding could indicate that acculturation stressors, such as parent-child cultural gaps may play a more important role among adolescents who are already emotionally vulnerable. Nevertheless, the cross-sectional analysis of the present study does not allow for interpretations based on directionality. It remains a question as to whether emotional vulnerability is a precursor or a consequence of acculturation stress.

The current study also examined other risk and protective sociocultural variables associated with suicide among Latinx, including Latin American subgroup, parents' level of education, feeling safe and knowing people in the neighborhood, religious affiliation, and language spoken at home. In contrast to previous studies identifying religious affiliation and retention of language as a protective factors against suicide among Latinos/as (Almeida, Molnar, Kawachi, & Subramanian, 2009; Oquendo et al., 2005), this study found no effects from religious affiliation, language spoken at home, feeling safe in the

neighborhood or parental education. The present study did find, however, that Cuban-origin adolescents are at higher risk of thinking about suicide compared with other Latin American-origin youth. Even though there was a positive association among all of the other subgroups (i.e., Mexican, Puerto Ricans, Central and South Americans), none of them were significant. This result may point out to the heterogeneity of the subgroups. Further research is needed to understand cultural commonalities and differences across Latin American subgroups that have protective or risk effects on suicide. The present study concurs with previous recommendations to continue investigating protective and risk culture-related mediators and moderators to be able to develop approaches that are culturally relevant to Latinx youth with suicide risk (Oquendo et al., 2005). It is also important to understand how acculturation impacts adolescents' mental health in order to train providers who work with minority populations and improve services (Goforth et al., 2017).

Implications for clinical practice

The present study suggests that time spent in the U.S. increases the likelihood of thinking about suicide among Latinx adolescents. Practitioners working with Latinx adolescents need to consider the dynamic process of acculturation—within the micro and macro systems—on the mental health of Latinx immigrant adolescents across the first three generations. Fostering the integration of both Latin American and U.S. culture orientation (i.e., biculturalism) as proposed by Smokowski et al. (2008) may allow Latinx adolescents to increase the gamut of protective coping strategies offered by the two cultures. In this regard, culture- and family-based interventions to decrease risk behaviors among Latinx youth such as Familias Unidas (Vidot et al., 2016) and bicultural skills training program (Bacallao & Smokowski, 2005) could be good alternatives for practitioners working with Latinx youth at risk.

Implications for Research

This study examined empirically tested antecedents of suicidal ideation derived from IPTS not examined before in a national sample of Latinx adolescents and used the Sociocultural Model to give cultural meaning to these factors. This study lays the foundation for future studies that investigate more

precisely the components of the IPTS, taking into consideration cultural aspects such as acculturation stress relevant to the Latinx group.

There is a need for both quantitative and qualitative studies clarifying the direction of depression and acculturation stress, that is, to determine which one precedes the other. To do so, measures of acculturation that are not only related to time spent in the U.S., but also to biculturalism are needed to capture the complexity of the concept of acculturation. Qualitative studies may help to understand the unexplored cultural differences and related coping strategies particular to each Latin American subgroup. The present study lays the groundwork for developing culturally-appropriate interventions aimed at reducing suicidal ideation among this understudied and underserved population of adolescents. Finally, this study examined protective factors—identified by the literature—such as parents' level of education, religious affiliation, feeling safe in the neighborhood, and language spoken at home but none of them were significantly associated with suicidal ideation. These results suggest that interventions should begin by focusing on family and acculturation stress (e.g., parent-child cultural discrepancies) while more is known regarding other contextual factors that may affect suicidal ideation among this group.

Limitations

It is known that the definition or means of measuring suicidal ideation has the potential to cause inconsistent results (O'Connor, 2016). Current suicide assessment tools have moved from terms such as “committing” to more all-encompassing terms such as thinking about death or thoughts about dying (Posner et al., 2011). Thus, the measure of suicidal ideation in Add Health may have different meanings for adolescents and may result in underestimating the number of adolescents who think about suicide in this sample. Some other important limitations of this study rest on the nature of the Add Health data. First, data collected in wave 1 are twenty-years-old, thus may not reflect current contextual factors that may impact adolescents' health. For example, the current political climate of racial, ethnic and national discrimination may thwart adolescents' belongingness and negatively impact their self-esteem. Second, the gender variable was defined in strict binary terms (i.e., male and female) which limits the understanding of suicide for an important at-risk group, such as LGBT youth. Owing to the study design (e.g. the survey

was conducted on a school day with only those who were present, excluding adolescents who were absent from school) misses the opportunity to include adolescents who may be more isolated and in greater need of help. Additionally, in order to fully test the true validity of IPTS, belongingness and burdensomeness may need to be measured with theoretically-based measures such as the Interpersonal Needs Questionnaire (Van Orden et al., 2012).

Conclusion

By using a national sample of Latina/o adolescents from Add Health, the present study sought to understand the impact of generational status, measured as time spent in the U.S. on suicidal ideation among this group of adolescent immigrants. This study provides evidence that the two antecedents of suicidal ideation (i.e., low social connectedness and low self-esteem) proposed by the IPTS are present among Latina/o adolescents. Generational status does not appear to make a difference in the relationship between social connectedness (in family and school domains), self-esteem and suicidal ideation. However, there was a pattern of change in the association between family connectedness and suicidal ideation (non-significant), suggesting that acculturation stressors stemming from cultural dissonance within the micro (e.g., parent-adolescent) and macro (e.g., Latin-U.S. orientation) across generations may be especially important for the first three generations of Latinos/as in the United States. Efforts to understand the dynamic nature of acculturation, its impact on suicide, and the cultural protective and risk factors that are common and different among Latin American subgroups warrant further examination. In addition, investigating bicultural training programs to foster self-esteem and connectedness to family and school among Latinx youth are particularly important for suicide prevention.

Paper # 3

The role of social connectedness and self-esteem in the course of suicidal ideation and attempts among Latina/o adolescents living in the United States

Background

Adolescents who belong to a racial/ethnic minority groups are disproportionately affected by sadness, hopelessness, suicidal ideation and suicide attempts. Results from the most recent Youth Behavioral Risk Surveillance Survey (YRBSS) conducted in 2017 (Kann et al., 2018), indicated that nationwide, 17.2% of adolescents in high school considered attempting suicide and 7.4% of students made an actual attempt. In this same survey, 16.4% of Latinx adolescents seriously considered attempting suicide and 8.2% of them attempted suicide in the previous year (Kann et al., 2018). Latinx adolescents also reported high prevalence of depressive symptoms such as sadness and hopelessness, placing this group at high risk. Studies have shown an increased risk of suicidal ideation during adolescence (Curtin et al., 2016a) and suicidal ideation is the strongest predictor of suicide attempts among youth (Bridge et al., 2006; Nock et al., 2008). Approximately sixty percent of the transitions from suicidal ideation to plan and suicide attempt among adolescents occurred within the first year (Nock et al., 2008). In order to develop preventive and therapeutic interventions to decrease suicide risk among Latinx adolescents, there is a need to identify culturally-relevant, distinct factors that can lead to suicide attempts (O'Connor & Kirtley, 2018).

The use of theories that distinguish these factors is a starting point (Vélez-Grau, 2019). The Interpersonal Theory of Suicide (IPTS) (Joiner, 2005) provides distinct processes for suicidal ideation and the progression to attempts. IPTS postulates that a combination of perceived feelings of disconnection and burdensomeness (e.g. low self-esteem) result in suicidal ideation. However, not everyone moves from thinking to acting upon those thoughts; the acquired capability to enact self-harm is necessary for this transition to take place. This capability involves relative fearlessness about death, and it may be acquired through the exposure to painful emotional and physical experiences, which, in turn, desensitize individuals to pain, making them more likely to engage in self harmful behaviors. IPTS claims to be universal because it explains suicidal phenomena across phases of the lifespan, ethnicity, and cultures

(Joiner, 2005; Van Orden et al., 2010). Although empirical studies have found evidence of the association between these constructs with various populations (Ma, Batterham, Calear, & Han, 2016), there is still much to be done to understand suicide among minority populations, particularly Latinx adolescents. Sociocultural Model of Suicide (Zayas et al., 2005). This theory emphasizes an ecological approach (e.g., individual, micro, and mezzo systems) to understand suicide among Latinas in particular. It postulates that adolescent development, individual characteristics (i.e. emotional vulnerability), family functioning, and cultural factors all play a role in the development of suicide. Zayas underscored the parent-child conflict, resulting from cultural dissonance between U.S.-born adolescents and their foreign-born parents, coupled with the adolescents' emotional vulnerability, as the culprits for suicide attempts. This model is valuable because it focuses on the socio-cultural aspects related particularly to Latin American families. However, this model has been difficult to examine due to lack of specificity of the different dimensions and variables in the model (Gulbas, Hausmann-Stabile, Szlyk & Zayas, 2018).

Results from papers #1 and #2, indicated that lack of social connectedness and low self-esteem are associated with the emergence of suicidal ideation among Latinas and Latinos in this sample. The current paper builds upon the results of paper # 1 and #2, seeking to examine the relationship between lack of social connectedness in the family and school as well as low self-esteem, and whether adolescents with previously indicated suicidal ideation transition to suicide attempts. As in paper # 1 and #1, paper # 3 is guided by the IPTS and the Sociocultural Model of Suicide, explained above. The IPTS will provide empirical constructs associated with risk of suicidal ideation and the Sociocultural Model will provide a culturally relevant framework to examine the impact of social connectedness and self-esteem in the transition from ideation to attempts. Given the relevance of social connectedness, particularly familism for Latinx adolescents (Zayas & Pilat, 2008), it is hypothesized that adolescents who report low social connectedness in the family and school domains, as well as low self-esteem are more likely to transition from ideation to attempts a year later.

Methods

The analysis employed data from in-home questionnaires conducted in the academic year of 1994-1995 (Wave 1) and a follow-up interview a year later in 1995-1996 (Wave 2), from the National Longitudinal Study of Adolescent Health (Add Health) (Harris & Udry, 2014). The sample included 308 Latina or Latino adolescents who reported suicidal ideation, but no suicide attempts at wave 1 and who: 1) self-identified as being of Latin American origin; 2) were between 13 and 19-years-old at wave 1; 3) answered the question about whether they had suicidal ideation in waves 1 and 2. Three groups of adolescents were classified (as described above) based on their reports of suicidal ideation and attempts at wave 2. This study was reviewed by Columbia University Institutional Review Board and determined to be exempt.

Measures

Outcome measures

Three groups of adolescents

A multinomial variable (no suicidal ideation or attempts; persistent suicidal ideation; and transition to attempts) was created to examine behaviors based on adolescents reports about suicidal ideation and suicide attempts a year later (Wave 2). The questions of suicidal ideation “During the past 12 months, did you ever seriously think about committing suicide?” and suicide attempt, “During the past 12 months, how many times did you actually attempt suicide?” were used to classified the multinomial outcome as follows: 1) adolescents who reported “no” suicidal ideation and “no” to attempts were coded as 0, and labeled *no suicidal ideation, no attempts*; 2) adolescents who indicated “yes” to suicidal ideation, but “no” to suicide attempts were coded as 1 and labeled *persistent suicidal ideation*; and 3) adolescents who reported “yes” to suicidal ideation and “yes” to suicide attempts were coded as 2 and labeled as *transition to attempts*. It is important to clarify that in Add Health, only those adolescents who responded yes to the question about suicidal ideation, were asked the question about suicide attempts.

Independent variables

Self-esteem

Six-items from the Add Health survey that correspond to the Rosenberg Self-esteem Inventory (Rosenberg, 1965) were used to measure self-esteem. These items included, “You have a lot of good qualities,” “You have a lot to be proud of,” “You like your-self just the way you are,” “You feel like you are doing everything just right,” “You feel socially accepted,” and “You feel loved and wanted.” These items were assessed on a 5-point response scale with answers ranging from 1 (strongly agree) to 5 (strongly disagree). High scores represent higher self-esteem. In this study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = .84$. These items were selected based on previous studies assessing adolescents self-esteem using Add Health (Costello et al., 2008; Resnick et al., 1997). Rosenberg’s scale has been validated with diverse samples of ethnic minority adolescents (Umaña-Taylor & Updegraff, 2007) and has been found to have a strong relationship with global self-worth, a domain of self-esteem (Hagborg, 1993) and an important component of burdensomeness as suggested by the Interpersonal Theory of Suicide (Van Orden et al., 2012).

Family and School connectedness

Family and school connectedness were measured using items from the protective factors section of Add Health. The section contains 8 items on a 5-point Likert scale (ranging from “strongly disagree” to “strongly agree”) assessing the extent to which adolescents perceived themselves as being supported by parents, teachers and friends. To measure family connectedness, four items were selected. These items included, “How much do you feel parents care about you,” “How much do you feel that people in your family understand you,” “How much do you feel that you and your family have fun together”, and “How much do you feel that your family pay attention to you.” A higher score corresponds to higher family and parental support or connectedness. These items were selected to capture the concept of belongingness (Van Orden et al., 2010) and were based on previous studies examining family support using Add Health (Borowsky et al., 2001). In the current study Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.75$.

School connectedness was measured with two items on a 5-point Likert scale (ranging from “strongly disagree” to “strongly agree”) measuring adolescents’ perceptions of school connectedness.

These items include, “You feel close to people at your school,” and “You feel like you are part of your school.” Items were selected to capture belongingness (Van Orden et al., 2010) and based on previous studies examining school connectedness and suicidal behaviors using Add Health (Kidd et al., 2006; Resnick et al., 1997). In the present study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.72$

The items of self-esteem, family and school connectedness were analyzed using factor analysis. Principal component analysis was selected as the extraction method and orthogonal rotation (Varimax) as the rotation method. Self-esteem, family connectedness, and school connectedness subscales formed three strong distinctive factors with eigenvalues higher than one. Factor loadings for the scales were high, with loadings ranging from 0.706 to 0.769; 0.561 to 0.831; and 0.833 to 0.870 on the three factors respectively. Previous studies have examined self-esteem, family and school connectedness as continuous variables, where higher scores correspond to higher levels in self-esteem, family and school connectedness respectively. To try to address the question about at which point perceptions of disconnectedness and burdensomeness result in suicidal ideation (Van Orden et al., 2010), self-esteem and connectedness to family and school variables were trichotomized, dividing the factors in tertiles (low, medium, and high) by using cutoffs of 33.3rd percentile and 66.7th percentile. This decision was also made considering the advantage that categories offer for clinical interpretation of the results and the potential to understand useful cutoffs for low, medium, and high as thresholds of risk.

Depressive symptoms

In Add Health depressive symptoms (continuous) were measured by using the 19-item modified version of the original 20-item Center for Epidemiologic Studies Depressive Symptoms Scale (CES-D) instrument (Radloff, 1977), which has been used on adolescent populations to measure depressive symptoms (Garrison et al., 1991). Following previous studies examining Latinx adolescents (Peña et al., 2008), this study used 5 of these 19 items because they have been tested with multiple ethnicities among adolescents and across generations with good external validity (Perreira et al., 2005). These items include: 1) “You could not shake off blues even with help from your family and friends”; 2) “You felt

depressed”; 3) “You were happy” (reversed code); 4) “You felt sad”; and 5) “You felt life was not worth living.” Items were scored from 0 (never) to 3 (daily) with a range of possible score between 0 to 15. In the present study, Cronbach’s alpha showed these items to reach acceptable reliability, $\alpha = 0.77$

Demographic and contextual variables

Four main Latin American-origin subgroups (i.e., Mexican, Puerto Rican, Cuban, Central/South American) were selected based on adolescents’ self-reported responses to the questions, “Are you of Mexican-origin,” “Are you Cuban-origin,” “Are you Puerto-Rican-origin,” “Are you Central or South American-origin,” “Are you other.” Responses provided were “yes” and “no”. Those who responded “other”, were coded in the same group as Central and South American. Age was calculated in years from the date of birth and interview. Gender was a binary option reported by adolescents and measured by the question, “Biological sex female or male”. Income was based on parental self-report of annual household income using the question “about how much total income, before taxes did your family receive in 1994.”

Statistical Analysis

Multinomial logistic regressions were used to explain the relationship between the independent variables and the dependent variables (Menard, 2002). Odds ratios and confidence intervals were examined for three different groups of adolescents with and without suicidal behaviors a year later (wave2) after entering the main variables (i.e., self-esteem, social connectedness in the family and school domains) and control for covariates (i.e., age, gender, income) (Model 1). Since depression is the most common mental health condition associated with suicide in individuals aged 10 and older (Stone et al., 2018) and it has been identified as an important predictor of suicidal ideation and attempts among Latinx adolescents (Duarté-Vélez et al., 2016; O’donnell, O’donnell, Wardlaw, & Stueve, 2004), depression was added to adjust for its effects (Model 2). All analyses were conducted using SPSS (BM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp).

Missing data

Patterns of missing data were analyzed. The percentage of missing data ranged from 5.0% (family connectedness) to 22.1% (income). Multiple imputation for missing data was used as the recommended strategy to eliminate or minimize bias related to different causes of missing data (Allison, 2001). Variables used for imputation included the key main variables, as well as covariates in the model. Analyses were performed using Fully Conditional Specification, an iterative Markov chain Monte Carlo (MCMC) method that can be used when the pattern of missing data is at random, with twenty imputations, and model for scale variables was Predictive Mean Matching, all functions of SPSS (IBM knowledge center, 2018).

Results

Sociodemographic Characteristics

The mean age for this sample of 308 adolescents was 16 (wave 1) and 17 (wave 2). Half of the sample identified as Mexican-origin (50.3%), followed by Puerto Rican-origin (17.9%), other Latin American country (17.8%), and Cuban-origin (14%). Out of 308 adolescents, 202 (65.6%) Latinas reported suicidal ideation at Wave 1 compared to 106 (34.4%) Latinos. The same sample of 308 adolescents were followed a year later and 180 (58.4%) of these adolescents did not report any suicidal ideation or attempts a year later. Seventy-four (24%) reported persistent suicidal ideation a year later, and 54 (17.5%) transitioned to suicide attempts. Among these 54 adolescents who transitioned from ideation to attempts, 11.7% were females and 5.8% were males. Parents reported a mean annual income of \$32,443 (Wave 1). Mean depression score for this sample of adolescents was 5.3 in a scale ranging between 2 and 15.

Outcomes

The results of the multinomial logistic regression of the course of suicidal ideation (no ideation, not attempts, persistent ideation, and transition to attempts) a year later (wave 2) on the main variables self-esteem, family and school connectedness and covariates age, gender, income (model 1) and depression (model 2) are presented in Table 3-1.

Table 3-1. Multinomial logistic regression of the main factors self-esteem, family, and school connectedness on suicidal ideation course (N=308)

Group*	Variable	Model 1			Model 2		
		OR	95% CI	p value	OR	95% CI	p value
Persist suicidal ideation	Low self-esteem (ref: high)	1.799	.803, 4.030	.154	2.129	.912, 4.971	.081
	Medium self-esteem (ref: high)	1.647	.687, 3.948	.263	1.666	.693, 4.004	.254
	Low Family (ref: high)	.782	.347, 1.752	.550	.817	.362, 1.842	.626
	Medium Family (ref: high)	1.059	.458, 2.445	.894	1.032	.446, 2.389	.940
	Low School (ref: high)	1.101	.558, 2.174	.781	1.195	.596, 2.396	.615
	Medium School (ref: high)	1.485	.694, 3.117	.308	1.480	.691, 3.171	.313
	Age	1.029	.844, 1.254	.777	1.036	.849, 1.265	.725
	Gender (ref: females)	1.126	.662, 2.041	.695	1.059	.580, 1.934	.852
	Income	1.006	.996, 1.017	.253	1.006	.996, 1.017	.230
	Depression				.937	.851, 1.032	.187
Transitioned to attempts	Low self-esteem (ref: high)	1.169	.529, 2.585	.700	.796	.334, 1.894	.606
	Medium self-esteem (ref: high)	.624	.234, 1.663	.346	.606	.226, 1.631	.322
	Low Family (ref: high)	1.318	.475, 3.656	.596	1.248	.437, 3.560	.679
	Medium Family (ref: high)	1.514	.525, 4.877	.444	1.629	.549, 4.831	.379
	Low School (ref: high)	1.038	.493, 2.185	.922	.842	.388, 1.826	.663
	Medium School (ref: high)	.964	.392, 2.368	.936	.971	.390, 2.418	.950
	Age	1.074	.859, 1.343	.532	1.050	.838, 1.316	.669
	Gender (ref: females)	1.012	.516, 1.987	.972	1.195	.595, 2.398	.617
	Income	1.009	.998, 1.019	.097	1.008	.997, 1.019	.149
	Depression				1.137	1.028, 1.254	.012

Note: OR=Odds ratio; CI= confidence interval

*The reference group is no suicidal ideation or attempts at Wave 2

Self-esteem and social connectedness in the family and school domains were not associated with the transition from ideation to attempts compared with no suicidal behaviors. Additionally, gender (OR=1.012; 95% CI 0.516, 1.987; p=0.972), age (OR=1.074; 95% CI .859, 1.343; p=0.532) and income (OR=1.009; 95% CI .998, 1.019; p=0.097) were not significantly associated with the transition from ideation to attempts among this sample of Latinx adolescents.

Adding depression to the model indicated that adolescents with higher depression were significantly more likely to transition from ideation to attempt (OR=1.13; 95% CI .1.028-1.254, p=0.012) compared with those who did not report suicidal ideation or attempts at Wave 2, but were not more likely to report persistent suicidal ideation (OR=.937; 95% CI .851, 1.032, p=0.187).

Discussion

This paper examined the relationship between social connectedness and self-esteem, and whether Latinx adolescents with previously indicated suicidal ideation transitioned to suicide attempts a year later. The present study examined this distinction in an effort to understand specific components that can potentially be targets of interventions to decrease suicide risk among this group of adolescents. Consistent with the Interpersonal Theory of Suicide (IPTS) (Joiner, 2005), this study found that low or medium social connectedness (i.e., thwarted belongingness) and low or medium self-esteem (i.e., a dimension of burdensomeness) were not associated with the transition from ideation to attempts a year later. The IPTS postulates that capability or fearlessness is an important component in the transition from suicidal ideation to suicide attempts and a component that determines the lethality of the suicide (Van Orden, Witte, Gordon, Bender, & Joiner Jr, 2008). It is possible that this capability to self-harm is necessary for Latinx adolescents to transition from ideation to attempts; however, in the absence of measuring capability to self-harm in this study, this cannot be asserted, leaving room for future empirical examination. The degree of capability to harm oneself may be the factor that explains why, despite high rates of ideation and attempts, Latinx adolescents do not die of suicide (Bridge et al., 2006) an important question that deserves further investigation.

Recognizing that this study did not examine acquired capability, the results of this paper suggest that depression is a key element in the transition from suicidal ideation to attempts among Latinx adolescents. This may have implications for suicide prevention. For instance, offering therapeutic support to adolescents who are displaying depressive symptoms may decrease risk of suicidal ideation and attempts. Both, IPTS and the Sociocultural Model of Suicide recognize mental health conditions, namely depression (Van Orden et al., 2010) and emotional vulnerability (Zayas et al., 2005) as factors impacting individuals' interpersonal experiences and social and emotional skills. However, it is not clear how depression exacerbates risk for Latinx adolescents and whether "emotional vulnerability" refers to mood disorders or the distress that Latinx adolescents experience due to cultural dissonance between the more acculturated adolescents and their less acculturated parents. In a review of epidemiological literature of the risks factors associated with suicide and suicidal behaviors, Borges, Benjet, Medina-Mora, Orozco, and Nock (2008) found that 40-80% of adolescents met diagnostic criteria for depression at the time they attempted. In the same review, depression was associated with suicidal ideation, plan, and attempts among Mexican adolescents; however, among adolescents with histories of suicidal ideation, only dysthymia was related to suicide attempts (Borges et al., 2008). Research in suicide prevention with Latinx youth, should focus on understanding the different cultural expressions of sadness and hopelessness, as well as the distress associated with social stressors, and the chronicity of these conditions in order to fully consider diagnostic criteria and the subsequent intervention. Another important factor to consider is that in the United States, Latinx youth are less likely to receive evidenced-based treatment (EBT) for depression, and more likely to drop out of treatment compared to their racial/ethnic counterparts (Kataoka, Zhang, & Wells, 2002). Given the burden of depression and suicide risk for Latinx adolescents, there is a need to continue investigating the role of depression in the transition from ideation to attempts, as well as culturally-appropriate engagement interventions and EBTs for Latinx adolescents with depression.

A salient finding in this paper is that half of the adolescents with previous history of suicidal ideation did not report suicidal ideation or attempts a year later. This may speak about unidentified factors that may protect adolescents from risk development. In view of the ample literature supporting the

protective effects of family connectedness for Latinx youth, the finding that family connectedness was not a significant factor was surprising. This may be due in part to the fact that most of the research assessing family and suicide among Latinx youth (Hoppe & Martin, 1986; Katiria Perez & Cruess, 2014; Peña et al., 2011), including papers #1 and #2, used cross-sectional data. Examining the course of suicidal ideation prospectively, may shed light on the protective factors over time such as internal cognitive and emotional characteristics of the adolescents and structural supports such as psychological counseling or improved socioeconomic conditions, which were not accounted for in the current paper.

Implications for practice

This study underscored the role of depression as a predictor of the transition from ideation to attempts among Latinx adolescents. In the absence of interventions specifically targeting suicide with minority adolescents, cultural adaptations of cognitive behavioral therapy to target depression and suicidal thoughts (Rosselló et al., 2011) may reduce risk for suicidal thoughts and prevent the transition from ideation to attempt among Latinx adolescents. Although, the present paper found that depression was significantly related to the transition from ideation to attempts; the mechanisms by which depression affected adolescents were not studied. Additionally, the role of hopelessness, which is a common feeling reported by Latinx adolescents (Kann et al., 2016; Kann et al., 2018) and associated with increased risk for the transition from ideation to attempts (Van Orden et al., 2010) should be studied.

Implications for Research

The present study examined factors associated with the transition from ideation to attempts among Latinx adolescents by using components of the IPTS, an empirical theory, and the Sociocultural Model of Suicide, a theory developed to understand suicide among young Latinas. Understanding empirical factors that precede the transition from ideation to attempts allow for the development of population-based interventions. This study did not include important theoretical IPTS components (i.e. capability for self-harm) necessary to fully understand the transition from ideation to attempts. It is recommended that future research investigate the four-way interaction among the three components of IPTS (thwarted belongingness, perceived burdensomeness, and capability to self-harm), including

hopelessness about thwarted belongingness and perceived burdensomeness to examine the true prediction associated with the IPTS among Latinx adolescents. Taking into consideration that Latinx adolescents have lower rates of engagement and high rates of treatment drop-out, it is important to study how to best engage these adolescents and their families, as well as the systemic issues that prevent them from accessing mental health treatment.

Limitations

In addition to important limitations related to Add Health data mentioned in papers #1 and #2, the results of this paper are limited because the capability for self-harm was not included a variable of analysis, so the full prediction of IPTS could not be examined. Additionally, this paper did not include other contextual protective variables such as access to psychotherapy, or other school supports which could have potentially provided explanation to the results. Future research should include these protective factors to fully understand how to best intervene.

Conclusion

This study contributes to the current literature by studying theoretically-based risk factors associated with suicidal ideation and attempts in an understudy population of Latinx adolescents. The results of this paper indicate that low social connectedness and low self-esteem (a dimension of burdensomeness) are not associated with the transition from ideation to attempts among this sample of adolescents. However, depression appears to be a key factor in the transition from suicidal ideation to attempts. Hence, it is important to investigate effective interventions that target depressive symptoms to decrease suicide risk among this population. This study did not include the capability to self-harm, one of the key IPTS constructs in the transition from ideation to attempts. Future studies should examine all the components of the IPTS, including the capability to self-harm, within a cultural framework to increase knowledge about the factors associated with the transition from suicidal ideation to attempts among minorities.

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