The Dissertation Committee for Kiara Alvarez certifies that this is the approved version of the following dissertation:

Suicidality among Latina Adolescents: The Relative Effects of Psychosocial Risk Factors and Psychological Symptoms

Committee:

Cindy I. Carlson, Supervisor

Timothy Z. Keith

Kevin Cokley

Kevin Stark

Luis H. Zayas

Suicidality among Latina Adolescents: The Relative Effects of Psychosocial Risk Factors and Psychological Symptoms

by

Kiara Alvarez, B.A.; M.Ed.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August 2014

Dedication

To my parents, who cultivated in me a love of learning, endless curiosity, and a belief that all good work is done in service of others. Thank you for supporting me and believing in me always.

Acknowledgements

This dissertation and my graduate school journey were made possible by so many people. First, I would like to thank my committee. My dissertation chair, Dr. Cindy Carlson, gave me invaluable guidance throughout this process and my graduate school career. Thank you for making me a better researcher and for providing me with so many opportunities to learn beyond the graduate curriculum. I would also like to thank Dr. Tim Keith for making advanced statistics approachable, for introducing me to the wild world of structural equation modeling, and for fielding my long emails. I would like to thank Dr. Kevin Cokley for teaching me multicultural research methods and for emphasizing the importance of being a critical consumer and producer of research. I would also like to thank Dr. Kevin Stark for providing guidance in both the research and clinical aspects of treating depression, and for giving me a strong foundation in evidence-based practice. Finally, I would like to thank Dr. Luis H. Zayas, whose seminal work in this area was highly influential to me. Thank you for taking the time to serve on my committee and provide your perspective on this study. More importantly, thank you for bringing attention to the challenges facing young Latinas through your work.

My research interests in the area of suicidality were shaped by my clinical experiences with adolescents, particularly in conducting interpersonal therapy at Austin State Hospital under the thoughtful supervision of Dr. Deborah Tharinger and Dr. Elizabeth Minne. My year in this practicum was a critical one in my development as a

Suicidality among Latina Adolescents: The Relative Effects of Psychosocial Risk Factors and Psychological Symptoms

Kiara Alvarez, Ph.D.

The University of Texas at Austin, 2014

Supervisor: Cindy I. Carlson

In national surveys of adolescents, Latina females have been found to have higher rates of suicidal ideation and attempts when compared to Latino males and to non-Latino White and Black males and females (Centers for Disease Control [CDC], 2014). The reasons for these gender and racial disparities in suicidal behavior have not been definitively established. Prior research indicates that suicidal behavior among adolescents is influenced by both individual-level psychological symptoms and by psychosocial risk factors (Bridge, Goldstein, & Brent, 2006; King & Merchant, 2008; Prinstein, Boergers, Spirito, Little, & Grapentine, 2000). Among Latina adolescents in particular, the interplay between cultural processes and family relationships has been identified as a key influence on suicidal behavior (Zayas, 2011). The purpose of this study was to build upon Zayas's (2011) model of suicidality among adolescent Latinas by evaluating the relative effects of individual, family, and peer factors on suicidal ideation, plans, and attempts. A latent variable structural equation model (SEM) was developed and tested using a sample that included 946 Latinas aged 13 to 18 who were interviewed for a national psychiatric

epidemiological survey, the National Comorbidity Survey – Adolescent Supplement (NCS-A; Kessler, 2013). The SEM model measured the direct and indirect effects of the latent variables of generation status, peer support, negative peer influence, family relationships, and depression on suicidality. Results of the study indicated that higher levels of depression, poorer family relationships, and higher levels of negative peer influence resulted in higher levels of suicidality. The influence of family relationships and negative peer influence on suicidality were partially mediated by depression; however, negative peer influence also had a substantial direct effect on suicidality. Results of this study support a clinical focus on multisystemic interventions for Latina adolescents that address functioning at individual, family, and peer levels, as well as further investigation into the pathways by which negative peer influence impacts suicidality in this population.

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

Latina adolescents are at high risk of attempting suicide. In 2013, nearly half of Latinas nationwide reported feeling sad or hopeless for more than two weeks in the past year, over a fourth had seriously considered attempting suicide, and more than 15% had actually attempted suicide (CDC, 2014). In national surveys of adolescents in the United States, Latina females have been found to have higher rates of suicidal ideation and attempts when compared to Latino males and to White and Black males and females (Centers for Disease Control and Prevention [CDC], 2014). This disparity has persisted for two decades, and reflects a pattern of risk for Latinas that has been discussed in the clinical literature since the 1960's (Zayas, Lester, Cabassa, & Fortuna, 2005). Regional studies have found rates of past year suicide attempts as high as 19% among adolescent Latinas (Garcia, Skay, Sieving, Naughton, & Beringer, 2008; Rew, Thomas, Horner, Resnick, & Beuhring, 2001). Clearly, an explanation for this phenomenon is needed in order to improve outcomes for a vulnerable group.

What would lead any adolescent, and in particular large numbers of Latina adolescents, to attempt to end their own lives? The literature on suicidality has lagged behind the urgent need to answer this question. Scientific research on suicide dates back to the 1800's, but the bulk of the research on adolescents simply describes risk and protective factors without a clear theoretical framework. The literature is inconclusive as to what causes suicide attempts among adolescents, and there is even less information

about why there are such significant differences in suicide attempt rates among different ethnic and gender groups (Leenars, 2008). Furthermore, diverse groups have rarely been represented in the suicide literature, and the role of culture is often ignored (Leong & Leach, 2008). This presents a challenge for researchers interested in understanding how suicidal behavior develops among different groups. In the case of adolescent Latinas, the effects of individual development and functioning, family and peer interactions, cultural processes, and gender all must be taken into account when seeking to understand suicidality.

Research on suicidality among adolescents in general provides a foundation for understanding this complex behavior. Individual-level psychological symptoms, such as depression, and psychosocial risk factors, such as family conflict and lack of peer support, have been found to contribute to suicide attempts (Bridge, Goldstein, & Brent, 2006; King & Merchant, 2008; Prinstein, Boergers, Spirito, Little, & Grapentine, 2000). Three major theories that provide a basis for organizing these findings are cognitive-behavioral theory (Spirito & Esposito-Smythers, 2006b), the interpersonal-psychological theory of suicide (Joiner, 2005), and ecological systems theory (Bronfenbrenner, 1977). These theories also provide a means by which interactions among these various risk factors can be analyzed, thereby producing a more complete understanding of the causes of suicidal behavior. However, further work is needed to incorporate cultural processes into this knowledge base.

Reviews of the literature specific to Latina suicidality have set the stage for advances in understanding the unique risks faced by this group (Canino & Roberts, 2001;

Duarte-Velez & Bernal, 2007, 2008; Zayas et al, 2005). Key cultural processes in the lives of adolescent Latinas are generation status, acculturation, familism, and idioms of distress. In terms of generation status, U.S.-born Latinas have a higher risk of suicide attempts than their foreign-born counterparts, though the pathways by which this phenomenon occurs are still not completely clear (Peña et al., 2008). One way in which generation status is believed to impact suicidal behavior is via the process of acculturation, or the changes that take place when two cultures come in contact with each other (Sam, 2006). Acculturation produces significant stressors (Gonzales, Fabrett, & Knight, 2009). For adolescents, a key acculturation stressor is the conflict created in families when the child acculturates to U.S. society more rapidly than the parent (Szapocznik & Kurtines, 1993). Given the importance of the Latino cultural value of familism, or interdependence among family members, these family conflicts have the potential to create a significant disruption for Latina adolescents. Strain due to familial disruptions may be expressed via a culturally specific idiom of distress (American Psychiatric Association, 2000).

Zayas and colleagues (2005) proposed a conceptual model of Latina adolescent suicidality that accounts for the confluence of cultural characteristics, developmental processes, family relationships, and individual functioning in producing the risk for a suicide attempt. In a study comparing Latinas who had attempted suicide with a control group that had not, the unique characteristics contributing to suicide risk for this group were further uncovered (Zayas, 2011). In accordance with the cultural process of familism, ruptures within family relationships appeared to have more influence on the

3

suicidal behavior of Latinas than relationships with peers. Zayas and Pilat (2008) have posited that peer relationships do not directly influence suicidality among Latina adolescents, but may have an indirect effect via their influence on family conflict. Family conflicts may then converge in a crisis that leads to the expression of distress via the suicide attempt (Zayas et al., 2005). Interactions between family and individual components of the model have been tested in several studies (Baumann, Kuhlberg, & Zayas, 2010; Kuhlberg, Peña, & Zayas, 2010). Further research is needed to establish the role of peers within this framework.

The purpose of the current study is to investigate the effects of psychological symptoms and psychosocial risk factors on suicidality among Latina adolescents. This study builds upon the conceptual model of Latina suicidality developed by Zayas (2011), and uses latent variable structural equation modeling (SEM) to analyze the relative effects of generation status, family functioning, parent-adolescent relationships, peer relationships, negative peer influence, and depression on suicidality (i.e., suicidal ideation, plans, and attempts) in a sample of 946 Latina adolescents. Data for this study were drawn from a national dataset, the National Comorbidity Survey – Adolescent Supplement (NCS-A), which is a psychiatric epidemiological survey of adolescents aged 13 to 18 years carried out between 2001 and 2004 (Kessler, 2013). The aim of the study is to contribute to the research base by analyzing the contributions of individual, family, and peer influences on suicidality in this population, including the relative influences of family and peer relationships. Results of this study may also inform the development of interventions to reduce risk for suicidality among young Latinas.

4

Chapter 2

Literature Review

The following literature review will provide an overview of suicidality among adolescents in general and among adolescent Latinas in particular. In the first section, the prevalence and characteristics of suicidal behavior among adolescents will be presented, including differences in prevalence across age, gender, racial, and ethnic groups. Theoretical perspectives relevant to the study of adolescent suicidality will be discussed, and risk and protective factors for suicidal behavior will be reviewed. In the second section, the prevalence and characteristics of suicidal behavior among adolescent Latinas will be explored in greater detail. Aspects of the cultural context relevant to Latina adolescents, including generation status, acculturation, familism, and idioms of distress, will be reviewed. Zayas's (2011) conceptual model of Latina suicidality will be discussed, and key components of the model will be highlighted.

Suicidality among Adolescents

One of the challenges in research on suicide is the wide variety of terminology used to discuss related behaviors. This review will primarily use the terms and definitions recommended by the Centers for Disease Control and Prevention (CDC; Crosby, Ortega, & Melanson, 2011). *Suicidal ideation* refers to "thoughts of engaging in suicidal behavior" (p.92) and *suicide planning* refers to a formulating a plan to engage in suicidal behavior. A *suicide attempt* is a nonfatal, self-directed, potentially injurious behavior with the intent to die as a result. *Suicide* or *completed suicide* refers to a "death

caused by self-injurious behavior with any intent to die as a result of the behavior" (p.24). It is important to note that intent to die can be difficult to measure reliably, and thus the studies discussed in this literature review may use looser definitions than those recommended by the CDC.

The CDC also recommends distinguishing between the aforementioned categories whenever possible, rather than using umbrella terms that conflate a variety of behaviors under one category. However, for ease of presentation within this review, *suicidal behavior* and *suicidality* will be used as umbrella terms to refer to the range of behaviors preceding a completed suicide, including ideation, planning, and attempts.

Prevalence and characteristics. In the United States, suicide is the 3rd leading cause of death among adolescents after accidental injury and homicide, accounting for the deaths of thousands of adolescents annually (Miniño, 2010). An even larger proportion of the adolescent population engages in suicidal behaviors (i.e., ideation, planning, and attempts). In 2013, 17% of American high school students reported that they had seriously considered attempting suicide in the past year, 13.6% reported that they had made a plan about how they would attempt suicide, and 8% reported that they had made a suicide attempt one or more times (CDC, 2014). Of those that reported attempting suicide, 2.7% had made a suicide attempt resulting in an injury, poisoning, or overdose that had to be treated by a doctor or a nurse.

Suicidal behaviors increase the risk of dying by suicide. In analysis of nationally representative data from the National Comorbidity Survey- Adolescent Supplement, 33.4% of adolescents who reported suicidal ideation went on to make a suicide plan,

60.8% of adolescents with a plan went on to attempt suicide, and 20.4% of ideators with no plan went on to attempt suicide (Nock et al., 2013). Prior suicide attempts are one of the strongest predictors of future suicide attempts and of completed suicide (Spirito & Esposito-Smythers, 2006a). Additionally, the negative consequences of suicide attempts include the risk of serious injury and time spent in inpatient hospitalization. Thus, suicidal behaviors are a significant public health problem with far-reaching consequences.

Suicide has long been considered a taboo topic in U.S. society, and only in the past three decades has there been substantial momentum to raise awareness of suicidality and implement public health approaches to reducing suicide risk (Center for Substance Abuse Treatment [CSAT], 2008; U.S. Department of Health and Human Services [HHS], 2012). In 1999, the Surgeon General issued a Call to Action to Prevent Suicide, thus declaring suicide to be an urgent public health priority and resulting in the development of the National Strategy for Suicide Prevention (CSAT, 2008). In 2012, the National Strategy was updated to reflect current research and practice in the area of suicidality (HHS, 2012).

Population differences. Suicide risk clearly varies by age, gender, and race and ethnicity. In terms of age, suicide is relatively rare among preadolescents; however, there has been a 51% increase in completed suicide among children ages 10-14 since 1981 (Westefeld et al., 2010). Among high schoolers, rates of suicide attempts are highest in 9th and 10th grades (CDC, 2014). As is the case with depression, rates of ideation and

attempts appear to be similar among boys and girls until puberty, at which point a pattern of gender differences emerges.

It is widely known that rates of suicide attempts are significantly higher among females in the United States, while rates of completed suicide are higher among males (Langhinrichsen-Rolling, Friend, & Powell, 2009; Nock et al., 2013). These gender differences in rates of attempts and completed suicides have also been found among U.S. adolescents and across U.S. racial and ethnic groups (Joe & Marcus, 2003; CDC, 2014). One common explanation for this disparity is that the methods used by men to attempt suicide, such as firearms, are more likely to be fatal than those used by women (Nock et al., 2013). Another possibility is that women are more likely to report suicidal ideation and attempts. However, reasons for these gender disparities have not been definitively determined (Langhinrichsen-Rolling et al., 2009).

The prevalence of suicidal behavior also varies between racial and ethnic groups. In the CDC's 2013 Youth Risk Behavior Surveillance System (YRBSS; CDC, 2014), Latino adolescents had the highest rates of suicidal ideation (18.9%), plans (15.7%), and attempts (11.3%) when compared to White and Black adolescents. When results were analyzed by both racial/ethnic group and gender, Latina adolescents had the highest rates of suicidal ideation (22.4%), followed by White females (21.1%) and Black females (18.6%). White and Latino males had similar rates (11.4% and 11.5% respectively), and Black males had the lowest rates (10.2%). The prevalence of having made a suicide plan was highest among Latinas (20.1%) and lowest among Black males (7.7%), while the prevalence of having made a suicide attempt was highest among Latinas (15.6%) and

lowest among White males (4.2%). Rates for Asian-American adolescents were not reported in the 2013 survey report due to low case counts; however, an analysis of prior years of CDC data found lower rates for Asian American adolescents than other groups (Langhinrichsen-Rolling et al., 2009). Rates for American Indian adolescents are also not available via the YRBSS for comparative purposes, but data from the 2001 Bureau of Indian Affairs Youth Risk Behavior Survey found high rates of suicide attempts (16%) among American Indian high school students, with substantially higher rates among females (19.3%) than males (12.2%; Shaughnessy, Doshi, & Jones, 2004). American Indian females and Latina females appear to be the two groups at highest risk for suicide attempts.

Theories and models. Despite epidemiological data demonstrating that suicide is a significant public health problem among adolescents, research on suicidality is not as well-developed as the research base on other forms of psychopathology. Though the first major theory of suicidality, Durkheim's theory of social integration, is over a hundred years old (King & Merchant, 2008), most research on suicidality has tended to be descriptive but has lacked conceptual coherence (Prinstein, 2008; Van Orden et al., 2010). Three theoretical orientations that may provide a conceptual basis for understanding suicidality are cognitive-behavioral theory, the interpersonal-psychological theory of suicide, and ecological systems theory. Across each of these approaches, there is an emphasis on identifying risk factors that may lead to suicidal behavior and protective factors that may mitigate risk.

The cognitive-behavioral theory of suicidality provides an explanatory framework for how stressors can trigger a suicide attempt (Spirito & Esposito-Smythers, 2006b). Within this model, adolescents with existing vulnerabilities, such as genetic and social influences, may experience a particularly stressful event that triggers distorted cognitions (e.g., hopelessness, overgeneralization, catastrophizing). These distorted cognitions increase affective distress, which then leads the individual to engage in behaviors intended to manage or escape the distressing emotion. For adolescents who engage in suicidality, their automatic thoughts during this process may include wishing to escape a painful situation and believing suicide is the only means of escape. Over times, these thoughts and their corresponding affective states and behaviors can result in increased suicidal ideation and attempts.

The interpersonal-psychological theory of suicide (Joiner, 2005; Joiner et al., 2009; Van Orden et al., 2010) integrates the cognitive-behavioral model with interpersonal factors that are presumed to be directly responsible for suicidal behavior (Figure 1). This theory proposes that suicide attempts will only take place when an individual has both the desire and the ability to die by suicide. The desire to die by suicide is posited to result from two interpersonal components: perceived burdensomeness (i.e., belief that others will be better off if you are dead) and low belonging/social alienation (i.e., feeling of being not being an integral part of a group). Both of these constructs appear to combine actual interpersonal experiences and the individual's perception of those experiences, which may be significantly influenced by cognitive distortions. Once the desire to die exists, the likelihood a person will then act

on the desire is determined by a behavioral component: the acquired ability to hurt

oneself. This ability is acquired through habituation, meaning that the individuals most at

risk are those who have become desensitized to self-harming behaviors through the

accumulation of experiences such as abuse, prior injury, and exposure to others' pain and

injury.
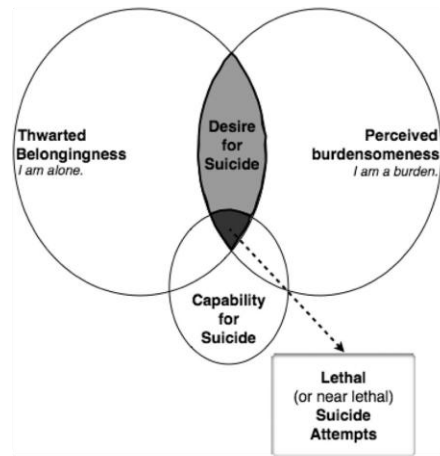
Figure 1. The interpersonal-psychological theory of suicide (Van Orden et al., 2010)

Another theory which has been used to frame a number of studies on suicide, and

which accounts for multiple levels of influence, is ecological systems theory

(Bronfenbrenner, 1977). This theory emphasizes the interaction between the individual

and his or her environment during the course of individual development. The

environment is conceptualized to consist of spheres of influence that are nested within

each other. The first level is the microsystem, which consists of the immediate settings

and social contexts that influence the individual (e.g., family, peer group, school). These

settings are those that directly impact the individual, and with which the individual has

direct contact. Within these settings, the individual has a particular role, such as son/daughter, friend, and student. The second level is the mesosystem, which represents the interactions among the microsystem settings (e.g., the relationship between the family and the peer group or the family and the school). The interactions that take place in the mesosystem affect the individual, but the individual may not be directly involved in them. For example, family members may meet with school officials without the adolescent being present. However, as much as the microsystem and mesosystem affect the individual, the individual also affects these systems in an ongoing reciprocal interaction.

The third level is the exosystem, which consists of more distant social structures that influence, but do not directly interact, with the individual (e.g., government, socioeconomic structures, geographic characteristics). These are formal and informal systems that impact the individual via their impact on the mesosystem and microsystem. For example, a government agency (exosystem) may carry out policies that impact the availability of services in a particular neighborhood (microsystem), which in turn impact the individual adolescent. The individual adolescent is never in direct contact with the government agency, but is affected by its actions. The final level is the macrosystem, which represents the broader culture and its institutional patterns. Unlike the other levels, the macrosystem does not have a concrete manifestation, but rather refers to intangible influences such as culture, societal values, and established patterns of behavior within a given society. For example, cultural values regarding the importance of certain services such as healthcare and education (macrosystem) impacts governmental policy regulating

those services (exosystem). Major political, economic, and historic events form part of the macrosystem, and while they may have a strong impact on the individual's life, they are not factors that can be directly controlled by the individual.

Clearly, these theories are not mutually exclusive, and taken together provide useful frameworks for understanding the complex dynamics of adolescent suicidality. The interpersonal theory of suicide integrates the cognitive-behavioral model with interpersonal components. Ecological systems theory provides a wider perspective that adds social and cultural influences to the more immediate influence of interpersonal relationships.

Risk and protective factors. The majority of studies have not tested theoretical models, but rather have focused on identifying risk factors associated with adolescent suicidality and testing their influence on suicidal behaviors. The following section will review risk factors pertinent to the proposed study organized according to an ecological systems perspective. The three major categories reviewed are individual, family, and peer risk factors, as well as the interaction of multiple risk factors. It is important to note that the vast majority of studies that provide data on ecological risk factors rely on self-report measures, meaning that they measure ecological influences as perceived by the individual.

Individual. At the individual level, the most direct and well-established risk factor for suicidal behavior is depression (Evans, Hawton, & Rodham, 2004; Lewinsohn, Rohde, & Seeley, 1994; Spirito & Esposito-Smythers, 2006a). Specific aspects of depression that are often linked to suicide are hopelessness, low self-esteem, and poor

coping skills (Lewinsohn, Rohde, Seeley, & Baldwin, 2001; Spirito & Esposito-Smythers, 2006a). Some research has linked anxiety to suicidal behavior (Gould, Greenberg, Velting, & Shaffer, 2003), while other research has found no difference in anxiety between suicidal and non-suicidal controls (Strauss, et al., 2000).

Research on the relationship between externalizing disorders and suicidality has similarly been mixed, but one characteristic of these disorders that has been strongly linked to suicidality is impulsive aggression (Spirito & Esposito-Smythers, 2006a). Substance use has also been found to co-occur with suicidality, and in particular with suicide completion (Spirito & Esposito-Smythers, 2006a). There are a number of possible relationships between the two: suicidal behavior and substance use may both be indicators of underlying psychopathology, substance use may exacerbate underlying psychological symptoms which lead to suicide attempts, and/or substance use may increase impulsivity and thus the risk of attempting suicide.

Family. Family factors have been associated with adolescent suicide across numerous studies (Wagner, Silverman, & Martin, 2003). Much of the research has focused on overall family functioning. Within this broad category, high levels of conflict, low levels of cohesion, and high levels of disorganization have been associated with suicidality among adolescents (McKeown et al., 1998; Wagner et al., 2003). In a longitudinal study of adolescents, low family support was predictive of suicide attempts into young adulthood for female participants (Lewinsohn et al., 2001). Research that has taken individual factors into account has generally found that the impact of family

functioning on suicidality is mediated by depression (Connor & Rueter, 2006; Kandel, Raveis, & Davies, 1991; King & Merchant, 2008).

The parent-child relationship has also been a focus of research. Low support from and lack of closeness with parents increases the risk of suicidal behavior (Ackard, Neumark-Sztainer, Story, & Perry 2006; Hollis, 1996; Kandel et al., 1991). Poor communication and low parental availability have also been found to increase risk (Ackard et al., 2006; O'Donnell, Stueve, Wardlaw, & O'Donnell, 2003). Conversely, connectedness to parents and family was found to be a protective factor for emotional distress and suicidal behavior in a nationally representative sample (Resnick et al., 1997).

Another pathway by which families influence suicide risk is through the familial transmission of suicidal behavior (Brent & Melhem, 2008). Across studies, there is substantial evidence for the aggregation of suicidal behavior within families. In particular, there is evidence showing an association between parents and children in rates of completed suicide, even after controlling for psychopathology (Gould et al., 2003). Potential causes of this phenomenon include inherited genetic traits, intergenerational transmission of an abusive family environment, imitation, and parental bereavement (Brent & Melhem, 2008).

Peer. At the level of the peer group, interpersonal conflicts and concerns are widely reported by adolescents who attempt suicide (Beautrais, Joyce, & Mulder, 1997; Prinstein et al., 2000). Studies of suicidal behavior suggest that poor peer relationships are a risk factor for both suicidal ideation and attempts, but good peer relationships are not necessarily protective (Evans et al., 2004). In one study, valuing the opinions of

friends over those of family increased the risk of suicide attempts (Ackard et al., 2006).

Exposure to peer suicide or suicide attempts is often cited as a risk factor due to the

proposed effect of social contagion, but findings in this area are inconclusive (Spirito &

Esposito-Smythers, 2006a).

Interaction of Risk Factors. Though a number of studies have identified separate

risk factors for suicidality, few studies have tested integrated models of suicide risk that

account for the interaction of multiple risk factors. In a study of 96 adolescents

hospitalized in an inpatient psychiatric unit due to suicidal ideation or attempts, global

family dysfunction had an indirect effect on suicidality via its influence on substance use

and depression; however, peer factors had a stronger effect on suicidality than family

factors. Close friendship support, perceived peer acceptance, perceived peer rejection,

and deviant peer affiliation all had significant direct or indirect effects on suicidality

(Prinstein et al., 2000). In another study of 220 suicidal adolescents who were

psychiatrically hospitalized, higher levels of family support were associated with lower

levels of hopelessness, depressive symptoms, and suicidal ideation for females, while

peer support did not have a significant effect. For males in the study, higher levels of peer

support were actually associated with higher levels of hopelessness, depressive

symptoms, and suicidal ideation for males, a finding that was theorized to result from

affiliation with other depressed and suicidal peers. Family support was not a significant

factor for males in the study (Kerr, Preuss, & King, 2006).

Joiner and colleagues (2009) tested models based on the interpersonal theory of

suicidal behavior on two samples of young adults (19-26 years of age). The sample for

the first study was an ethnically diverse group of 815 young adults (48% Latino, 22% African-American, 26% White, 3% Other). In this study, the interaction of low levels of "mattering" (believing one matters to others) with low levels of family support predicted suicidal ideation, after controlling for depression. These effects were not significantly moderated by either gender or ethnicity. The sample for the second study was a group of 313 individuals (60% White, 25% African-American, 10% Hispanic, 1.5% Native American, 1.2% Asian American or Pacific Islander) who had a recent suicide attempt or suicidal ideation severe enough to warrant hospitalization. In this study, the three-way interaction of perceived burdensomeness, low belonging, and lifetime number of suicide attempts (a measure of acquired capacity for suicidal behavior) predicted current suicide attempts. Both studies supported the interpersonal theory of suicidal behavior in a diverse sample and one used ethnic group membership as a moderator, but neither one incorporated cultural variables.

Summary. Suicidal behavior is a significant problem among adolescents, and research identifying the causes of suicidal behavior is critically needed in order to reduce this public health risk. Though research on suicidality has often lacked a theoretical basis, three theories have emerged that provide a framework by which to organize the existing knowledge base. Cognitive-behavioral theory, the interpersonal-psychological theory of suicide, and ecological systems theory all integrate different aspects of the literature on suicide into coherent explanatory models. A common thread in all three theories is an emphasis on risk and protective factors that have been identified and can be used to understand how suicidality develops among adolescents. However, though these theories

leave room for the integration of cultural concepts, the bulk of suicide research does not explicitly address cultural influences on suicide risk and protection. In the next section of the literature review, the phenomenon of suicidality among Latina adolescents is evaluated using a culturally-specific focus.

Suicidality among Adolescent Latinas

  Prevalence and characteristics. As noted earlier in this review, Latina adolescents have been identified as a group at high risk of attempting suicide. In 2013, 26% of Latina females had seriously considered attempting suicide in the past 12 months, 20.1% had made a suicide plan, 15.6% had attempted suicide, and 5.4% had a suicide attempt treated by a doctor or a nurse. Latinas had the highest rates in each of these categories relative to the other groups that had results reported in aggregate in the CDC's Youth Risk Behavior Surveillance Survey (YRBSS; Latino males, White males and females, and Black males and females; CDC, 2014). Moreover, Latinas have had the highest rates of suicide attempts in this survey since 1991 (Zayas, 2011).

  The results of these national surveys confirmed the findings of regional studies, which found high proportions of suicide attempts by Latina females in community and psychiatric samples in multiple states (Zayas et al., 2005). For example, an analysis of a large sample of Connecticut middle and high school students found that 19.3% of Latinas had attempted suicide in the past year (Rew et al., 2001), while the 2004 Minnesota Student State Survey found that 14-19% of Latinas in the 9th grade reported a past-year suicide attempt (Garcia et al., 2008).

Cultural context. Given this level of risk, it is necessary to explore what factors related to culture may be associated with suicidal behavior in this group. However, though there has been academic interest in cultural and social influences on suicide for the past century, this interest has not led to significant advances in understanding the cultural context of suicidal behaviors (Goldston, et al., 2008; Leenars, 2008). Leong and Leach (2008) note that "culture is considered a secondary factor, not a primary factor" in suicide research (p. 1). Furthermore, research on adolescent suicide has primarily focused on youth of European-American descent (Joe, Canetto, & Romer, 2008; Langhinrichsen-Rolling et al., 2009). In an analysis of the research pertaining specifically to Latinas, Zayas and colleagues (2005) noted that there has been "alarm registered in the literature and by clinicians in urban practices about the apparently high numbers of Latinas attempting suicide" (p. 275) since 1961, but that throughout the 20th century there were no empirical explanations of this phenomenon. In order to provide a context for suicidality among Latinas, key demographic variables and cultural processes relevant to Latinos will be reviewed: generation status, acculturation, familism, and idioms of distress.

Generation status. The term "Latino" is an umbrella term referring to individuals of Latin American descent living in the United States. Therefore, Latinos are a heterogeneous group comprised of individuals representing multiple nationalities, with varied histories that include different immigration experiences and status within the United States. Latinos that were born in another country and now reside in the U.S. are considered to be the first generation. Those that were born in the U.S. to foreign-born

parents are considered to be the second generation, and those that were born in the U.S. to U.S.-born parents are considered to be the third generation and beyond. Latinos from the island of Puerto Rico are all U.S. citizens, and therefore technically not foreign-born, but the same terms for generation status are often used to note the difference between those born on the island and those born in the continental U.S.

Generation status has been found to be a risk factor for suicidality among Latinos in multiple studies. In a study of Latino adolescents within a nationally representative sample, second-generation youth were 2.87 times more likely to attempt suicide than first-generation youth (Peña et al., 2008). Youth that were third-generation and later were 3.57 times more likely to attempt suicide than first-generation youth. A cross-sectional study of Mexican and Mexican-American youth living in Mexican and U.S. border towns, respectively, found that the Mexican-American youth reported significantly higher rates of depression and suicidal ideation (Swanson, Linskey, Quintero-Salinas, Pumariega, & Holzer, 1992). Interestingly, a study of adolescents living in the Dominican Republic found that higher rates of U.S. involvement (defined as time lived in the U.S., number of friends from the U.S., English proficiency, and use of U.S. electronic media and language) resulted in increased risk of suicide attempts (Peña, Zayas, Cabrera-Nguyen, & Vega, 2012). Thus, exposure to the U.S. culture was associated with suicide risk, even for adolescents not currently residing in the U.S. This further bolsters the hypothesis that exposure to U.S. culture impacts suicide risk in some way, though further research is needed to identify the pathways by which this takes place.

Acculturation. One of the main pathways by which generation status is believed to affect psychological functioning is acculturation. Acculturation refers to the changes that take place when individuals and groups representing different cultures come into contact (Sam, 2006). While the fields of anthropology and sociology have investigated how acculturation takes place within and across groups, psychological research is primarily concerned with how acculturation affects the individual. In the case of Latinos in the U.S., acculturation refers specifically to the result of contact between the "home" culture (i.e., from a particular Latin American country of origin) and the "host" U.S. culture. Current models tend to define acculturation as a bidimensional process in which varying levels of identification with both the home and host culture are possible (Berry, 1997; Gonzales et al., 2009; LaFromboise, Coleman, & Gerton, 1993; Szapocznik, Kurtines, & Fernandez, 1981).

The effects of acculturation on Latino psychological adjustment have been studied since the 1970's (De La Rosa, 2002). One of the major findings of this research was the "immigrant paradox" phenomenon (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). It has been posited that increased U.S. acculturation constitutes a health risk for Latinos (Lara et al., 2005). More recently, researchers have questioned the validity of the immigrant paradox, noting inconsistencies across studies in the effects of acculturation. One explanation for these contradictory results is that acculturation has been measured without regard to how its effects vary across individuals. The effects of acculturation vary based on mediating factors such as coping strategies and social support (Berry, 1997).   In particular, one of the factors mediating the effects of acculturation appears to

be the amount of stress an individual experiences as a result of the acculturation process (Gonzales et al., 2009). Acculturation stress is linked to psychological models of stress as a response to environmental stressors, with the process of adapting to the home culture conceptualized as the key stressor (Berry, 1997).

Aspects of the acculturation process that have been linked to increased stress among Latino adolescents in the U.S. include language-related conflicts, perceived discrimination, and the sense of the U.S. as a closed society (Vega, Khoury, Zimmerman, Gil, & Warheit, 1995). Acculturation stress, in turn, has been implicated in a number of psychological problems for Latino adolescents, including externalizing behavior problems (Fridrich & Flannery, 1995; Smokowski, Rose, & Bacallao, 2009), internalizing behavior problems such as depression and anxiety (Smokowski & Bacallao, 2007; Suarez-Morales & Lopez, 2009) and alcohol and substance abuse (Buchanan & Smokowski, 2009; De La Rosa, 2002). Hovey & King (1996) found a positive correlation between acculturation stress and suicidality in a sample of 70 first and second-generation Latino adolescents in California, and further found that perceived family dysfunction and low expectations for the future were associated with increased acculturation stress.

Familism. The family has been the central focus of research on risk behaviors among Latino adolescents, including suicidality. This emphasis on familial influences is due to the Latino cultural value of familism, which refers to an emphasis on family closeness, cooperation, and obligation, as well as deference to elders (Cauce & Domenech Rodriguez, 2002). Lugo Steidel and Contreras (2003) note that familism has been described as a multidimensional construct composed of structural, behavioral, and

22

attitudinal dimensions. Structural familism refers to physical closeness to family members and behavioral familism refers to family-related behaviors, such as frequency of visits with relatives. The authors focus on attitudinal familism and provide a definition composed of four interrelated beliefs: that family comes before the individual, that adults should maintain emotional and physical closeness to family, that family members provide reciprocity in times of need, and that family members have a duty to maintain and defend family honor.

Familism is related to acculturation in that research has found that familism declines as acculturation to the U.S. increases (Lugo Steidel & Contreras, 2003). Furthermore, familism and acculturation are linked through differential acculturation conflict, or the conflict that arises between parents and children due to having acculturated to U.S. society at different rates (Szapocznik, Prado, Burlew, Williams, & Santisteban, 2007). The literature in this area explains that adults tend to acculturate more slowly than children. This leads to an acculturation gap, which exacerbates the parent-adolescent conflict that is typical of the adolescent years in U.S. culture (Szapocznik & Kurtines, 1993). In this conflict, the adolescent struggles for autonomy, as represented by American values regarding the transition into adulthood, while the parent struggles for family connectedness, as represented by traditional Latino values. Differential acculturation conflict has been linked to negative behavioral health outcomes among Latino youth, particularly in the area of substance abuse (Szapocnik et al., 2007), and may result in a family crisis leading to a suicide attempt (Zayas & Pilat, 2008). The conflict may be particularly acute for Latina females, given traditional cultural

expectations for the behavior of women that include self-sacrifice and responsibility towards the family (Zayas, 2011).

Idioms of distress. Idioms of distress are culturally specific ways of expressing psychological symptoms or communicating distress (American Psychiatric Association [APA], 2000). One explanation for the high rates of suicide attempts among adolescent Latinas is that these suicide attempts may represent an idiom of distress similar to the phenomenon of "ataque de nervios" among adult Latinas (Zayas et al., 2005; Zayas & Gulbas, 2012). During the ataque de nervios, or nervous attack, the afflicted individual generally feels a sense of being out of control and may experience symptoms such as crying, trembling, verbal or physical aggression, uncontrollable shouting, and the feeling of heat rising from the chest into the head (APA, 2000). The ataque may include dissociative experiences, fainting, seizure-like symptoms, amnesia, and/or suicidal behavior. The trigger for such an episode is usually a stressful event related to the family, and the afflicted individual generally returns quickly to typical functioning. Ataques de nervios have some features in common with panic attacks, but are considered to be different from panic attacks because there is a clear precipitating event and because the symptom of acute fear is generally not present. Zayas and colleagues (2005) note that suicide attempts among adolescent Latinas have similar characteristics to the ataque. A key element common to both of these idioms of distress is the presence of relational problems within the family as the trigger for an episode.

Conceptual model of Latina suicidality. In the past decade, three groups of researchers systematically reviewed the literature on Latina suicidality in order to

elucidate relevant risk and protective factors and develop new directions for research (Canino & Roberts, 2001; Duarte-Velez & Bernal, 2007, 2008; Zayas et al., 2005). All of these reviews examined the potential impact of cultural variables on suicidal behavior among young Latinas and provided recommendations for future research. Zayas and colleagues (2005) developed a conceptual model of Latina suicidality, and further refined the model via empirical research (Zayas, 2011). The refined model forms the foundation for the proposed study.

Canino and Roberts (2001) discuss the central role of culture, which they describe as the "web that structures human thought, emotion, and interaction," on Latino adolescent suicidality (p.122). In their biopsychosocial conceptualization, culture and ethnicity are the constructs that best organize research on psychopathology and suicidal behavior. They emphasize that symptom presentation, patterns, and outcomes vary depending on cultural context, and therefore constructs related to culture are likely influence the development of suicidal behavior among Latino youth. Duarte-Velez and Bernal (2007; 2008) also emphasized the importance of cultural constructs on the development of Latino adolescents and proposed that an ecodevelopmental, gender-specific perspective is the most apt framework by which to conceptualize Latina adolescent suicidality.

Zayas and colleagues (2005) incorporated cultural, social, and individual factors into a conceptual model of Latina suicidality, stating that "Until we uncover *intraethnic* explanations of this phenomenon, we are hard put to understand *interethnic* differences" (p. 275). In this model, the family sociocultural environment and the adolescent

developmental process influence the adolescent's emotional vulnerability and psychosocial functioning. The adolescent's individual psychological state then impacts her experience of an interpersonal crisis within the family, which results in a suicide attempt. Furthermore, the attempt itself is viewed within this model as a cultural idiom of distress.

After being tested in a study comparing Latina adolescent suicide attempters with a control group of non-attempters, Zayas's model was refined to include a wider range of sociocultural variables and to account for interactions between variables (Zayas, 2011). There are three core components affecting suicidality in the refined model (Figure 2). These are the adolescent's individual functioning, the family, and the parent-adolescent relationship (Zayas, 2011). These proximal factors are considered to have the strongest influence on Latina adolescent suicidality via an interpersonal crisis or trigger that precedes the suicide attempt. The social world outside the family - which includes a variety of factors such as peer influence, friendships, school, community and neighborhood influences, socioeconomic status, trauma, and immigration - is considered to influence suicidality, but its influence is mediated by these core components. In the following section, the components of Zayas's model will be discussed in greater detail, with particular emphasis on the variables that will be used in the proposed study.
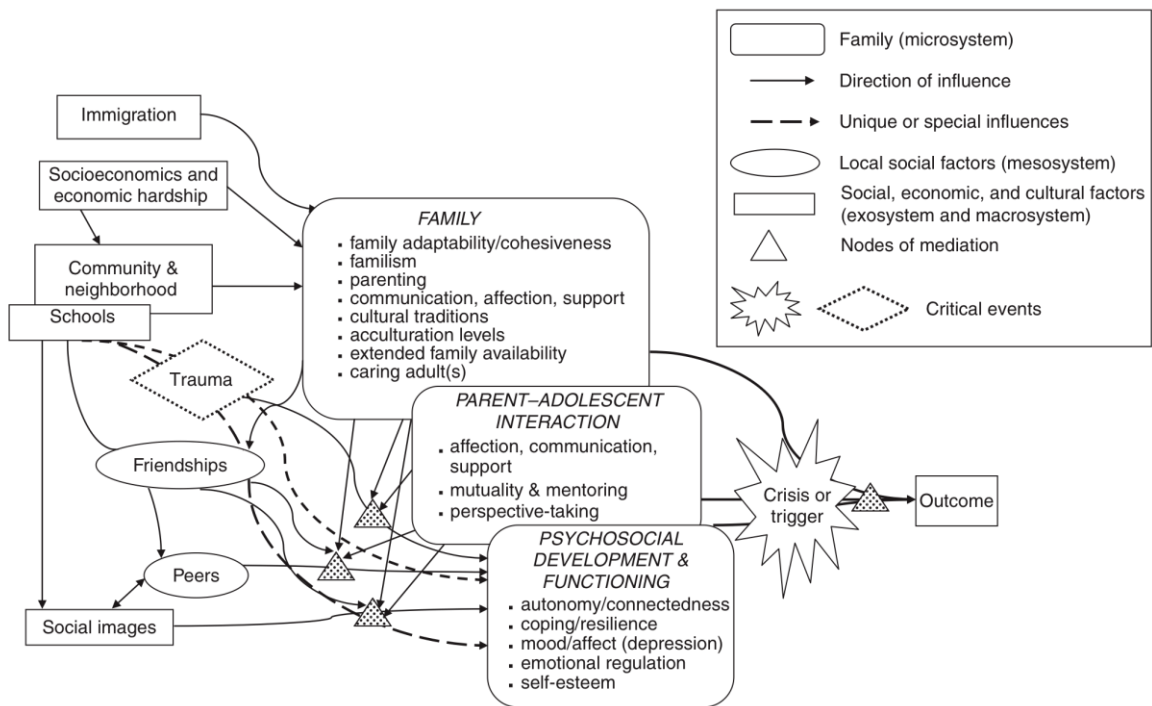
Figure 2. A conceptual model of suicide attempts among adolescent Latinas (Zayas, 2011, p. 152)

Individual development and functioning. For Latina adolescents, individual psychological functioning is a key influence on suicidal behavior. As with adolescents from other cultural groups, depression is thought to be the main psychological influence on suicidality. Latinas had the highest rates of depression symptoms in the YRBSS, with 47.8% reporting having felt sad or hopeless almost every day for two or more weeks in a row (CDC, 2014).   In one study, higher rates of depression among Latinas were partially accounted for by a negative or pessimistic cognitive style (Joiner, Perez, Wagner, Berenson, & Marquina, 2001).

Zayas and colleagues (2011) conducted a study with 232 Latina adolescents (122 who had made at least one suicide attempt in the 6 months prior to enrollment and 110 who had no history of suicide attempts) in New York City. A mixed-methods analysis of a subset of 73 study participants was conducted to develop a profile of suicide attempters (Hausmann-Stabile, Kuhlberg, Zayas, Nolle, & Cintron, 2012). The most common means of attempting suicide among this group was cutting, followed by overdosing on medication. Suicide attempts were mostly classified as having low lethality. Nearly half of the adolescents were diagnosed with a depressive disorder following the attempt and a third were diagnosed with an adjustment disorder (primarily adjustment disorder with depressed mood). Approximately 15% were diagnosed with an anxiety disorder (primarily posttraumatic stress disorder). Common Axis IV diagnoses were family relationship stressors (58%) and history of abuse (17%).

On a self-report of internalizing and externalizing behaviors, nearly half of the adolescents reported somatic complaints in the borderline-clinical to clinical range and over a third reported withdrawn-depressive behaviors in this range. More than half of them reported externalizing behaviors in the borderline-clinical to clinical range. Clinician diagnoses did not capture the high levels of somatic complaints or externalizing behaviors reported by the adolescents, indicating a contrast between the adolescents' self-perception and clinician judgment.

In this study, the latent variable of depression will represent a mediator by which psychosocial variables influence suicidality. This pathway is consistent with the bulk of research on adolescent suicidality. However, given that more recent research on Latinas

who have attempted suicide finds that not all of them report depressed mood, direct paths from family and peer variables to suicidality will be included in the study. This will allow for a comparison between the direct and indirect effects of family and peer variables on suicidality.

    Family functioning and the parent-adolescent relationship. Zayas (2011) draws upon theories of family systems and of cultural psychology to develop the role of the family within the model of Latina adolescent suicidality. Three dimensions of family functioning identified by Olson (2000) are incorporated into the model: adaptability, cohesion, and communication. Adaptability refers to the ability to balance structure and flexibility in adapting to change, cohesion refers to the emotional connection between family members, and communication refers to how much and how well family members communicate. The concept of cohesion reflects the cultural value of familism (Zayas, 2011). Other aspects of family life that are relevant within Zayas's model are parenting practices, availability of extended family, cultural traditions, and the impact of acculturation on the family.

    Parent-child relationships are conceptualized within the model as a separate, but related construct. In keeping with the principles of attachment theory, the parent-child relationship is viewed to be the base from which the child learns (or fails to learn) emotional regulation, coping skills, and how to balance autonomy and relatedness in interpersonal relationships. The impact of attachment disruptions is viewed as affecting Latinas similarly to children from other cultural groups; however, it is noted that first-generation Latinas may face specific challenges if they are separated from their parents

during the immigration process (Zayas, 2011). The importance of the parent-child relationship for Latino youth is supported by results from a study of a statewide sample of 9th and 12th grade Latino youth in Minnesota, which found that low levels of parental caring were associated with higher risk of suicide attempts for youth in both grades, and parent absence was associated with a higher risk for 9th graders (Garcia et al., 2008).

In the study of Latina suicide attempters and non-attempters described in the previous section, attempters rated their families as higher in family conflict, lower in cohesion, and lower in organization than non-attempters (Zayas, 2011). Attempters reported a lower sense of mutuality and mentoring (i.e., affection, communication and support) with their mothers. A similar pattern existed with regards to fathers. Mothers of attempters also reported low mutuality with their daughters, but described themselves as demonstrating mentoring qualities to the same extent as mothers of non-attempters. Thus, attempters and their mothers agreed in their reports of low mutuality, but differed in reports of mentoring, with the girls perceiving less affection, communication, and support than their mothers believed they were providing.

Both attempters and non-attempters reported significantly less familism than their mothers and fathers. Further analysis demonstrated that the level of difference between mothers and daughters on self-reported familism (termed a familism gap) predicted lower levels of mother-adolescent mutuality, which in turn had an indirect effect on suicidality via its influence on internalizing and externalizing behaviors (Baumann et al., 2010). Low levels of familism were also associated with higher parent-adolescent conflict, which had an indirect effect on suicidality via its influence on internalizing behaviors and

low self-esteem (Kuhlberg et al., 2010). Interestingly, higher levels of familism had a significant inverse relationship with internalizing behaviors, suggesting that girls who value traditional family relationships may engage in less conflict but internalize problems more strongly. Familism also increased the odds of being in a family characterized by high cohesion and low conflict, which decreased the likelihood of a suicide attempt (Peña et al., 2011).

These results suggest that cultural processes in Latino families influence suicidality primarily via their impact on family and individual functioning. A similar process has been found in the area of substance abuse; in one study, the effects of differential acculturation on substance abuse were mediated by increased family stress and decreased effective parenting (Martinez, 2006). In this study, the dimensions of adaptability and cohesion will form the latent variable of family functioning, while measures of communication, conflict, and emotional closeness for both male and female caregivers will form the latent variable of the parent-child relationship. These latent variables are proposed to mediate the relationship between generation status and depression, and thus to have an indirect effect on suicidality.

Peer relationships and negative peer influence. Though there is limited research examining the interaction of peer and family factors on the adjustment of Latino adolescents, there is some evidence that acculturation increases both negative peer influence and family conflict within this group. One pathway suggested in the literature on substance abuse is that the acculturation gap between Latino parents and adolescents increases the likelihood that the adolescent will seek support from deviant peers, which

31

then increases family conflict (Cox, Burr, Blow, & Parra Cardona, 2011). In a longitudinal study of 288 Latino adolescents from North Carolina and Arizona, negative peer influence was inversely related to familism, which was in turn inversely related to parent-adolescent conflict (Smokowski, Bacallao, & Buchanan, 2009). Thus, as negative peer influences increased, familism decreased and parent-adolescent conflict increased. This then impacted the development of internalizing symptoms. These results are consistent with the placement of peer influences as a distal factor in Zayas's model.

Zayas and Pilat (2008) propose that suicidal behavior among Latinas is more strongly influenced by the family than by the peer group, and that the peer group likely has an indirect effect on suicidality via its influence on intra-familial relationships. However, this hypothesis has not been directly tested. In this study, the latent variables of peer relationships and negative peer influence will represent two ways in which peers have an effect on the individual, and the effects of each of these on family functioning, parent-adolescent relationship, and suicidality will be tested. It is expected that the effects of peer relationships and negative peer influence on suicidality will be mediated by family functioning and parent-child relationships.

Proposed Research Study

Statement of the problem. Latina adolescents in the U.S. have a greater risk of attempting suicide than other groups of adolescents, particularly if they were born in the U.S. The research on suicidality to date has identified common risk factors for adolescent suicidality, but has not demonstrated specific reasons why members of some ethnic groups have higher rates of suicidality than others. In response to the neglect of

cultural factors within research in this area, Zayas (2011) has developed a conceptual model of Latina suicidality that integrates relevant cultural themes with ecological and developmental risk factors. This was the first model to establish a theoretical framework from which to conduct research on Latina suicidality and was tested on a sample of Latinas in New York City. Further research is needed in order to test key aspects of the model on a national sample of Latinas and to assess the relative contributions of variables included in the model.

Statement of purpose. This study intends to extend the literature by developing a latent variable structural equation model based on key aspects of the conceptual model of Latina suicidality and testing the model with data from a national sample of Latina adolescents. The primary aims of this study are to determine whether the proposed model fits the data and to evaluate the effects of generation status, family functioning, parent-adolescent relationships, peer relationships, negative peer influence, and depression on suicidality among Latina adolescents. The secondary aims of this study are to compare the direct and indirect effects of each of these psychosocial and psychological variables on suicidality. The results of this study may inform intervention development by identifying which risk factors demonstrate the strongest direct influence on suicidality within a vulnerable population.

Chapter 3

Method

The data for this study were drawn from the results of a nationally representative survey, the National Comorbidity Survey – Adolescent Supplement (NCS-A; Kessler, 2013). The NCS-A is a psychiatric epidemiological survey of adolescents aged 13 to 18 years old carried out between the years 2001 and 2004. Data were collected on participant demographics, psychiatric symptoms, and other health problems, as well as individual, family, and environmental factors affecting the adolescents. Out of 10,148 participants in the survey, 1,922 were Latino/a adolescents and 952 were Latina females. For this analysis, 946 Latina participants were retained in the study sample (see procedures for further details).

Participants

All participants self-identified as being "of Hispanic or Latino descent" in response to a survey question. The mean age of participants was 15.2 (*SD* 1.5). All participants were English-speaking, and 67% also reported speaking a language other than English at home. Twelve percent of participants reported that they were not U.S. citizens. Nearly 18% of the adolescents reported being first-generation (foreign-born), 44% reported being second-generation (at least one parent foreign-born), 16% reported being third-generation (at least one grandparent foreign-born), and 22% reported being fourth-generation (grandparents and parents all U.S. born). Of those participants who reported being foreign-born, the mean age of arrival in the U.S. was 6 (*SD* 4.4) and the

mean number of years lived in the U.S. were 9.4 (*SD* 4.5). Information was not available

as to whether the term "U.S.-born" in the study included Puerto Ricans born on the island

of Puerto Rico. Information on the ethnic/national origins of participants (e.g., Puerto

Rican, Cuban, Mexican, Central/South American) was collected but not made available

in the data set.

Procedure

Fieldwork for the NCS-A was performed by a staff of 197 interviewers and 18

regional supervisors employed by the Survey Research Center at the University of

Michigan (Kessler et al., 2009). The study was approved by the Human Subjects

Committees of Harvard Medical School and the University of Michigan. The final

sample was based on a dual-frame design. One set of participants (*n*=904, response rate

85.9%) was recruited from households that had been identified for participation in the

National Comorbidity Survey Replication (NCS-R), an adult psychiatric epidemiological

survey. The majority of the household sample respondents were enrolled in school. A

small number (*n*=25) were not enrolled in school. The number of non-students was

considered too small to make meaningful inferences about this subpopulation of

adolescents, and the non-students were eliminated from later analyses of NCS-A data.

Another set of participants was recruited from a representative sample of schools in the

same counties as NCS-R households (*n*=9,244, response rate 74.7%). The school-based

sample was recruited due to difficulties obtaining a large enough sample size directly

from NCS-R households. Types of schools (e.g., public, private, therapeutic) were

included in their true population proportions. A stratified probability sample of students was selected from each school.

After obtaining contact information from the schools, interviewers contacted participants and their parents in person to introduce the study and answer questions. They then obtained written informed consent from the parent and written informed assent from the participant. Interviews were conducted in the participant's home using a computer assisted personal interview (CAPI). Parents of the adolescents were also asked to complete a parent self-administered questionnaire (response rate 63%). Supervisors reviewed each interview within 24 hours to check for errors and missing data. A random 10% of participants were contacted by supervisors to confirm address, interview procedures, interview length, and a random sample of responses.

The data were released as a public use dataset in July 2011, but are restricted from general dissemination in order to maintain confidentiality. In order to obtain the data, a data protection plan was developed and approved by the University of Texas Information Security Office. The study was then approved by the Institutional Review Board at the University of Texas at Austin. An application for access to the data was submitted to the Inter-University Consortium for Political and Social Research at the University of Michigan and the data were released to the principal investigator for this study. This study was conducted in compliance with the ethical standards for research designated by the American Psychological Association, as well as the standards set forth by the University of Texas at Austin.

The sample used in this study ($n=946$) was derived from the larger data set by selecting the respondents that reported being female and of Hispanic or Latino descent. This resulted in 952 participants. Six participants of these participants differed from the overall sample in that they were not enrolled in school. Because of the low numbers of non-students in the overall data set (as described earlier), these six participants were removed from the data set used in this study.

Measures

The NCS-A survey consisted of a core diagnostic interview, the World Health Organization Composite International Diagnostic Interview (CIDI), and a multiconstruct battery designed by the principal investigators to assess risk and protective factors related to mental health in adolescents (Merikangas, Avenevoli, Costello, Koretz, & Kessler, 2008). The CIDI was modified for use with adolescents by eliminating disorders with low prevalence among youth, testing and modifying questions for comprehension, and modifying the content of questions to better match adolescent experiences. The risk and protective factors battery was developed via a four-step process including review of the literature; selection of existing measures; development, pilot testing, and field testing of the modules; and final modifications.

Descriptions of the specific measures and items used in the present study will be discussed below and are summarized in a table in Appendix A. The sections of the survey containing the relevant measures and items are included in Appendix B. Published information on the measures used in this study, particularly measures of family and peer factors, is limited. Reliability and validity estimates were not provided for most

measures used in this study; thus, they were calculated during the preliminary analysis phase of the study.

Suicidality. Suicidality was measured in the NCS-A by questions inquiring about the respondent's lifetime history of suicidal ideation, development of a suicide plan, and suicide attempts. Only respondents who reported suicidal ideation were asked about a suicide plan and about suicide attempts. Respondents who did not report suicidal ideation were coded "0" on these variables. Respondents who reported a suicide attempt were asked to report if the attempt resulted in an injury; however, the injury variable was not reported for all respondents in the data set, and was dropped from this analysis. Respondent were asked to rate their intentions for their first and last attempts by selecting one of the following three statements: "I made a serious attempt to kill myself and it was only luck I did not succeed," "I tried to kill myself, but knew that the method may not work," and "My attempt was a cry for help, I did not intend to die." Responses for first attempt were not reported for all respondents; thus, only responses for the last (or only) attempt were used. Respondents were also asked about the number of suicide attempts they had made. Responses to the history, injury, intention, and number of attempts questions were used as indicators for the suicidality latent variable.

Family functioning. Family functioning was measured by a series of 13 questions on a 4-point Likert scale. These questions measured the respondent's perception of the family's levels of adaptability and cohesion. An example of an item measuring adaptability was "How often did everyone compromise when there were disagreements?" and an example of an item measuring cohesion was "How often did the

whole family do things together?" Response options ranged from "never" to "all of the time." The sums of scores for each of the two scales were used as indicators for the family functioning latent variable.

Parent-adolescent relationship. The parent-adolescent relationship was measured via a series of nine questions each about the respondent's relationship with her primary female caregiver and primary male caregiver. The questions addressed the following topics: emotional closeness, quality of communication, frequency of communication, emotional awareness, and tension in the relationship. Responses were provided on a four-point Likert scale that ranged from "none" to "a lot." The sum of the responses about the female caregiver and the sum of the responses about the male caregiver were used as indicators for the parent-adolescent relationship latent variable. If the adolescent reported not having a relationship with a primary female or primary male caregiver, the response for that adolescent was coded as a missing value.

Peer relationships. Peer relationships were measured on the NCS-A via five questions regarding the following aspects of the respondent's relationship with friends: how much she can rely on her friends, how much she can open up to her friends, how often her friends make demands on her, how often she argues with friends, and how often she talks to friends about problems or worries. Responses were given on a 4-point Likert scale. Responses to these questions were used as indicators for the peer relationships latent variable.

Negative peer influence. Negative peer influence was measured via twelve questions about specific peer behaviors in the categories of substance use, aggression,

internalizing symptoms, school problems, and delinquency. The questions were asked differently based on how many friends the respondent reported having. If the respondent reported having one to four friends, they were asked to respond to "yes/no" questions, with a "yes" response indicating they had friends that engaged in the behavior. If the respondent reported having more than four friends, they were asked how many of their friends engaged in these behaviors, with possible responses on a 4-point Likert scale ranging from "none" to "all of them." Because of the variability in how the question was asked, all of the responses were recoded to reflect a "yes/no" answer.

Eleven of the questions asked about risk factors, while one asked about a protective factor (involvement in school activities). The one question about protective factors was reverse-coded. These questions were grouped into the five categories listed above, and composite scores consisting of the sum of questions within each category were used as indicators for the latent variable of negative peer influence.

Depression. The depression battery on the NCS-A included measures of total symptoms, frequency of having experienced symptoms, severity of symptoms, and impairment caused by symptoms. The measures of total symptoms and their frequency were adapted for adolescents from the CIDI. In order to assess the validity of CIDI diagnoses, blinded clinical reappraisal interviews were administered to a probability subsample of 347 NCS-A respondents using the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Kessler et al., 2009). Prevalence estimates of major depressive disorder obtained from the CIDI had good concordance

with prevalence estimates from the K-SADS. The CIDI had slightly lower estimates of dysthymic disorder when compared to the K-SADS.

The following scales were used as indicators for the latent variable of depression: symptoms, severity, and impairment. Frequency was not used as an indicator variable because it was used in the survey to establish a skip pattern; thus, all respondents answering questions about severity and impairment had already responded that they experienced symptoms frequently enough to qualify for a diagnosis of depression or dysthymia. Given skip patterns used in this section, all respondents did not answer all questions. Respondents who did not endorse high enough levels of depression to answer all questions were given a code of "0" for those questions, indicating no depression. Two scales in this section that provided additional information about symptom severity and impairment were not used because they only referred to symptoms experienced in the past 12 months.

Generation status. Generation status was measured on the NCS-A by asking the respondent whether she was born in the United States or elsewhere, whether one or both of her parents were born in the United States or elsewhere, and whether each of her grandparents were born in the United States or elsewhere. These responses were aggregated in the original data set and a composite score was provided with values ranging from 1 (respondent is foreign-born) to 4 (grandparents, parents, and respondent all born in the U.S.). The survey also asked the number of years the respondent had lived in the U.S. For this analysis, this number was divided by the age of the respondent, resulting in a range from slightly above 0 (less than a year in the U.S.) to a value of 1

(lived in U.S. for entire life). Finally, a categorical variable about language use was included, with 0 representing a language other than English spoken at home and 1 representing only English spoken at home. When all of the indicators were combined into the generation status latent variable, higher values represented later generations who were likely to be more acculturated to the U.S.

Hypothesized Model

The hypothesized structural model is shown in Figure 3 and the latent variable SEM model is shown in Figure 4. The model was developed based on prior theory (Zayas, 2011) and empirical data regarding risk factors for suicide among adolescents in general and among Latinas in particular. It was designed to test the influence of generation status, family functioning, parent-adolescent relationships, peer relationships, negative peer influence, and depression on suicidality.
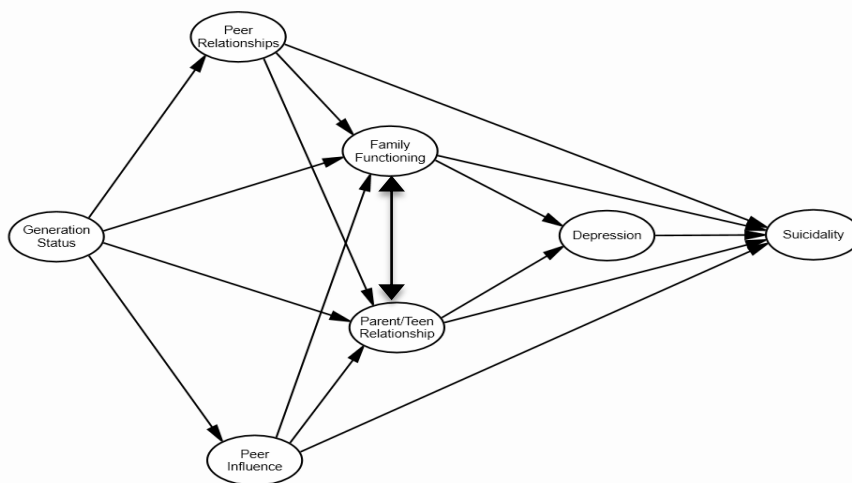
Figure 3. Proposed structural model

There are several advantages to using latent variable SEM to test the proposed model. SEM allows for the testing of multiple relations in one analysis, thus reducing the probability of Type 1 error. The effects of unreliability and invalidity are removed from estimates of one variable's effect on another, which provides a closer approximation of the true constructs of interest and the relations among them (Keith, 2006).

In SEM models, latent variables (also called unobserved variables or factors) are represented by ovals or circles, while measured variables (also called observed or manifest variables) are represented by rectangles or squares (see Figure 4). The latent variables in this model are the constructs of interest: generation status, family functioning, parent-adolescent relationships, peer relationships, negative peer influence, depression, and suicidality. The measured variables were created from responses to individual NCS-A questionnaire items and from composites of items (as described in the instrumentation section). Arrows between variables indicate the hypothesized directionality of the relations between them.

Additionally, the model includes the disturbances (also called residuals) of each latent variable and the unique error variance of each measured variable. The disturbances (labeled d1 through d5 in the model) are unobserved variables that represent all other influences on the variable beyond the influences included in the model. The unique and error variance of each measured variable (labeled e1 through e24) represents influences on the measured variables other than the latent constructs they measure, and includes the effects of unreliability and invalidity.
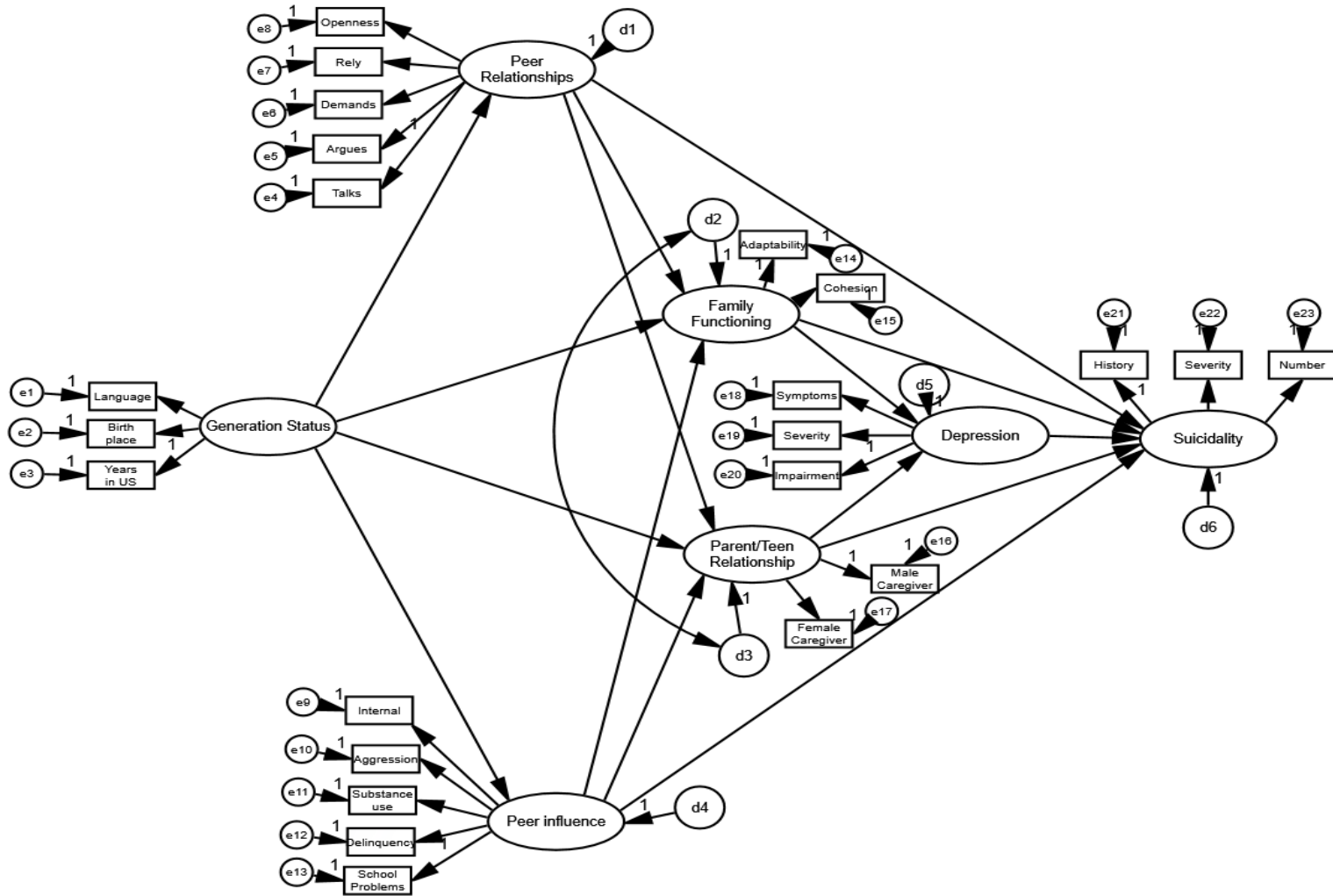
Figure 4. Proposed latent variable structural equation model

Data Analysis

Preparation of the data and preliminary analyses were conducted using SPSS 22. Descriptive statistics (means, ranges, standard deviations, and correlations) were calculated for each of the measures used in the study. The data were checked for fit with the statistical assumptions underlying SEM: absence of singularity, linearity, and normally distributed error values. The univariate distributions were inspected for excessive skew and kurtosis. If any of the variables demonstrated excessive skew and kurtosis, a logarithmic transformation was applied to the scores in order to achieve a more normal distribution, per the procedures outlined by Kline (2011). Because reliability data were not available for the measures used in the study, Cronbach's alpha was calculated for each measure for the sample as a whole and for the subsample used in the study.

A power analysis was conducted to determine the sample size necessary to determine whether the model has a good fit to the data. The analysis was conducted using the method described by MacCallum, Browne, and Sugawara (1996) and a program developed by Preacher and Coffman (2006). The analysis indicated that a minimum sample size of 40 would be needed to achieve 80% power for a model with 214 degrees of freedom. This value was reached by entering a RMSEA null value of 0.05 (good fit), a RMSEA alternative value of 0.10 (poor fit), and an alpha significance level of 0.05.

The latent variable structural equation model was analyzed using MPlus 7.11 (Muthén & Muthén, 2012). The estimation method used was Weighted Least Squares with adjusted means and variances (WLSMV), which provides more robust estimates

when using data that violate the assumption of multivariate normality such as categorical data (Kline, 2005). Model estimation was conducted using a two-step approach (Anderson & Gerbing, 1988). First, the measurement model (also called the confirmatory factor model) was estimated and the fit of the model was evaluated. If the model had poor fit, modifications within the scope of the theoretical basis for the model were considered. If any modifications were made to the model, the fit of the resulting model was compared to the original model in order to select the model with the best fit. Second, the structural model, with paths between latent variables specified, was estimated. The same process was used to modify the model. Once model fit was established, the direct, indirect, and total effects were interpreted according to the following research questions.

Research Questions

    Research Question 1. What are the relative effects of generation status, family functioning, parent-adolescent relationships, peer relationships, negative peer influence, and depression on suicidality among adolescent Latinas?

    Hypothesis: All variables included in the model were expected to have either a direct or indirect effect on the outcome variable of suicidality among adolescent Latinas. The expected direction and magnitude of the effects are detailed below.

    Research Question 2: Does generation status have an indirect effect on suicidality via its influence on family functioning and parent-adolescent relationships?

    Hypothesis: It was hypothesized that generation status would have an indirect effect on suicidality via its influence on family functioning and parent-adolescent relationships. Prior research has found that second generation and later youth have a

higher risk of suicidality than first generation youth. One of the pathways by which generation status is believed to impact mental health outcomes is increased acculturation, which leads to increased family conflict and higher risk of negative mental health outcomes. In this study, it was hypothesized that as generation status increased, family functioning and parent-adolescent relationships would decrease, and this would lead to an increase in suicidality.

Research Question 3: Is the impact of family functioning and parent-adolescent relationships on suicidality mediated by depression?

Hypothesis: It was hypothesized that family functioning and parent-adolescent relationship would have an inverse relationship with depression, and that depression would in turn have a positive relationship with suicidality. Research on suicidality in adolescents has found that depression mediates the impact of family problems on suicidality, and a similar relationship was expected within this study given the high levels of depression that have been reported by Latina adolescents in national studies. It was expected that the two family variables would have a significant indirect effect on suicidality via depression. It was also expected that these two variables would have a significant direct effect on suicidality, but that the magnitude of the indirect effect would be larger.

Research Question 4: Do peer relationships and negative peer influence have an indirect effect on suicidality via their influence on family functioning and parent-adolescent relationships? What is the magnitude of the indirect effect of peer relationships and negative peer influence on suicidality relative to the direct effect?

47

Hypothesis: It was hypothesized that better peer relationships would result in better family functioning and parent-adolescent relationships, while higher levels of negative peer influence would result in poorer family functioning and parent-adolescent relationships. Family functioning and parent-adolescent relationships were in turn expected to have an inverse relationship with suicidality. Thus, there would be an indirect effect of peer relationships and negative peer influence on suicidality, but peer relationships were expected to be associated with decreased suicidality while negative peer influence was expected to be associated with increased suicidality. It was expected that these indirect effects would be significant and that the direct effect of the variables on suicidality would not be significant.

Chapter 4

Results

Preliminary Analyses

  Data preparation. Preparation of the data, calculation of preliminary statistics, and reliability analyses were conducted using SPSS 22. Correlations were calculated in MPlus 7.11 using full information maximum likelihood estimation for missing data (see Table 1). In inspection of the correlation matrix, no unexpected relationships were found between variables. Descriptive statistics (means, ranges, and standard deviations) were computed (see Table 2) and compared to values in the data set's published codebook. Further information on descriptive statistics is provided in the next section.

  All data were checked via inspection of histograms and by skewness and kurtosis values. Per Curran, West, and Finch (1996), skew values less than 2 and kurtosis values less than 7 are recommended, and skew values between 2 and 3 are described as moderately non-normal. Per Kline (2011), kurtosis values above 10 indicate a problem. The majority of variables in this model had skew values below 2 and kurtosis values below 7. Exceptions to this were the following variables: "ratio of years lived in the U.S." (skew -3.08, kurtosis 8.78), "number of suicide attempts" (skew 7.81, kurtosis 68.27), "intention during last suicide attempt" (skew 4.46, kurtosis 18.95), and "suicidality history" (skew 2.81, kurtosis 6.82). As detailed in the methods for this study, logarithmic transformations were used to correct the degree of skew and kurtosis for

Table 1. *Correlation matrix of measured continuous variables (missing estimated via full information likelihood estimation)*

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. History of suicidal behavior	1																
2. Depression symptoms	.41	1															
3. Depression severity	.39	.90	1														
4. Depression impairment	.39	.96	.88	1													
5. Adaptability	-.12	-.14	-.14	-.15	1												
6. Cohesion	-.17	-.19	-.19	-.21	.72	1											
7. Relationship with female caregiver	-.24	-.20	-.19	-.20	.41	.50	1										
8. Relationship with male caregiver	-.09	-.11	-.10	-.12	.34	.40	.26	1									
9. Peer rely	-.01	-.02	-.01	-.01	.04	.04	.01	.06	1								
10. Peer open up	-.01	.03	.01	.02	.19	.17	.09	.07	.35	1							
11. Peer talks	-.01	.01	-.02	.01	.18	.16	.03	-.01	.23	.46	1						
12. Substance use	.19	.21	.22	.21	-.17	-.24	-.25	-.21	-.01	.01	.01	1					
13. Aggression	.13	.07	.10	.08	-.19	-.24	-.17	-.07	-.01	-.09	-.04	.29	1				
14. School problems	.14	.18	.20	.18	-.24	-.21	-.19	-.12	-.03	-.13	-.04	.38	.36	1			
15. Delinquency	.19	.19	.22	.19	-.24	-.30	-.29	-.20	-.02	-.07	-.02	.50	.71	.42	1		
16. U.S. born family	.05	.07	.07	.06	.08	.02	.06	.03	.04	.12	.01	.10	.01	-.04	.04	1	
17. Ratio years in the U.S.	.06	.05	.05	.04	.07	.01	.03	.01	.05	.08	.06	.07	.08	.02	-.01	.51	1

these three variables. However, these and other transformations (inverse and square root transformations) were not successful in correcting the degree of skew.

The variables "intention during the last suicide attempt," "ratio of years in the U.S.," and "suicidality history" were retained for the analysis, while the variable "number of suicide attempts" was dropped. The type of estimation used in this study (Weighted Least Squares with Means and Variances) is considered robust when estimating models that include binary and ordinal categorical variables (Kline, 2011) and is robust to moderate violations of the normality assumption. The variable of "intention during last suicide attempt" was an ordinal categorical variable and was retained. The variables of "ratio of years lived in the U.S." and "suicidality history" were retained, given skew values close to or less than 3 and kurtosis variables below 10 which indicated only a moderate violation of the normality assumption. The variable "number of suicide attempts" was dropped from the model given its very high skew and kurtosis (inclusion of this variable in the model caused a correlation matrix that was not positive definite).

Descriptive statistics. Rates of depression, suicidal ideation, suicide plans, and suicide attempts were calculated. In this sample, 18.5% of Latinas met DSM-IV criteria for a depressive disorder diagnosis, 15.4% of Latinas reported lifetime suicidal ideation, 5.3% reported having made a suicide plan, and 5.7% reported having made a suicide attempt. Number of attempts reported ranged from one to more than 15. It is important to note that only those who reported suicidal ideation were asked about plans and attempts; thus, results may exclude participants who had engaged in an impulsive attempt without

prior ideation. In fact, 1/3 of the participants who reported a suicide attempt indicated that they had not made a suicide plan.

No published studies are available comparing prevalence rates for suicidality across ethnicity/gender subgroups in the NCS-A (only comparisons by gender or by mixed-gender ethnic groups are available; see Nock et al., 2013). However, a comparison of weighted prevalence rates conducted for this study indicates that Latinas had the highest rates of suicide attempts, with a weighted prevalence rate of 7.2% compared to 6.3% for White females, 1.9% for Black females, and 3% for females of other races. Weighted prevalence rates among males ranged from 1.3% (Black males) to 2.8% (Latino males).

Descriptive statistics for all measured variables in the latent structural equation model are summarized in Table 2. Examination of psychosocial variables indicates that participants reported family adaptability close to the median for the scale, whereas family cohesion and parent-adolescent relationships trended towards higher values. Participants reported somewhat better relationships with female caregivers than male caregivers. A higher amount of missing data was also noted for male caregivers, with 9.6% of participants reporting having no father figure as compared to only 0.5% reporting no mother figure. Peer relationships trended towards being positive.

Sampling weights were provided for this data set but were not used for this study. The purpose of the sampling weights is to ensure that the population sampled is representative of the overall U.S. population of adolescents. The sample in this study is not considered representative as it 1) was a subpopulation of adolescents; and 2) was

composed of English-speaking adolescents only. It is assumed in this study that there is a

portion of the Latina adolescent population that is primarily Spanish-speaking and thus

not represented.

Table 2. *Minimums, maximums, means, and standard deviations for items used in measurement and structural models with listwise deletion of missing values*

Latent Variable	Measured Variable	Min	Max	Mean	*SD*	*N*
Suicidality	History	0	3	0.28	0.76	946
	# of attempts*	0	15	0.25	1.42	946
	Intention	0	3	0.13	0.55	946
Depression	Symptoms	0	29	4.74	8.79	935
	Severity	0	12	2.35	3.79	945
	Impairment	0	9	1.45	2.68	945
Family functioning	Adaptability	0	12	6.44	2.36	924
	Cohesion	0	21	13.02	3.99	930
Parent-adolescent relationship	Female caregiver	0	27	20.81	4.89	912
	Male caregiver	0	27	17.78	5.70	821
Peer relationships	Rely on	0	3	2.00	0.92	943
	Open up	0	3	2.37	0.81	944
	Demands*	0	3	2.31	0.77	941
	Arguments*	0	3	2.17	0.79	944
	Talk	0	3	1.66	0.95	944
Negative peer influence	Substance use	0	2	0.72	0.83	917
	Internalizing*	0	2	0.67	0.76	913
	Aggression	0	2	0.65	0.73	915
	School problems	0	3	0.81	0.83	912
	Delinquency	0	3	0.58	0.88	908
Generation status	U.S. born family	1	4	2.43	1.02	946
	Ratio years in U.S.	0.06	1	0.93	0.19	944
	Language use	0	1	0.33	0.47	946

Note. The indicators for the latent variables "Family functioning" and "Parent-teen relationship" were combined into one latent variable of "Family relationships" after initial testing of the measurement model. Indicator variables with an asterisk were dropped from the final model. The latent variable "Peer relationships" was renamed "Peer support."

Reliability statistics. Since published reliability statistics were not available for

the family and peer measures used in the data set, Cronbach's alpha was calculated for

scales in the study using both the full sample of adolescents and the subsample of Latina

adolescents (see Table 3). Calculation of reliability statistics indicated poor reliability (α

= .44) for the peer relationships scale, which consisted of five items with a range from 0 to 3. Reliability was improved by dropping two items from the scale, but reliability of the revised three-item scale (renamed peer support scale) remained lower than optimal (α = .60). Given that the scale was important to the overall model, the scale was retained, but represented a limitation in the interpretation of overall results.

The adaptability scale, which consisted of six items with a range from 0-12, also had lower than optimal reliability (α = .65). Reliability was improved (α = .70) by dropping two items. All other scales demonstrated good to excellent reliability, with Cronbach's alpha ranging from .73 to .97. Additionally, reliability estimates were similar for the full sample and the subset of interest to this study.

Table 3. *Reliability statistics (Cronbach's alpha) for scales used in the study*

Scale	Number of items	Full Sample	Latina sample
Relationship with female caregiver	9	0.81	0.84
Relationship with male caregiver	9	0.87	0.86
Cohesion	7	0.80	0.82
Adaptability	6	0.65	0.65
Revised adaptability	4	0.70	0.69
Negative peer influence	5	0.73	0.72
Revised negative peer influence*	4	0.77	0.78
Peer relationships	5	0.44	0.46
Revised peer relationships (renamed peer support)	3	0.60	0.61
Depression symptoms	36	0.97	0.98
Depression impairment	3	0.96	0.95
Depression severity	2	0.95	0.95

Note. Negative peer influence variable (marked with an asterisk) was revised during the estimation of the measurement model.

Model estimation. The hypothesized structural equation model was analyzed

using MPlus 7.11 (Muthén & Muthén, 2012). The model estimation method used was

Weighted Least Squares with Means and Variances (WLSMV), which is considered to be

a form of robust Weighted Least Squares (WLS) estimation that performs well when

ordered categorical variables are analyzed (Flora & Curran, 2004; Kline, 2011). Model

estimation was conducted using a two-step approach (Anderson & Gerbing, 1988). First,

the measurement portion of the model (also known as the confirmatory factor model) was

estimated, followed by the full structural equation model. For the measurement model,

the paths from the latent constructs to the measured variables were estimated. The path

from each latent variable to one of the measured variables was constrained to 1 to set the

scale of the latent variables. Results from the measurement model indicated whether the

measured variables reflected the underlying latent constructs.

Theoretically plausible respecifications to the model were made after analyzing fit

statistics, standardized residual covariances, and modification indices. Modification

index values provide an estimate of the amount by which the chi-square for the model

would decrease if a particular parameter in the model were freely estimated (Kline,

2011). However, modification indices should be used with caution, as modification

indices may be suggested that would ultimately cause an error in the analysis (Kline,

2011) or would result in a model that is not consistent with theory and prior research

(Keith, 2006). In this study, modification indices with values greater than 10 were

examined. Those that would result in the greatest decrease in chi-square and were

theoretically plausible were considered for model modification, as described in further

detail below. The final measurement model was used as a basis for the full structural

equation model, in which paths between the latent variables were estimated.

Respecifications were made to the full structural equation model following the same

process used with the measurement model. After the final structural equation model was

retained, additional analyses were conducted in which competing models were estimated

and fit statistics were compared.

       Evaluation of model fit. A number of fit statistics were used to evaluate how

well the specified model explained the data. Chi-square was calculated for each of the

models, with statistically insignificant *p*-values indicating a good fit. However, chi-

square is sensitive to sample size and may be statistically significant due to a large

sample size (Keith, 2006). Other fit indices were used to provide additional information

about model fit. The comparative fit index (CFI) and Tucker-Lewis Index (TLI) estimate

the improvement in fit provided by the estimated model over the null model (Keith,

2006). The TLI is considered to be mostly independent of sample size (Tanaka, 1993).

For the CFI and TLI, values closer to 1 represent a better fit. A commonly applied rule of

thumb is that values over 0.9 indicate an adequate fit and values over 0.95 indicate a good

fit (Hu & Bentler, 1999). The root mean square error of approximation (RMSEA)

estimates the approximate fit of a model relative to the degrees of freedom of the model

(Keith, 2006). Rules of thumb for the RMSEA are that values below 0.08 represent

adequate fit and values below 0.5 represent a good fit (Browne & Cudeck, 1993; Hu &

Bentler, 1999). The standardized root mean square residual (SRMR) is a measure of fit

that represents the average difference between the correlations among the measured

variables and those that are predicted by the specified model (Keith, 2006). Values below

0.08 suggest good fit (Hu & Bentler, 1999). Several measures of relative fit were also

used to compare competing models. The Akaike Information Criterion (AIC) and Bayes

Information Criterion (BIC) measures are used to compare competing models, with

smaller values of each indicating better fit. The chi-square difference test is used to

compare nested models, with a statistically significant change in chi-square indicating a

better fit.

Because the hypothesized model has both continuous and categorical indicators,

not all the fit statistics of interest were available for the model. As a result, the

measurement model was measured in two stages: one in which only continuous indicator

variables were used and one in which both continuous and categorical indicators were

used. For the measurement model that included continuous variables only, the following

fit statistics were available: chi-square, AIC, BIC, SRMR, RMSEA, CFI, and TLI. For

the measurement model that included all variables and for the full structural equation

model, the following fit statistics were available: chi-square, RMSEA, CFI, and TLI.

Change in chi-square was also used to evaluate the difference in fit between two nested

models (models in which one can be derived from the other by imposing constraints to

the model).

Primary Analyses

Measurement model. As noted earlier, some indicator variables were dropped

from the analysis during the data screening stage due to excessive skew/kurtosis or poor

reliability of scales. As a result, the initial measurement model for this study did not have

the indicator variables "number of past suicide attempts," "friends make demands," or "argues with friends." The peer relationships latent variable was re-named peer support, in order to better reflect the construct captured by the three remaining indicator variables.

During the estimation of the initial measurement model, a needed model modification was identified. Two of the latent variables, family functioning and parent-adolescent relationship, were highly correlated (0.92). The high correlation between these variables was theoretically plausible, as the two variables measured different aspects of the same construct (i.e., relationships among family members). Indeed, some correlation between these two variables was expected and was represented in the original model. Given that the high level of correlation indicated that the two latent variables were likely representing the same construct, the decision was made to combine the indicators (family adaptability, family cohesion, mother/adolescent relationship, father/adolescent relationship) to represent one latent variable called family relationships. This resulted in a more stable model that could be estimated (see Figure 5).
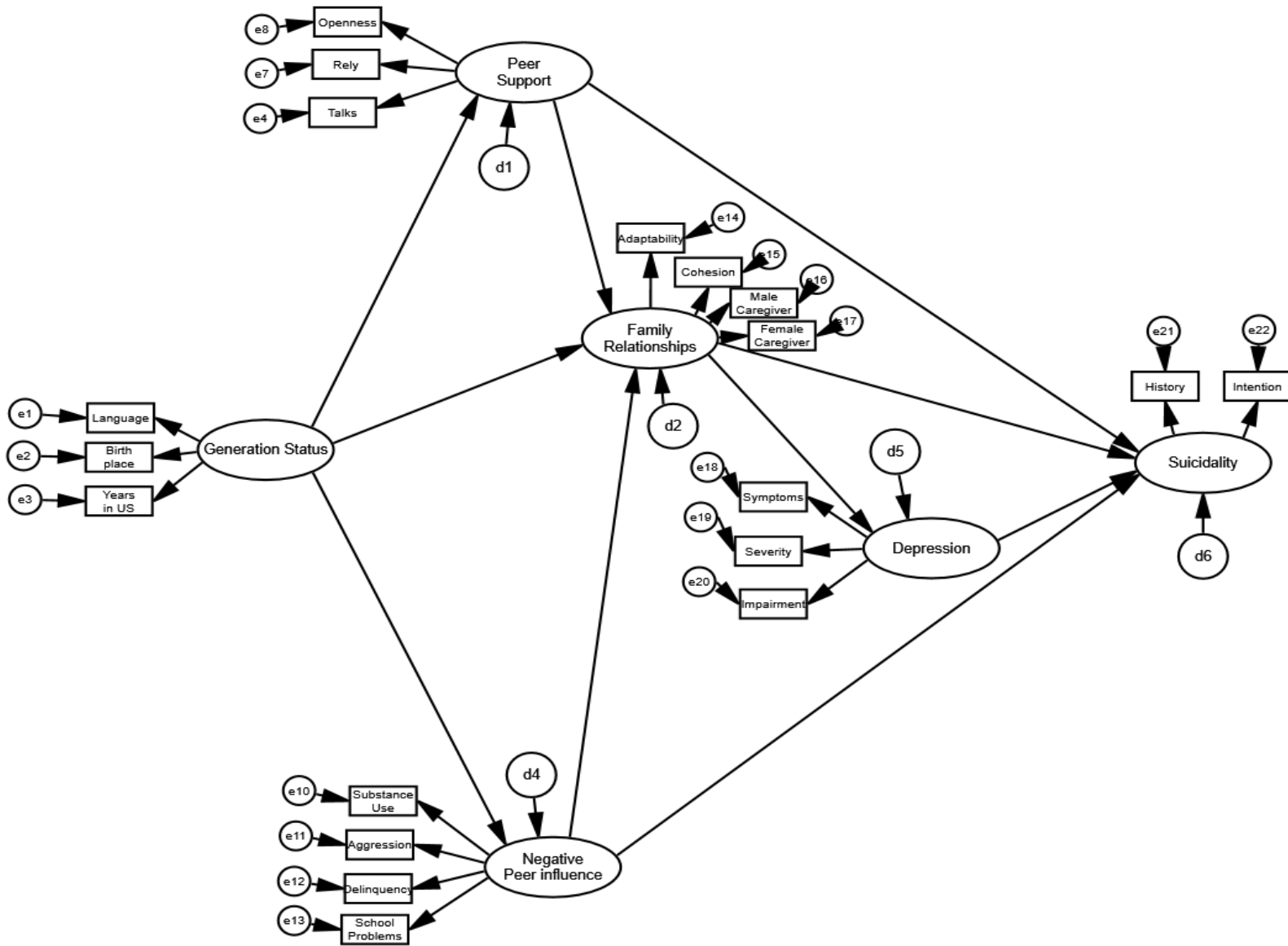
Figure 5. Revised latent variable structural equation model

During the first step of the measurement model estimation (Measurement Model 1), only latent variables that had continuous indicators were included in the analysis (peer support, negative peer influence, family relationships, and depression). The first modification (Measurement Model 2) was to drop the indicator "[peer] internalizing behaviors" from the latent variable negative peer influence. Though all factor loadings were significant ($p < .001$), this indicator had a low factor loading compared to the other indicators for the latent variable (standardized factor loading of .21 compared to .47-.94 for other indicators). Modification indices also indicated that there was a greater correlation between the other indicators for this variable than what was being accounted for by the model. The removal of the "internalizing behaviors" indicator from the latent variable was theoretically plausible because the other four indicator variables measured a variety of peer externalizing behaviors that are likely related (e.g., substance use, getting into fights, having problems at school, having been arrested), while this indicator variable measured peer internalizing behaviors (e.g., depression and anxiety) that may represent an entirely different construct. Fit statistics indicated a generally good fit for Measurement Model 2, and the latent variables with categorical indicators (generation status and suicidality) were added (Measurement Model 3).

The next modification made to the model (Measurement Model 4) was to free the correlation between the indicator variable "ratio of years in the US" in the generation status latent variable and the indicator variable "delinquency", a part of the negative peer influence latent variable, which referred to having peers engaged in behaviors such as stealing property and having been arrested. The modification index for this parameter

(211.26) was substantially higher than the others suggested. Allowing this modification indicated that there is a relationship between these two variables beyond that which is represented by the relationship between the two latent variables of generation status and negative peer influence. There was an inverse relationship between the two variables, meaning that as time in the U.S. increased, association with delinquent peers decreased. This relationship can be explained by the positive correlation of the "ratio" variable with age. The ratio of years in the U.S. increased with participant age, and older participants are also more likely to associate with delinquent peers. Thus, this modification was theoretically plausible.

The next modification (Measurement Model 5) was to free the correlation between the "delinquency" indicator and the "aggression" indicator in the negative peer influence latent variable (modification index for this parameter of 72.21). The underlying assumption for this modification was that these two indicators share a relation beyond that which is accounted for by the latent variable. Again, this assumption seemed theoretically plausible, as the peer behaviors accounted for by these two variables are likely to be more related to each other than to the other variables underlying the latent construct. Inspection of the fit statistics indicated good fit for Measurement Model 5 (see Table 4), including a significant change in chi-square, RMSEA value below 0.05, and TLI/CFI values over 0.95. This model was retained for estimation of the full structural equation model (see Figure 6 for standardized model results).
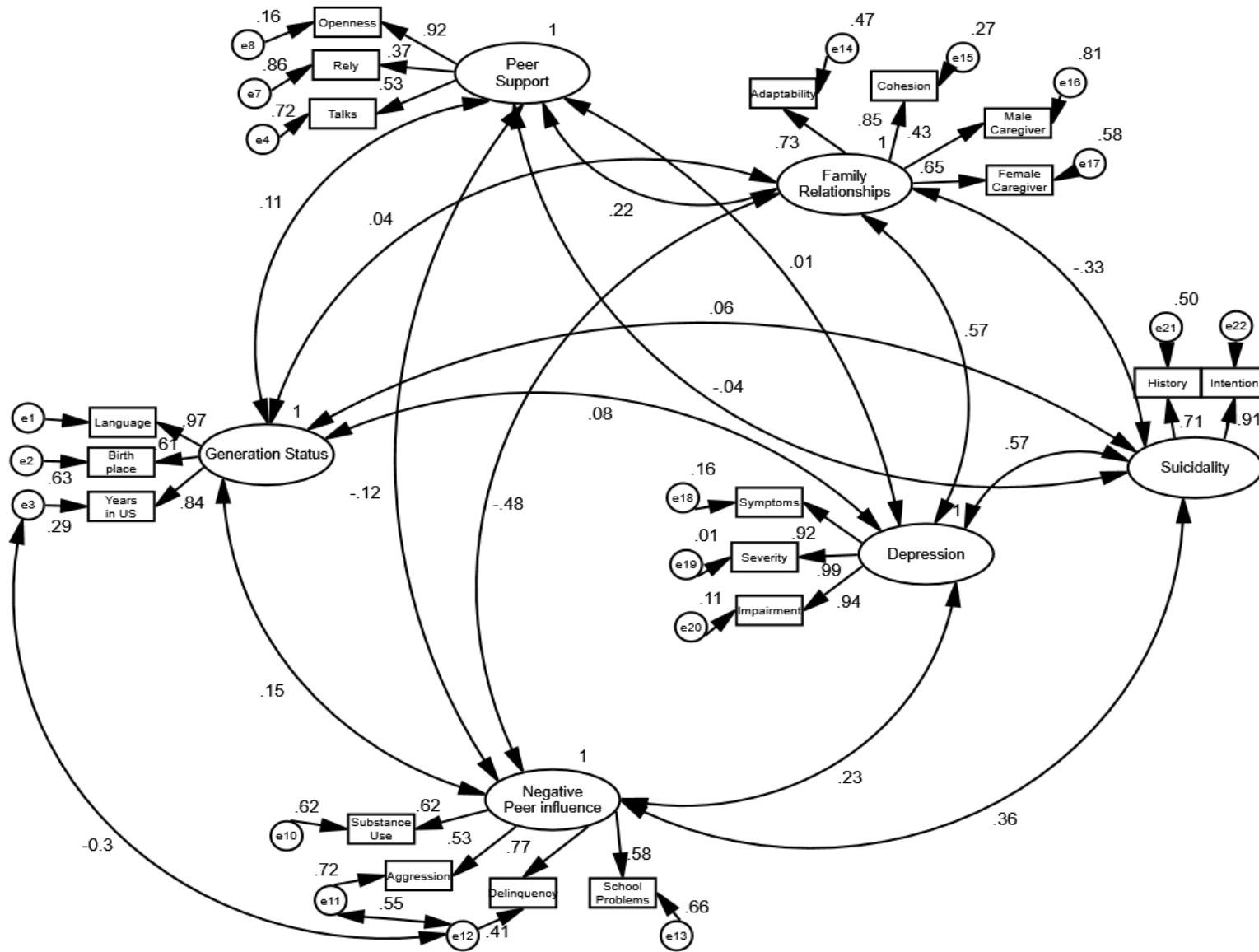
Figure 6. Final measurement model (MM 5) with standardized estimates

Table 4. *Fit statistics for the measurement models*

Model	χ^2 (df)	$\Delta \chi^2$ (df)	AIC	BIC	SRMR	RMSEA	TLI	CFI
MM 1	306.930 (84)	--	49983.512	50230.977	0.053	0.053	0.959	0.967
MM2 (removed internal)	252.912 (71)	--	47922.631	48155.539	0.046	0.052	0.965	0.973
MM3 (added cat. variables)	617.756 (137)	--	--	--	--	0.061	0.886	0.909
MM4 (freed corr. delinquency & ratio)	403.168 (136) *p*=0	428.655 (1) *p*=0	--	--	--	0.046	0.936	0.949
MM5 (freed corr. delinquency & aggress.)	340.822 (135) *p*=0	31.660 (1) *p*=0	--	--	--	0.040	0.951	0.961

Note. Change in chi-square can only be calculated for nested models. Change in chi-square is not calculated in the traditional way for models estimated using WLSMV estimation. Thus, the change in chi-square for measurement models 4 and 5 was calculated using the difference testing option in MPlus ("difftest" command).

Structural model. The full structural equation model was estimated with paths between the latent variables specified (Structural Equation Model 1). Analysis of modification indices indicated a theoretically plausible modification, which was to free the correlation between the latent variables of negative peer influence and peer support (modification index 29.64; Structural Equation Model 2). Analysis of fit statistics indicated good fit for this model (Table 5), including a statistically significant change in chi-square, RMSEA below 0.05, TLI equal to 0.95, and CFI above 0.95. This indicated that the model fit the data and that estimates of paths between latent variables could be interpreted. Fit statistics were similar to those for the measurement model, though the SEM model had a higher chi-square reflecting higher number of degrees of freedom. Estimated power for the final full structural equation model was 1.

Table 5. *Fit statistics for the structural equation models*

Model	χ^2 (df)	$\Delta\chi^2$ (df)	RMSEA	TLI	CFI
SEM 1	391.789 (140), *p*=0	--	0.044	0.942	0.952
SEM 2	375.290 (139), *p*=0	11.640 (1) p<0.001	0.042	0.945	0.955
SEM 3 (Peer Inf. to Depression)	330.588 (138), *p*=0	18.719 (1) *p*=0	0.038	0.955	0.964
SEM 4 (All Peer to Depression)	327.406 (137), *p*=0	4.451 (1) *p*<0.05	0.038	0.955	0.964

Note. Change in chi-square is not calculated in the traditional way for models estimated using WLSMV estimation. Thus, the change in chi-square for the SEM models was calculated using the difference testing option in MPlus ("difftest" command).

Standardized results for SEM 2 are depicted in Figure 7. Standardized estimates are presented in Table 6 and unstandardized estimates are presented for comparison in Table 7. Because the scales of many of the latent variables are not practically meaningful (e.g., they refer to composite scores on various scales), only the standardized estimates (Table 6) were interpreted in light of the research questions and hypotheses.

Table 6. *Standardized direct, indirect, and total effects on suicidality (SEM Model 2)*

Latent or measured variable	Direct	Indirect	Total Effects
Generation status	--	.04*	.04*
Peer support	.04	-.03	.01
Negative peer influence	.26***	.11**	.37***
Family relationships	-.05	-.16***	-.21**
Depression	.52***	--	.52***

Note. * *p* <0.05; ** *p* <0.01; *** *p* < 0.001

Table 7. *Unstandardized direct, indirect, and total effects on suicidality (SEM Model 2)*

Latent or measured variable	Direct	Indirect	Total Effects
Generation status	--	.03*	.03*
Peer support	.06	-.04	.02
Negative peer influence	.28***	.11**	.39***
Family relationships	-.01	-.03***	-.03**
Depression	.03***	--	.03***

Note. * *p* <0.05; ** *p* <0.01; *** *p* < 0.001
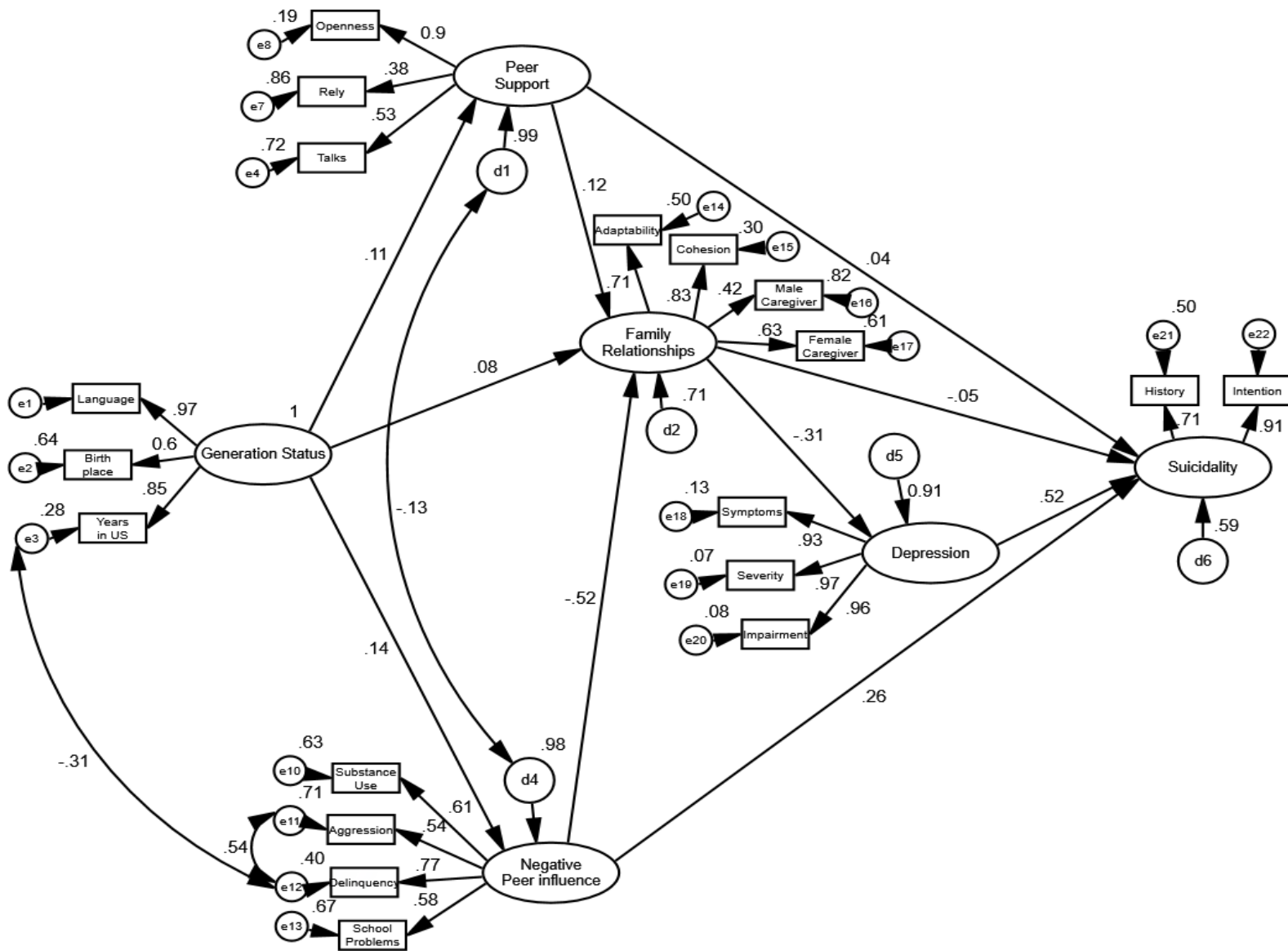
Figure 7. Full latent variable structural equation model (SEM Model 2) with standardized estimates

Tests of Research Questions

The research questions and hypotheses listed below were modified to reflect the changes to the initial model, in which the latent variables of family functioning and parent-adolescent relationships were combined into one family relationships variable and the peer relationships latent variable was renamed peer support.

Research Question 1. What are the relative effects of generation status, family relationships, peer support, negative peer influence, and depression on suicidality among adolescent Latinas?

Results: It was hypothesized that all variables included in the model would have either a direct or an indirect effect on the outcome variable of suicidality among adolescent Latinas. This hypothesis was partially supported. The family relationships latent variable did not have a statistically significant direct effect on the outcome variable of suicidality, but did have a statistically significant indirect effect. The peer support latent variable did not have a statistically significant direct or indirect effect. All other variables had statistically significant direct effects (negative peer influence, depression) or indirect effects (negative peer influence, generation status). Further details about these relationships are provided in the results for the remainder of the research questions.

Research Question 2: Does generation status have an indirect effect on suicidality via its influence on family relationships?

Results: It was hypothesized that generation status would have an indirect effect on suicidality via its influence on family relationships. Specifically, it was hypothesized

that as generation status increased, family relationships would worsen, and that this would lead to an increase in suicidality.

This hypothesis was not supported. Generation status did not have a statistically significant indirect effect on suicidality via family relationships, but did have a very small but statistically significant indirect effect via family relationships, which in turn influenced depression (-.01). However, this effect was negative and therefore in the opposite direction than predicted (higher generation status associated with a decrease in suicidality).

Examination of direct effects between the variables of interest indicates that this finding is due to a statistically significant direct effect of generation status on family relationships (.08). In this study, higher levels of generation status were associated with better family relationships. The effect of family relationships on suicidality was in the hypothesized direction (e.g., worse family relationships led to increased suicidality).

Research Question 3: Is the impact of family relationships on suicidality mediated by depression?

Results: It was hypothesized that family relationships would have an inverse relationship with depression (as family relationships improved, depression would decrease), and that depression would in turn have a positive relationship with suicidality. It was expected that there would be a significant indirect effect of family relationships on suicidality via depression. It was also expected that there also would be a significant direct effect of family relationships on suicidality, but that the magnitude of the indirect effect via depression would be larger.

This hypothesis was supported. Family relationships had a statistically significant, small indirect effect on suicidality via depression (-.16). Family relationships did not have a statistically significant direct effect, meaning that mediation was total. Examination of direct paths indicates that family relationships had a statistically significant, moderate inverse effect on depression (-.31), with worse family relationships predicting an increase in depression. Depression in turn had a statistically significant, large effect on suicidality (.52), with higher levels of depression predicting increased suicidality.

Research Question 4: Do peer support and negative peer influence have an indirect effect on suicidality via their influence on family relationships? What is the magnitude of the indirect effect of peer support and negative peer influence on suicidality relative to the direct effect?

Results: It was hypothesized that peer support would have a positive effect on family relationships, while negative peer influence would have a negative effect on family relationships. Family relationships were in turn expected to have an inverse relationship with suicidality. Thus, there would be an indirect effect of both peer support and negative peer influence on suicidality, but peer support was expected to be associated with decreased suicidality while negative peer influence was expected to be associated with increased suicidality. It was expected that these indirect effects would be significant and that the direct effect of the variables on suicidality would not be significant.

This hypothesis was partially supported. Peer support had a statistically significant, small direct effect on family relationships (.12), while negative peer influence

68

had a statistically significant, large, inverse effect on family relationships (-.52). Both had a statistically significant indirect effect on suicidality via family relationships and depression. Peer support led to a decreased level of suicidality via the variable's influence on family relationships and depression (-.02), while negative peer influence led to an increased level of suicidality via the same pathway (.08).

Regarding the direct effects of the two peer variables on suicidality, the hypothesis that peer support would not have a statistically significant direct effect on suicidality was supported. Negative peer influence, on the other hand, had a statistically significant and moderate direct effect (.26) on suicidality, indicating that increases in peer negative behaviors are associated with an increase in suicidality even without the mediating influence of family relationships.

Overall interpretation of the model. Overall, in this model, the total effect of negative peer influence on suicidality was higher than the effect of family relationships, while the effect of peer support was not statistically significant. In review of the standardized estimates, the largest effect was the effect of depression on suicidality (.52), which was consistent with prior research indicating that increased depression is associated with increased suicidality. Family relationships had a moderate inverse effect on depression (-.31), meaning that poorer family relationships were associated with increased depression, and thus had a statistically significant indirect effect on suicidality via depression (-.16).

The variable of negative peer influence had a large direct effect on family relationships (-.62), indicating that an increase in negative peer behaviors led to a

decrease in positive family relationships. Negative peer influence also had a statistically significant direct effect on suicidality (0.26). These results, when compared to relatively smaller effects on suicidality for other variables, suggest that the variable of negative peer influence is more significant to the model than previously hypothesized. Peer support was not influential in the model; however, these results may have been influenced by the low reliability of the measure of peer support used in the study.

The effects of the variable of generation status were not all in the directions previously hypothesized, as generation status had small but positive direct effects on family relationships, peer support, and negative peer influence. This indicated that as generation status increased (i.e., more acculturation), family relationships were improved and peer support was improved, but association with negative peer behaviors increased.

Further Analyses

One challenge in the interpretation of the original model is that no path was drawn between negative peer influence and depression or between peer support and depression. As a result, the direct effects of these two variables on suicidality could not be compared with their indirect effects on suicidality via depression. It was hypothesized that the indirect effect of negative peer influence on suicidality via depression would be significant in a revised model. Furthermore, a comparison could not be made with the direct and indirect effects of family relationships on suicidality, which were both estimated in the original model. It was hypothesized that, like the variable of family relationships, negative peer influence would have a stronger indirect effect than direct effect on suicidality in a revised model.

In order to test these hypotheses, competing models were estimated. In the first, a path was drawn from negative peer influence to depression (SEM Model 3: Peer Influence to Depression). In the second, paths were drawn from both negative peer influence and peer support to depression (SEM Model 4: All Peer to Depression). Fit statistics for these models were compared. Results of this analysis indicated that SEM Model 3: Peer Influence to Depression had a better fit to the data than SEM Model 2 (see Table 5). SEM Model 4: All Peer to Depression had approximately equal fit to SEM Model 3: Peer Influence to Depression (measured by RMSEA, CFI, and TLI), though it did show a significant change in chi-square. Because both revised models demonstrated approximately equivalent fit to the data, the more parsimonious SEM Model 3: Peer Influence to Depression was retained.

Standardized results for SEM Model 3: Peer Influence to Depression are shown in Figure 8, standardized estimates are listed in Table 8, and unstandardized estimates are listed in Table 9. As with the previous model, the standardized estimates will be interpreted in light of the hypotheses.

Table 8. *Standardized direct, indirect, and total effects on suicidality (SEM Model 3: Peer Influence to Depression)*

Latent or measured variable	Direct	Indirect	Total Effects
Generation status	--	.04**	.04**
Peer support	.04	-.03*	.01
Negative peer influence	.20***	.18***	.37***
Family relationships	-.12*	-.08**	-.20**
Depression	.50***	--	.50***

*Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$*
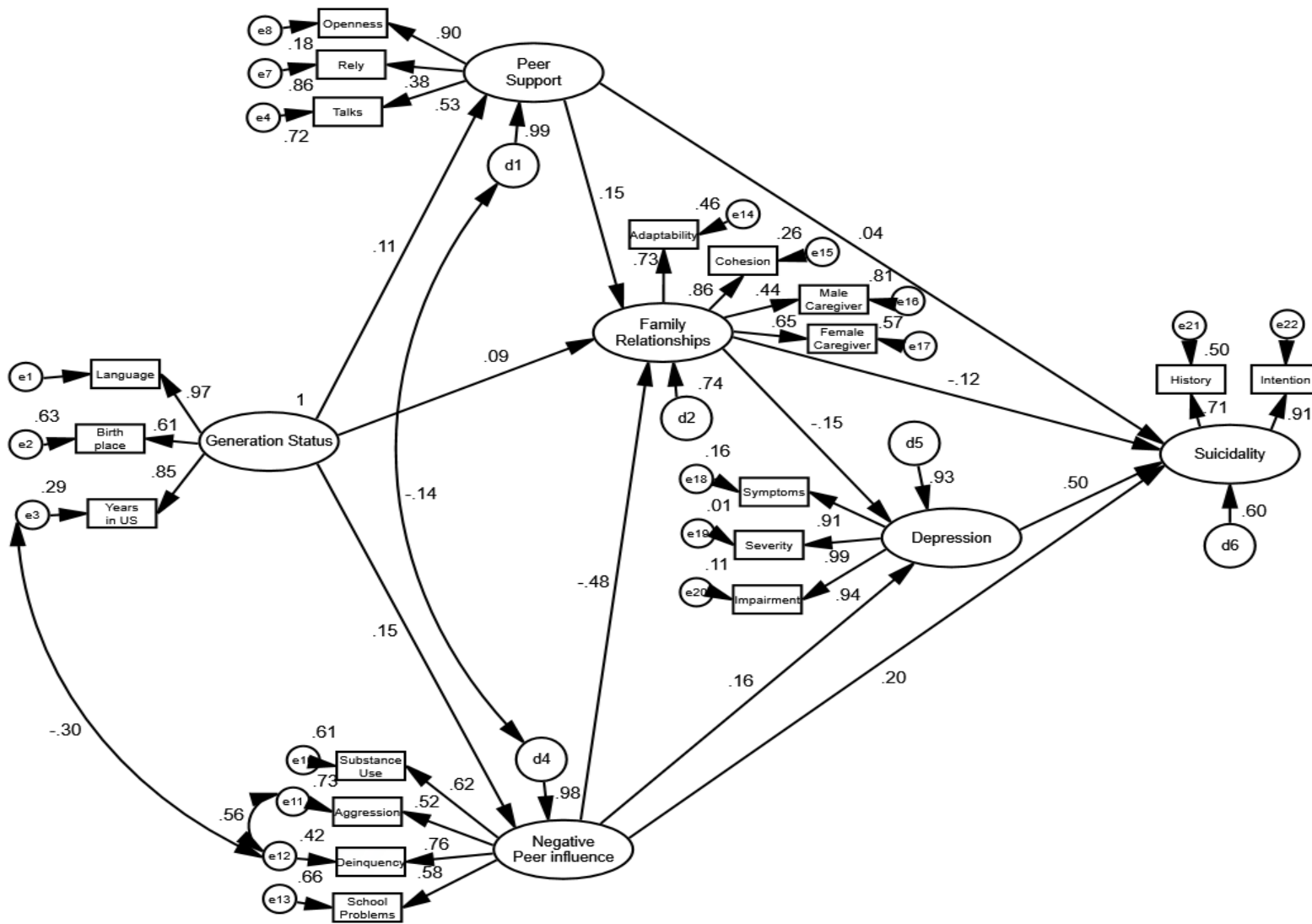
Figure 8. Modified latent variable structural equation model (SEM Model 3: Peer Influence to Depression) with standardized

estimates

Table 9. *Unstandardized direct, indirect, and total effects on suicidality (SEM Model 3: Peer Influence to Depression)*

Latent or measured variable	Direct	Indirect	Total Effects
Generation status	--	.03**	.03**
Peer support	.06	-.04*	.01
Negative peer influence	.20***	.18***	.39***
Family relationships	-.02*	-.01**	-.03**
Depression	.03***	--	.03***

*Note. * p <0.05; ** p <0.01; *** p < 0.001*

Interpretation of revised model. In this model, negative peer influence still had a statistically significant direct effect on suicidality (.20), as well as a statistically significant indirect effect (.18). The hypothesis that the indirect effect of negative peer influence on suicidality via depression would be statistically significant was supported (.08). However, the hypothesis that this indirect effect would be stronger than the direct effect was not supported. Thus, the effect of negative peer influence on suicidality was only partially mediated by depression, with a stronger direct effect than indirect effect on suicidality.

In this model, the total effect of family relationships on suicidality was approximately the same as in the prior model (-.20). The direct effect increased (-.12) and was statistically significant, while the indirect effect decreased (-.08) but remained statistically significant. In this revised model, the impact of family relationships on suicidality was partially mediated by depression. Overall, depression had the strongest total effect on suicidality, followed by negative peer influence and family relationships. Results from this model will be further discussed in the next chapter.

Chapter 5

Discussion

The purpose of this study was to evaluate the effects of psychological symptoms and psychosocial risk factors on suicidal ideation, planning, and attempts among Latina adolescents. Suicidality is a complex problem that is influenced by variables at multiple ecosystemic levels. This study utilized structural equation modeling to analyze relations between these variables, particularly variables pertaining to the microsystem (social contexts directly impacting the individual) and mesosystem (interactions among those social contexts), in one model. This study built upon a comprehensive model of Latina suicidality that was developed and tested by Zayas and colleagues in a study comparing Latina adolescents that had attempted suicide with those who had not (Zayas et al., 2005; Zayas, 2011). This study tested the model in a non-clinical sample of 946 Latina adolescents and to compare the effects of depression, family relationships, peer support, negative peer influence, and generation status on suicidality in this population. The combination of a large, geographically diverse sample and a structural equation model that analyzes the effects of individual and psychosocial variables simultaneously is, to the author's knowledge, unique in the literature on Latina suicidality to date.

Broadly, the results of this study support Zayas's contention that individual-level psychological functioning and family relationships have a significant impact on suicidal behaviors among Latina females, and that peer support is a less influential factor. This study further suggests that negative peer influence (i.e., the adolescent's affiliation with deviant peers) is a more important factor in Latina suicide attempts than previously

supposed. Further research is needed to determine whether the impact of deviant peers is

related to individual-level variables not represented in the model, such as impulsivity and

externalizing behaviors. In the following sections, key findings from the study will be

discussed, limitations of the study will be addressed, and future directions for research

and practice will be offered.

The Importance of Family Relationships

As originally hypothesized, family relationships affected suicidality both directly

(poorer family relationships led to increased suicidality) and indirectly via their impact on

depression (poorer family relationships led to increased depressive symptoms, which led

to increased suicidality). The direct effect of family relationships on suicidality

supported Zayas's model, which argues for the centrality of family functioning and

parent-child relationships on suicide attempts among Latina females (Zayas, 2011). The

impact of family relationships on suicidality via depression was consistent with prior

research indicating that depression mediates the impact of family functioning on

suicidality in adolescents (Connor & Rueter, 2006; Kandel, Raveis, & Daveis, 1991;

King & Merchant, 2008). Studies of Latino youth have highlighted the risk for suicidality

represented by parent absence and low levels of parental caring (Garcia et al., 2008), as

well as low parental support (DeLuca, Wyman, & Warren, 2012). Among Latino adults,

higher levels of lifetime suicidality were associated with lower family support and higher

family cultural conflict (Fortuna, Perez, Canino, Sribney, & Alegría, 2007).

This study joins the research to date in highlighting the importance of addressing

family relationships when conceptualizing suicidality among adolescent Latinas. It was

not possible, however, to separate out the effects of overall family functioning and individual parent-child relationships due to the high correlations between these two constructs in this sample. In this way, the current study diverges from Zayas's (2011) prior study, which addressed these two components separately and found that mother-daughter mutuality in particular was lower for Latinas who had attempted suicide when compared to those who had not.

The Impact of Affiliation with Deviant Peers

A major finding in the model was the impact of negative peer influence, which had the second largest total effect on suicidality after depression. Negative peer influence had a direct impact (higher levels of negative peer influence led to increased suicidality) and an indirect impact via depression (higher levels of negative peer influence led to increased depression, which led to increased suicidality). Negative peer influence also had a strong inverse effect on family relationships, with higher levels of negative peer influence leading to poorer family relationships.

The indirect effect of negative peer influence on suicidality, as well as the impact of negative peer influence on family relationships, was consistent with prior research. A study of a predominantly Caucasian sample of adolescents demonstrated that negative peer influence had an impact on substance use and depression, which in turn led to increased suicidal ideation (Prinstein et al., 2000). A longitudinal study of Latino adolescents in North Carolina showed that negative peer influence resulted in lower levels of familism, which then increased parent-adolescent conflict and internalizing symptoms (Smokowski, Bacallao, & Buchanan, 2009). The literature on substance abuse

among Latino adolescents also suggests that association with deviant peers increases family conflict (Cox, Burr, Blow, & Parra Cardona, 2011).

The significant direct effect of negative peer influence on suicidality (i.e., not mediated by depression) was unexpected and raises the question of whether there is another mediating variable that accounts for the effect of negative peer influence on suicidality. It is possible that externalizing behaviors and substance use are an aspect of the psychological profile of many adolescent Latinas who attempt suicide, and that these behaviors are reflected in the individual's association with deviant peers. Another potential mediator between negative peer influence and the adolescent's suicidal behavior is impulsivity, which in qualitative research and clinical reports has been associated with the suicidal act among Latina adolescents (Zayas, 2011).

Prior studies among adolescents in general have found an association between impulsivity (particularly impulsive aggression) and suicidality, as well as between substance use and suicidality (Spirito & Esposito-Smythers, 2006a). Comparison of Latinas who had attempted suicide with those who had not attempted suicide found significantly higher levels of aggressive and rule-breaking behaviors among those who had attempted suicide, via both the adolescent's self-report and the parents' report (Zayas, 2011). Further analysis of 73 of the Latina adolescents who had attempted suicide in this study found that more than half of them reported externalizing behaviors in the borderline-clinical to clinically significant range, but that these characteristics were not captured in the diagnoses documented by the clinicians treating them (Hausmann-Stabile et al., 2012). Inclusion of individual psychological variables beyond depression in this

77

study's model could provide further detail regarding the pathways by which negative peer influence affects suicidality.

The Link Between Depression and Suicidality

Depression had the largest effect on suicidality of all the variables in the model. This result was consistent with prior research indicating that depression is the most well-established risk factor for suicidal behavior among adolescents (Evans, Hawton, & Rodham, 2004; Lewinsohn, Rohde, & Seeley, 1994; Spirito & Esposito-Smythers, 2006a). It was also consistent with studies demonstrating that Latinas who attempted suicide had higher levels of depressive symptoms than those who did not (Zayas, 2011) and that higher levels of depressive symptoms predicted suicidal ideation and attempts in a nationally representative sample of Latinas (DeLuca et al., 2012).

The link between depressive symptoms and suicidality has been clear in the literature, and this study was no exception. Depression also acted as a mediator in this study, as it has in other studies. Psychosocial factors such as poorer family relationships and higher levels of negative peer influence increased depressive symptoms, which then led to increased suicidality. This indicates that it is important to address both individual-level symptoms and system-level precipitants for those symptoms.

The Role of Generation Status

Generation status had a very small effect on suicidality, and the effect was in a different direction than expected. It was originally hypothesized, based on prior research, that as generation status increased (i.e., participants represented later generations of Latinos in the U.S.), there would be a negative impact on family relationships, which in

78

turn would lead to increased suicidality. In this model, generation status impacted family relationships in the opposite direction than what was originally predicted. As generation status increased, family relationships improved.

One reason for this unexpected finding may be that simply knowing a participant's generation status does not help us understand their cultural context. For example, in a national study, higher rates of psychiatric disorders among U.S.-born Latinos were due to the effects of perceived discrimination and family cultural conflict (Cook, Alegría, Lin, & Guo, 2009). Furthermore, much of the research on family functioning in Latino families indicates that family conflict is caused by differential acculturation conflict, which occurs when parents and children acculturate to U.S. society at different rates (Szapocznik & Kurtines, 1993; Szapocznik, Prado, Burlew, Williams, & Santisteban, 2007). Under this framework, the fourth-generation Latinas in this sample, who were born in the U.S. along with all their parents and grandparents, would not be expected to experience as much of a differential acculturation conflict as the second-generation Latinas, who were born in the U.S. to foreign-born parents. This is one explanation for the finding that later generation status is associated with better family relationships in this study.

Limitations

One of the strengths of this study was that it was a secondary analysis of a national epidemiological survey, which resulted in a large and geographically diverse sample. However, the use of a secondary analysis also presented several limitations. First, the measures used in this study were limited to those available in the data set. This

79

meant that data on culturally-specific variables (such as familism and acculturation stress) were not available. As a result, cultural variables in the model were limited to demographic description of generation status, rather than more contextually rich information regarding cultural values and processes. With regards to the measures that were included in the study, the peer relationships measure had lower than optimal reliability, and had to be reduced to a three-item measure of peer support. A more detailed measure with higher reliability may have allowed for greater ability to compare the effects of peer relationships with those of family relationships.

Another limitation to this study was that the data were cross-sectional. Hypotheses regarding the direction of effects in the model were derived from theory and prior research, but it is still possible that the direction of effects included in the model were incorrect. For example, family relationships were presumed to impact the Latina adolescent's depression in this study; however, it is also possible that individual depression negatively impacts family relationships, or that depressed individuals have a negative cognitive bias when answering questions about their family. A longitudinal study would make it possible to draw more definitive conclusions about the direction of these effects.

Finally, the sampling weights were not used in this study, limiting the possibility of generalizing findings to the overall population of U.S. Latinas. However, generalizability was already limited because the survey was only administered to English-speaking adolescents. Latinas who are not yet fluent in English, such as those who have immigrated to the U.S. recently, were not represented in the sample. It was also

80

not possible to report specific data on the national origins of the Latinas in the sample, as this data was collected in the original study but not released in the restricted-use dataset. These concerns notwithstanding, the use of a secondary data analysis of a large sample allowed for the relations between a number of psychological and psychosocial variables to be tested within one statistical model.

Implications for Research

A problem as complex as adolescent suicidality requires research designs that can capture the impact of both individual-level psychological variables and systems-level psychosocial variables. Further research may build on this study by: identifying longitudinal pathways by which poor family relationships and negative peer influence result in increased depression and suicidality; comparing explanatory models of suicidality across subgroups of Latinas from different national origins; incorporating variables that capture cultural processes and the impact of the larger society; and exploring the ways in which negative peer influence impacts suicidality among Latina adolescents.

Longitudinal research designs would be helpful in identifying whether the direction of effects posed in the model is correct (e.g., whether relational issues in the family precede the onset of depression). Multi-group structural equation modeling could be used to compare the fit of the model of Latina suicidality between groups of Latinas from different national origins. This would allow for greater consideration of within-group diversity among Latinas, as recommended by Duarte-Velez and Bernal (2007). Finally, research designs that include measurement of cultural variables (e.g., familism,

acculturation, gender role expectations, idioms of distress) and sociocultural influences (e.g., perceived discrimination, neighborhood safety) would allow for expansion of the model to evaluate the effects of exosystem and macrosystem influences on individual suicidal behavior.

The strong direct effect of negative peer influence on suicidality in this study indicates a need to consider what individual-level mediators may explain the relationships between deviant peers and increased suicidality among Latina adolescents. It is possible that association with deviant peers is associated with a higher level of impulsivity, which then leads to suicide attempts. Further inquiry into this relationship would help to clarify the psychological profile of Latina adolescents who attempt suicide, as well as provide more information regarding the pathways by which association with deviant peers impacts suicidality in this population.

Implications for Clinical Practice

There is a critical need for interventions that can effectively reduce rates of suicide attempts among adolescents in general and Latinas in particular. This study, in conjunction with an accumulation of evidence regarding the importance of family influences on suicidality among adolescent Latinas, points to the importance of ecosystemic interventions that will address underlying depression along with family relationships and the influence of deviant peers. The majority of interventions that have demonstrated reductions in suicidality among adolescents included an emphasis on improving relationships with parents or with other supportive adults or peers (Brent, Makin, Kennard, Goldstein, Mayes, & Douaihy, 2013). With regards to individual

symptoms, cognitive-behavioral therapy (CBT) is an evidence-based treatment for depression, but studies of CBT for suicidality have been limited and often showed efficacy comparable to other active treatments (Spirito, Esposito-Smythers, Wolff, & Uhl, 2012).

In other areas of risky behavior, culturally-tailored, family-based interventions such as Brief Strategic Family Therapy have been effective in treating adolescent substance abuse among Latino adolescents (Szapocznik & Williams, 2000). Multisystemic therapy (MST), an evidence-based practice originally developed for criminal behaviors in adolescents, is an example of a therapeutic intervention targeting functioning in multiple contexts and has shown effectiveness in improving individual functioning and family relationships while reducing association with deviant peers (Curtis, Ronan, & Borduin, 2004). However, the evidence base for MST with suicidal adolescents is limited to one study (Huey et al., 2004). Clearly, further research is needed to identify effective interventions for adolescent suicidality that can be tailored to the specific needs of Latina adolescents.

Summary

Suicide attempts are a major public health problem with the potential for severe and irreversible consequences. Latinas, in particular, report alarmingly high rates of suicide attempts relative to other groups. This study built upon the research base on suicidality among Latinas to date and highlighted the importance of addressing individual, family, and peer influences on suicidal behavior in this population. Results of the study indicated that higher levels of depression, poorer family relationships, and

higher levels of negative peer influence led to increases in suicidality among Latinas. The impact of depression and family relationships in the model was consistent with prior research, while the role of negative peer influence was greater than what was expected.

Future research on Latina adolescents should take into account the diverse pathways via which ecosystemic influences affect individual functioning, with particular attention to further assessing the impact of macrosystem factors such as cultural processes, gender role differences, and the relative social status of Latinas in the U.S. However, the research to date highlights the importance of focusing in on family, individual, and peer factors as key targets for intervention. Action is needed to ensure that all young Latinas in the United States can reach their full potential, and interventions that build upon our existing knowledge base are a promising place to begin.

Appendix A

Composition and Coding of Latent and Measured Variables

Latent Variable	Measured Variables	Composition and Coding
Suicidality	History of suicidal behavior	Composite of responses to 3 questions about past suicidal ideation, plans, and attempts: "Have you ever seriously thought about killing yourself?"; "Have you ever made a plan to kill yourself?"; and "Have you ever tried to kill yourself?" 0 = No, 1 = Yes
	Number of past attempts*	Participant's report of the number of times they attempted suicide, ranging from 0-15 (15 represents 15 or more attempts)
	Intention during attempt	Single item: "Please tell me which of these three statements best describes your situation when you tried to kill yourself": 0 = "My attempt was a cry for help, I did not intend to die," 1 = "I tried to kill myself, but I knew that the method may not work," 2 = "I made a serious attempt to kill myself and it was only luck that I did not succeed." (For respondents that made more than one attempt, this question was asked about their last attempt)
Depression	Symptoms	Composite of 36 questions measuring presence of depression symptoms (e.g., feeling hopeless about the future, not enjoying daily activities). 0= No, 1= Yes. Questions about suicidal ideation and behavior in the context of a depressive episode were removed from this scale, as they are accounted for under the suicidality latent variable.
	Severity	Composite of 3 questions measuring severity of depression. One question measured severity of distress during sad episode (Likert scale 0 =No depression, 1 = Mild, 2 = Moderate, 3 = Severe, 4 = Very Severe) and two questions measured how often severe distress was experienced (Likert scale 0 = No depression, 1 = Never, 2= Not very often, 3 = Sometimes, 4 = Often).
	Impairment	Composite of 2 questions measuring impairment in daily life as a result of depression, including interference with work/relationships/social life (Likert Scale 0 = No depression, 1 = Not at all, 2 = A little, 3 = Some, 4 = A lot, 5 = Extremely) and

		inability to perform daily activities (Likert Scale = 0 = No depression, 1 = Never, 2 = Not very often, 3 = Sometimes, 4 = Often)
Family functioning *(revised to Family relationships)*	Adaptability	Composite of 6 items measuring the respondent's perception of family adaptability. Likert scale 0 = Never, 1 = Some of the time, 2 = Most of the time, 3 = All of the time. Some items reverse-coded. Higher values indicate greater adaptability.
	Cohesion	Composite of 7 items measuring the respondent's perception of family cohesion. Likert scale 0 = Never, 1 = Some of the time, 2 = Most of the time, 3 = All of the time. Some items reverse-coded. Higher values indicate greater cohesion.
Parent-adolescent relationship *(revised to Family relationships)*	Primary female caregiver	Composite of 9 items measuring the respondent's perception of her relationship with her primary female caregiver. Likert scale ranging from 0-3, with some items reverse-coded. Higher values indicate better relationship.
	Primary male caregiver	Composite of 9 items measuring the respondent's perception of her relationship with her primary male caregiver. Likert scale ranging from 0-3, with some items reverse-coded. Higher values indicate better relationship.
Peer relationships *(revised to Peer support)*	Rely on friends	Single item: "How much can you rely on your friends for help if you have a serious problem?" Likert scale: 0 = Not at all, 1 = A little, 2 = Some, 3 = A lot.
	Open up to friends	Single item: "How much can you open up to your friends if you need to talk about your worries?" Likert scale: 0 = Not at all, 1 = A little, 2 = Some, 3 = A lot.
	Friends make demands*	Single item: "How often do your friends make too many demands on you?" Likert scale: 0 = Often, 1 = Sometimes, 2 = Not very often, 3 = Never.
	Argues with friends*	Single item: "How often do your friends argue with you?" Likert scale: 0 = Often, 1 = Sometimes, 2 = Not very often, 3 = Never.
	Talks about problems or worries	Single item: "When you have a problem or worry, how often do you let your friends know about it?" Likert scale: 0 = Never or Not Very Often, 1 = Sometimes, 2 = Most of the time, 3 = Always.
Negative peer influence	Substance use	Composite of 2 items measuring whether the respondent's friends smoke cigarettes or use marijuana or other drugs. For each question making up the composite, 0 = No, 1 = Yes.

	Aggression	Composite of 2 items measuring whether the respondent's friends get into physical fights or carry a knife/gun/other weapon. For each question making up the composite, 0 = No, 1 = Yes.
	Internalizing symptoms*	Composite of 2 items measuring whether or not the respondent's friends experience sadness/ depression and/or nervousness/anxiety. For each question making up the composite, 0 = No, 1 = Yes.
	School problems	Composite of 3 items measuring how many of the respondent's friends experience school problems. For each question making up the composite, 0 = No, 1 = Yes. One item measuring school involvement is reverse coded.
	Delinquency	Composite of 3 items measuring whether or not respondent's friends have stolen property, destroyed property, or been arrested. For each question making up the composite, 0 = No, 1 = Yes.
Generation status	Number of family members born in U.S.	Composite of questions asking if the respondent was born in the U.S., if the respondent's parents were born in the U.S., and if the respondent's grandparents were born in the U.S. Values range from 1 to 4 (1 = Respondent is foreign-born; 2 = At least one parent not born in the U.S.; 3 = At least one grandparent not born in the U.S.; 4 = Grandparents, parents, and respondent all born in the U.S.).
	Ratio of years lived in the U.S. to years of life	Number of years lived in the U.S. divided by the age of the respondent (higher values indicate greater proportion of time living in the U.S.; values of 1 indicate participant has lived in U.S. their entire life)
	Language use	0 = Language other than English spoken at home; 1 = Only English spoken at home

* Variables marked with an asterisk were part of the original model, but were dropped from the final
analysis. Reasons for omission described in results section.

Appendix B

Measures
1. Measure of family functioning

*CH36. During the years you were growing up, how often was each of the following things true of your family—all of the time, most of the time, some of the time, a little of the time, or never?

(IF NEC: All of the time, most of the time, some of the time, or never?)	ALL OF THE TIME (1)	MOST OF THE TIME (2)	SOME OF THE TIME (3)	LITTLE OF THE TIME (4)	NEVER (5)	DK (8)
*CH36a. How often did family members feel very close to each other?	1	2	3	4	5	8
*CH36d. How often did the whole family do things together?	1	2	3	4	5	8
*CH36e. How often did family members avoid each other at home?	1	2	3	4	5	8
*CH36g. How often did family members go along with what the family decided to do?	1	2	3	4	5	8
*CH36h. How often did family members share interests and hobbies with each other?	1	2	3	4	5	8
*CH36i. How often did family members find it easy to express their opinions to each other?	1	2	3	4	5	8
*CH36j. How often did each family member have input in major family decisions?	1	2	3	4	5	8
*CH36k. How often did children have a say in their discipline?	1	2	3	4	5	8
*CH36m. How often did everyone compromise when there were disagreements?	1	2	3	4	5	8
*CH36q. How often could family members talk to each other about their feelings?	1	2	3	4	5	8

(IF NEC: All of the time, most of the time, some of the time, or never?)	ALL OF THE TIME (1)	MOST OF THE TIME (2)	SOME OF THE TIME (3)	LITTLE OF THE TIME (4)	NEVER (5)	DK (8)
*CH36s. How often did family members let each other know when they were sad or worried?	1	2	3	4	5	8
*CH36v. How often was it difficult to get everyone to agree on decisions?	1	2	3	4	5	8
*CH36x. How often did family members keep their feelings to themselves?	1	2	3	4	5	8

2. Measure of parent-child relationship (same questions asked for male caregiver/female caregiver)

*CH46. Over the years, what woman spent the most time raising you — your biological mother or someone else?

(IF NEC: Who?)

IF BIOLOGICAL MOTHER AND SOMEONE ELSE ARE BOTH REPORTED, CIRCLE'1' AND ASK SUBSEQUENT QUESTIONS ABOUT BIOLOGICAL MOTHER.

BIOLOGICAL MOTHER 1
ADOPTIVE MOTHER 2
STEPMOTHER 3
FOSTER MOTHER 4
OTHER FEMALE RELATIVE 5
NANNY/ BABYSITTER 6
NO WOMAN 7   **GO TO *CH74.1**
OTHER (SPECIFY) 8

_____

DON'T KNOW 98   **GO TO *CH74.1**
REFUSED 99   **GO TO *CH74.1**

---

*CH47.   How emotionally close were you with (WOMAN WHO RAISED R) while you were growing up – very close, somewhat, not very, or not at all?

VERY 1
SOMEWHAT 2
NOT VERY 3
NOT AT ALL 4
DON'T KNOW 8
REFUSED 9

---

*CH47.1. Was the communication between you and her during most of your childhood excellent, good, fair, or poor?

EXCELLENT 1
GOOD 2
FAIR 3
POOR 4
DON'T KNOW 8
REFUSED 9

---

*CH47.2. How often did you talk to her about school or about your friends or about your feelings during the time you were growing up—just about every day, a few days a week, once a week, or less than once a week?

EVERY DAY 1
FEW DAYS A WEEK 2
ONCE A WEEK 3
LESS THAN ONCE A WEEK 4
(IF VOL) NEVER 5
DON'T KNOW 8
REFUSED 9

*CH47.3. How much did she know about what you were doing and how you were feeling during the time you were growing up—a lot, some, a little, or not at all?

```
A LOT ..................................... ...................... 1
SOME..................................... ...................... 2
A LITTLE..................................... ................ 3
NOT AT ALL..................................... .......... 4
DON'T KNOW ..................................... ....... 8
REFUSED ..................................... ............... 9
```

*CH47.4. How much tension did you have in your relationship with her during much of the time you were growing up — a lot, some, a little, or none?

```
A LOT ..................................... ...................... 1
SOME..................................... ...................... 2
A LITTLE..................................... ................ 3
NONE..................................... ...................... 4
DON'T KNOW ..................................... ....... 8
REFUSED ..................................... ............... 9
```

*CH48. (IF NEC: Would you say a lot, some, a little, or not at all?)	A LOT (1)	SOME (2)	A LITTLE (3)	NOT AT ALL (4)	DK (8)	RF (9)
*CH48a. How much love and affection did she give you? – a lot, some, a little, or not at all?	1	2	3	4	8	9
*CH48b. How much did she really care about you?	1	2	3	4	8	9
*CH48d. How much did she understand your problems and worries?	1	2	3	4	8	9
*CH48e. How much could you open up and talk to her about things that were bothering you?	1	2	3	4	8	9

3. Measure of peer relationships/peer support

_____

*SN27.   How much can you rely on your (IF **SN17** EQUALS '1': friend/ IF **SN17** EQUALS '2': friends/ IF **SN12** EQUALS '1': one casual friend / ALL OTHERS: casual friends) for help if you have a serious problem– <u>a lot</u>, <u>some</u>, <u>a little</u>, or <u>not at all</u>?

```
A LOT .............................................................1
SOME..............................................................2
A LITTLE .......................................................3
NOT AT ALL ................................................4
DON'T KNOW...............................................8
REFUSED.......................................................9
```

_____

*SN28.   How much can you open up to your friend(s) if you need to talk about your worries – (<u>a lot</u>, <u>some</u>, <u>a little</u>, or <u>not at all</u>)?

```
A LOT .............................................................1
SOME..............................................................2
A LITTLE .......................................................3
NOT AT ALL ................................................4
DON'T KNOW...............................................8
REFUSED.......................................................9
```

_____

*SN29.   How often (does your friend/do your friends) make too many demands on you– <u>often</u>, <u>sometimes</u>, <u>not very often</u>, or <u>never</u>?

```
OFTEN............................................................1
SOMETIMES .................................................2
NOT VERY OFTEN .....................................3
NEVER............................................................4
DON'T KNOW...............................................8
REFUSED.......................................................9
```

_____

*SN30.   How often (does your friend/do your friends) argue with you– (<u>often</u>, <u>sometimes</u>, <u>not very often</u>, or <u>never</u>)?

```
OFTEN............................................................1
SOMETIMES .................................................2
NOT VERY OFTEN .....................................3
NEVER............................................................4
DON'T KNOW...............................................8
REFUSED.......................................................9
```

_____

*SN31.   When you have a problem or worry, how often do you let your friend(s) know about it – <u>always</u>, <u>most of the time</u>, <u>sometimes</u>, <u>not very often</u>, or <u>never</u>?

```
ALWAYS.........................................................1
MOST OF THE TIME ...................................2
SOMETIMES .................................................3
NOT VERY OFTEN .....................................4
NEVER............................................................5
DON'T KNOW...............................................8
REFUSED.......................................................9
```

4. Measure of peer influence

*SN33. Which of the following things does your friend ever do?	YES (1)	NO (2)	DK (8)	RF (9)
*SN33a. Does (he/she) smoke cigarettes?	1	2	8	9
*SN33c. Does (he/she) use marijuana or other drugs?	1	2	8	9
*SN33d. Does (he/she) ever carry a knife, gun or weapon?	1	2	8	9
*SN33e. Does (he/she) ever get into physical fights?	1	2	8	9
*SN33f. Does (he/she) get involved in school activities like school clubs, teams, or projects?	1	2	8	9
*SN33g. Does (he/she) ever steal things?	1	2	8	9
*SN33i. Does (he/she) ever on purpose destroy other people's property?	1	2	8	9
*SN33j. Does (he/she) ever get really sad or depressed for two weeks or longer?	1	2	8	9
*SN33k. Is (he/she) a very nervous or anxious person?	1	2	8	9
*SN33m. Did (he/she) ever fail a grade at school?	1	2	8	9
*SN33n. Did (he/she) drop out of school?	1	2	8	9
*SN33o. Was (he/she) ever arrested?	1	2	8	9

GO TO *SN37

92

5. Measure of suicidality:

SUICIDALITY (SD)

*SD1.   INTERVIEWER CHECKPOINT:

RESPONDENT IS ABLE TO READ............................1
ALL OTHERS...2   **GO TO *SD15**

*SD2.   (RB, PG 19) Three experiences are listed in your booklet on page 19 labeled A, B, and C. Did experience A<u>ever</u> happen to you ?

INTERVIEWER: EXPERIENCE A IS 'YOU SERIOUSLY THOUGHT ABOUT KILLING YOURSELF'

YES.....................................1
NO......................................5   **GO TO *PEA1, NEXT SECTION**
DON'T KNOW..................8   **GO TO *PEA1, NEXT SECTION**
REFUSED 9   **GO TO *PEA1, NEXT SECTION**

*SD2a. How old were you the <u>first</u> time this happened?

_____ YEARS OLD

DON'T KNOW 998
REFUSED 999

*SD3.   Did Experience A happen to you at any time in the past 12 months?

YES.....................................1   **GO TO *SD4**
NO......................................5
DON'T KNOW..................8
REFUSED 9

*SD3a. How old were you the <u>last</u> time this experience happened to you?

_____ YEARS OLD

DON'T KNOW........................998
REFUSED...............................999

*SD4.   (RB, PG 19) Now look at the second of the three experiences on the list, Experience B.   Did experience B<u>ever</u> happen to you?

INTERVIEWER: EXPERIENCE B IS 'YOU MADE A PLAN FOR KILLING YOURSELF'

YES.....................................1
NO......................................5   **GO TO *SD6**
DON'T KNOW..................8   **GO TO *SD6**
REFUSED 9   **GO TO *SD6**

*SD4a. How old were you the <u>first</u> time this happened?

_____ YEARS OLD

DON'T KNOW.........................998
REFUSED................................999

---

*SD5.   Did Experience B happen to you at any time in the past 12 months?

YES.....................................1   **GO TO *SD6**
NO.......................................5
DON'T KNOW...................8
REFUSED 9

*SD5a. How old were you the <u>last</u> time this experience happened to you?

_____ YEARS OLD

DON'T KNOW.......................998
REFUSED..............................999

---

*SD6.   (RB, PG 19) Now look at the third of the three experiences on the list, Experience C.   Did experience C <u>ever</u> happen to you ?

INTERVIEWER: EXPERIENCE C IS 'YOU TRIED TO KILL YOURSELF'

YES.....................................1
NO.......................................5   **GO TO *PEA1, NEXT SECTION**
DON'T KNOW...................8   **GO TO *PEA1, NEXT SECTION**
REFUSED 9   **GO TO *PEA1, NEXT SECTION**

*SD6a. How many times did Experience C ever happen to you in your lifetime?

_____ NUMBER OF TIMES

DON'T KNOW 998
REFUSED 999

---

*SD7.   INTERVIEWER CHECKPOINT: (SEE ***SD6a**)

*SD6a EQUALS '1' 1   **GO TO *SD10**
ALL OTHERS...2

---

*SD8.   How old were you the <u>first time</u>?

_____ YEARS OLD

DON'T KNOW..........................998
REFUSED 999

*SD9. (RB, PG 20) There are three statements numbered 1, 2, and 3 at the bottom of page 20 in your booklet. Which of these three statements best describes your situation when Experience C happened to you the first time -- 1, 2, or 3?

    I MADE A SERIOUS ATTEMPT TO KILL MYSELF AND
    IT WAS ONLY LUCK THAT I DID NOT SUCCEED 1

    I TRIED TO KILL MYSELF, BUT KNEW THAT THE
    METHOD MAY NOT WORK 2

    MY ATTEMPT WAS A CRY FOR HELP. I DID NOT INTEND TO DIE.............3

    DON'T KNOW...8
    REFUSED 9

---

*SD10. Did Experience C happen to you in the past 12 months?

    YES...1   **GO TO *SD11**
    NO...5
    DON'T KNOW..................................8
    REFUSED 9

    *SD10a.   How old were you (when/the last time) experience C happened to you?

        _____ YEARS OLD   **GO TO *SD14**

        DON'T KNOW..................998   **GO TO *SD14**
        REFUSED 999   **GO TO *SD14**

***SD11.** Did it result in an injury or poisoning?

    YES....................................1
    NO......................................5   **GO TO *SD14**
    DON'T KNOW 8   **GO TO *SD14**
    REFUSED 9   **GO TO *SD14**

---

*SD12.   Did it require medical attention?

    YES....................................1
    NO......................................5   **GO TO *SD14**
    DON'T KNOW 8   **GO TO *SD14**
    REFUSED 9   **GO TO *SD14**

---

*SD13. Did it require overnight hospitalization?

    YES....................................1
    NO......................................5
    DON'T KNOW 8
    REFUSED 9

6. Measure of depression

12/10/03 ADOL

DEPRESSION (D)

*D1. Earlier in the interview, you mentioned having periods of time that lasted several days or longer when you felt sad, empty**,** or depressed most of the day. During times of this sort, did you ever feel discouraged about how things were going in your life?

```
YES........................................ 1
NO ........................................ 5      GO TO *D1b
DON'T KNOW .................... 8      GO TO *D1b
REFUSED ............................ 9      GO TO *D1b
```

   *D1a. During the times of being sad, empty, or depressed, did you ever lose interest and become really bored with most things like school, work, hobbies, and other things that are usually fun for you, like listening to music, watching TV, movies, or sports, playing computer games, or going out with friends?

```
YES .......................... 1      GO TO *D3
NO ............................ 5      GO TO *D4
DON'T KNOW ......... 8      GO TO *D4
REFUSED ................. 9      GO TO *D4
```

   *D1b. During the times of being sad, empty, or depressed, did you ever lose interest and become really bored with most things like school, work, hobbies, and other things that are usually fun for you, like listening to music, watching TV, movies, or sports, playing computer games, or going out with friends?

```
YES .......................... 1      GO TO *D5
NO ............................ 5      GO TO *D6
DON'T KNOW ......... 8      GO TO *D6
REFUSED ................. 9      GO TO *D6
```

*D2. Earlier in the interview you mentioned having periods of time that lasted several days or longer when you felt discouraged about how things were going in your life. During times like this, did you ever lose interest and become really bored with most things like school, work, hobbies, and other things that are usually fun for you, like listening to music, watching TV, movies, or sports, playing computer games, or going out with friends?

```
YES........................................ 1      GO TO *D7
NO ........................................ 5      GO TO *D8
DON'T KNOW .................... 8      GO TO *D8
REFUSED ............................ 9      GO TO *D8
```

*D3.   INTERVIEWER INSTRUCTION:

   USE KEY PHRASE "SAD, DISCOURAGED, OR REALLY BORED" THROUGHOUT THE SECTION
   GO TO *D12

*D4.   INTERVIEWER INSTRUCTION:

   USE KEY PHRASE "SAD OR DISCOURAGED" THROUGHOUT THE SECTION
   GO TO *D12

*D5. INTERVIEWER CHECKPOINT: USE KEY PHRASE "SAD OR REALLY BORED" THROUGHOUT THE SECTION
GO TO *D12

*D6. INTERVIEWER CHECKPOINT:

USE KEY PHRASE "SAD" THROUGHOUT THE SECTION
GO TO *D12

*D7. INTERVIEWER CHECKPOINT:

USE KEY PHRASE "DISCOURAGED OR REALLY BORED" THROUGHOUT THE SECTION
GO TO *D12

*D8. INTERVIEWER CHECKPOINT:

USE KEY PHRASE "DISCOURAGED" THROUGHOUT THE SECTION
GO TO *D12

---

*D9. Earlier in the interview, you mentioned having periods of time that lasted several days or longer when you lost interest and became really bored with most things like school, work, hobbies, and other things you usually enjoy. Was there ever a time when you felt this way <u>most of the day</u> <u>almost every day</u> for <u>two weeks</u> or longer?

YES... 1   **GO TO *D11**
NO... 5
DON'T KNOW................................ ...8
REFUSED..................................... 9

*D9a. What is the longest period of time you ever had when you became really bored with most things you usually enjoy?

INTERVIEWER: "LESS THAN ONE DAY" CODE 0

_____ NUMBER

CIRCLE UNIT
OF TIME: DAYS ... 1   WEEKS 2   MONTHS.... 3   YEARS 4

PROBE DK: Was it three days or longer?

DON'T KNOW 998
REFUSED 999

USE THE KEY PHRASE "REALLY BORED" THROUGHOUT THE SECTION **GO TO *D10**

---

*D10. INTERVIEWER CHECKPOINT: (SEE **D9a**)

DURATION OF 3 DAYS OR LONGER............................... 1   **GO TO *D14**
ALL OTHERS............................... 2   **GO TO *D88**

*D11.   INTERVIEWER INSTRUCTION: USE KEY PHRASE "REALLY BORED" THROUGHOUT THE SECTION
GO TO *D16

---

*D12.   Did you ever have a period of time when you felt (sad/or/discouraged/or/bored) that lasted <u>most of the day</u>, <u>almost every day</u>, for <u>two weeks</u> or longer?

    YES 1   **GO TO *D16**
    NO 5
    DON'T KNOW 8
    REFUSED 9

    *D12a. How long was the longest period of time you ever had when you were (sad/or/discouraged/or/bored) most of the day?
        INTERVIEWER: "LESS THAN ONE DAY" CODE 0

        _____ DAYS

        DON'T KNOW.................998
        REFUSED........................999

---

*D13.   INTERIVEWER CHECKPOINT: (SEE **D12a**)

    DURATION OF 3 DAYS OR LONGER.. 1
    ALL OTHERS.. 2   **GO TO *D88**

---

*D14.   Did you ever have a year or more in your life <u>when just about every month</u> you had a time lasting several days or longer when you felt (sad/or/discouraged/or/bored)?

    YES 1
    NO 5   **GO TO *D88**
    DON'T KNOW 8   **GO TO *D88**
    REFUSED 9   **GO TO *D88**

---

*D15.   Think of times lasting several days or longer when (this problem/these problems) with your mood (was/were) most <u>severe and frequent</u>. During those times, did your feelings of (sadness/or/discouragement/or/lack of interest) usually last less than one hour a day, between 1 and 3 hours, between 3 and 5 hours, or more than 5 hours?

    LESS THAN 1 HOUR .... 1 **GO TO *D88**
    BETWEEN 1 AND 3 HOURS...................... 2
    BETWEEN 3 AND 5 HOURS...................... 3
    MORE THAN 5 HOURS.............................. 4
    DON'T KNOW 8
    REFUSED 9

    INTERVIEWER: ASK ABOUT PERIODS LASTING "SEVERAL DAYS OR LONGER" FOR THE REMAINDER OF THE SECTION.
    GO TO *D17

*D16. Think of times lasting two weeks or longer when (this problem/these problems) with your mood (was/were) most severe and frequent. During those times, did your feelings of (sadness/or/discouragement/or/lack of interest) usually last less than one hour a day, between 1 and 3 hours, between 3 and 5 hours, or more than 5 hours?

    LESS THAN 1 HOUR .... 1 **GO TO *D88**
    BETWEEN 1 AND 3 HOURS..................... 2
    BETWEEN 3 AND 5 HOURS..................... 3
    MORE THAN 5 HOURS.............................. 4
    DON'T KNOW 8
    REFUSED 9

    INTERVIEWER: ASK ABOUT PERIODS LASTING "TWO WEEKS OR LONGER" FOR THE REMAINDER OF THE SECTION.

---

*D17. How strong were your bad feelings during those times -- mild, moderate, severe, or very severe?

    MILD...................................... 1
    MODERATE................................. ...2
    SEVERE................................... 3
    VERY SEVERE.............................. 4
    DON'T KNOW 8
    REFUSED 9

---

*D18. How often, during those times, did you feel so bad that nothing could cheer you up -- often, sometimes, not very often, or never?

    OFTEN..................................... 1
    SOMETIMES................................ ...2
    NOT VERY OFTEN...................... 3
    NEVER 4
    DON'T KNOW 8
    REFUSED 9

---

*D19.   How often, during those times, did you feel so bad that you could not carry out your daily activities -- often, sometimes, not very often, or never?

    OFTEN..................................... 1
    SOMETIMES................................ ...2
    NOT VERY OFTEN...................... 3
    NEVER 4
    DON'T KNOW 8
    REFUSED 9

---

*D20.   INTERVIEWER CHECKPOINT: (SEE ***D17, *D18, *D19**)

    *D17 EQUALS '1' AND *D18 EQUALS '4' AND *D19 EQUAL '4' .... 1 **GO TO *D88**
    ALL OTHERS................................ 2

*D21.   People who have times of feeling (sad/or/discouraged/or/bored) often have other problems at the
        same time. These include things like changes in sleep, eating, energy, the ability to keep their mind on things,
        feeling badly about themselves, and other problems. Did you ever have any of these problems during a time
        when you were (sad/or/discouraged/or/bored)?

        YES..1
        NO..5   **GO TO *D88**
        DON'T KNOW 8   **GO TO *D88**
        REFUSED 9   **GO TO *D88**

---

*D22.   (READ SLOWLY) Can you think of the worst time when you felt (sad/or/discouraged/or/bored) for (several
        days/two weeks) or longer and also had these other problems at the same time?

        YES 1
        NO 5   **GO TO *D22c**
        DON'T KNOW 8   **GO TO *D22c**
        REFUSED. 9   **GO TO *D22c**

        *D22a. How old were you at that time?

                _____ YEARS OLD

                DON'T KNOW 998
                REFUSED 999

        *D22b. How long did that time last?

                _____ NUMBER   **GO TO *D24**

                CIRCLE UNIT OF TIME: DAYS 1   WEEKS 2   MONTHS......3   YEARS 4

                DON'T KNOW...................... 98   **GO TO *D24**
                REFUSED............................. 99   **GO TO *D24**

        *D22c.   Then think of the last time you felt (sad/or/discouraged/or/bored) and had other problems for (several
                days/two weeks) or longer. How old were you then?

                _____ YEARS OLD

                DON'T KNOW 998
                REFUSED 999

        *D22d. How long did that time last?

                _____ NUMBER

                CIRCLE UNIT OF TIME: DAYS 1   WEEKS 2   MONTHS......3   YEARS 4

                DON'T KNOW 98
                REFUSED 99

100

*D26. (RB, PG 4-5. FOR EACH ITEM ENDORSED, ASK R TO MARK IT IN THE RB.)	YES (1)	NO (5)	DK (8)	RF (9)
*D26a. Did you eat much less than usual almost every day during that time?	1 **GO TO *D26e**	5	8	9
*D26b. Did you eat much <u>more</u> than usual almost every day?	1	5	8	9
*D26c. Did you gain weight without trying to during that time? IF R REPORTS BEING PREGNANT OR GROWING, CODE "NO" AND **GO TO *D26g**	1	5 **GO TO *D26e**	8 **GO TO *D26e**	9 **GO TO *D26e**
*D26d. How much did you gain? _____ NUMBER **GO TO *26g** CIRCLE UNIT OF MASS: POUNDS .... 1 **GO TO *26g** KILOS .... 2 **GO TO *26g**				
*D26e. Did you <u>lose</u> weight without trying to? IF R REPORTS BEING ON A DIET OR PHYSICALLY ILL, CODE "NO" AND GO TO ***D26g**	1	5 **GO TO *D26g**	8 **GO TO *D26g**	9 **GO TO *D26g**
*D26f. How much did you lose? _____ NUMBER CIRCLE UNIT OF MASS: POUNDS .... 1 KILOS 2				
*D26g. Did you have a lot more trouble than usual either falling asleep or staying asleep most nights or waking too early most mornings?	1 **GO TO *D26i**	5	8	9
*D26h. Did you sleep a lot more than usual?	1 **GO TO *D26j**	5	8	9
*D26i. Did you sleep much less than usual and still not feel tired or sleepy?	1	5	8	9

*D24.	(RB, PG 4. FOR EACH ITEM ENDORSED, ASK R TO MARK IT IN THE RB.) Look at page 4 in your booklet. In answering the next questions, think about the time of (several days/two weeks) or longer during that episode when your (sadness/or/discouragement/or/boredom) and other problems were worst. During that time, which of the following problems did you have <u>most of the day</u> <u>almost every day</u>:				
		YES (1)	**NO (5)**	**DK (8)**	**RF (9)**
*D24a.	Did you feel sad, empty, or depressed for most of the day?	1	5 **GO TO *D24c**	8 **GO TO *D24c**	9 **GO TO *D24c**
*D24b.	Did you feel so sad that nothing could cheer you up?	1	5	8	9
*D24c.	During that time, did you feel discouraged about how things were going in your life?	1	5 **GO TO *D24e**	8 **GO TO *D24e**	9 **GO TO *D24e**
*D24d.	Did you feel hopeless about the future nearly every day?	1	5	8	9
*D24e.	During that time, did you become bored with almost everything like school, work, hobbies, and things you like to do for fun?	1	5	8	9
*D24f.	Did you feel like nothing was fun even when good things were happening?	1	5	8	9

*D25.   INTERVIEWER CHECKPOINT: (SEE ***D24a-*D24f**)

ONE OR MORE RESPONSES CODED '1' 1
ALL OTHERS............................. 2   **GO TO *D88**

*D26. (RB, PG 4-5. FOR EACH ITEM ENDORSED, ASK R TO MARK IT IN THE RB.)	YES (1)	NO (5)	DK (8)	RF (9)
*D26a. Did you eat much less than usual almost every day during that time?	1 **GO TO *D26e**	5	8	9
*D26b. Did you eat much <u>more</u> than usual almost every day?	1	5	8	9
*D26c. Did you gain weight without trying to during that time? IF R REPORTS BEING PREGNANT OR GROWING, CODE "NO" AND **GO TO *D26g**	1	5 **GO TO *D26e**	8 **GO TO *D26e**	9 **GO TO *D26e**
*D26d. How much did you gain? _____ NUMBER **GO TO *26g** CIRCLE UNIT OF MASS: POUNDS .... 1 **GO TO *26g** KILOS .... 2 **GO TO *26g**				
D26e. Did you <u>lose</u> weight without trying to? IF R REPORTS BEING ON A DIET OR PHYSICALLY ILL, CODE "NO" AND GO TO **D26g**	1	5 **GO TO *D26g**	8 **GO TO *D26g**	9 **GO TO *D26g**
*D26f. How much did you lose? _____ NUMBER CIRCLE UNIT OF MASS: POUNDS .... 1 KILOS 2				
*D26g. Did you have a lot more trouble than usual either falling asleep or staying asleep most nights or waking too early most mornings?	1 **GO TO *D26i**	5	8	9
*D26h. Did you sleep a lot more than usual?	1 **GO TO *D26j**	5	8	9
D26i. Did you sleep much less than usual and still not feel tired or sleepy?	1	5	8	9

	YES (1)	NO (5)	DK (8)	RF (9)
*D26j. On most days, did you feel that you didn't have much energy?	1 **GO TO *D26l**	5	8	9
*D26k. During that time, did you have a lot <u>more</u> energy than usual most days?	1	5	8	9
***D26l.** Did you feel as though you were talking or moving more slowly than usual on most days during that time?	1	5 **GO TO *D26n**	8 **GO TO *D26n**	9 **GO TO *D26n**
*D26m. Did anyone else notice that you were talking or moving more slowly than usual?	1 **GO TO *D26p**	5 **GO TO *D26p**	8 **GO TO *D26p**	9 **GO TO *D26p**
*D26n. Were you so restless or jittery that you walked up and down or couldn't sit still?	1	5 **GO TO *D26p**	8 **GO TO *D26p**	9 **GO TO *D26p**
*D26o. Did anyone else notice that you couldn't sit still?	1	5	8	9
*D26p. On most days, did your thinking seem slower than usual or seem confusing?	1 **GO TO *D26r**	5	8	9
*D26q. Did your thoughts seem to jump from one thing to another or to race through your head so fast that you couldn't keep track of them?	1	5	8	9
*D26r. On most days, did you have a lot more trouble keeping your mind on things than is normal for you?	1	5	8	9
*D26s. Were you unable to make decisions about things you ordinarily have no trouble deciding about?	1	5	8	9
*D26t. Did you lose your self-confidence?	1	5	8	9
*D26u. Did you feel that you were not as good as other people nearly every day?	1	5 **GO TO *D26w**	8 **GO TO *D26w**	9 **GO TO *D26w**
*D26v. Did you feel totally worthless nearly every day?	1	5	8	9
*D26w. Did you feel guilty or blame yourself for things nearly every day?	1	5	8	9

	YES (1)	NO (5)	DK (8)	RF (9)
*D26x. Did you feel irritable, grouchy, or in a bad mood almost every day?	1	5	8	9
*D26y. Did you feel nervous or worried on most days?	1	5	8	9
*D26z. During that time, did you have any sudden attacks of intense fear or panic?	1	5	8	9
*D26aa. Did you often think a lot about death, either your own, someone else's, or death in general?	1	5	8	9
*D26bb. During that time, did you ever think that it would be better if you were dead?	1	5	8	9
*D26cc. Did you think about killing yourself?	1	5 GO TO *D26ff	8 GO TO *D26ff	9 GO TO *D26ff
*D26dd. Did you make a plan to kill yourself?	1	5	8	9
*D26ee. Did you make a suicide attempt or try to kill yourself?	1	5	8	9
*D26ff. Did you feel that you could not cope with your everyday responsibilities?	1	5	8	9
*D26gg. Did you feel like you wanted to be alone rather than spend time with friends or relatives?	1	5	8	9
*D26hh. Did you feel less talkative than usual?	1	5	8	9
*D26ii. Did you cry a lot?	1	5	8	9

*D27. INTERVIEWER CHECKPOINT: (SEE ***D24 - *D26ee**)

TWO OR MORE RESPONSES CODED '1' 1
ALL OTHERS............................. 2   **GO TO *D88**

References

Ackard, D.M., Neumark-Sztainer, D., Story, M., & Perry, C. (2006). Parent-child connectedness and behavioral and emotional health among adolescents. *American Journal of Preventive Medicine, 30*(1), 59-66. doi: 10.1016/j.amepre.2005.09.013

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Anderson, J. C. & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin*, *103*(3), 411. doi: 10.1037/0033-2909.103.3.411

Baumann, A.A., Kuhlberg, J.A., & Zayas, L.H. (2010). Familism, mother-daughter mutuality, and suicide attempts of adolescent Latinas. *Journal of Family Psychology, 24*(5), 616-624. doi: 10.1037/a0020584

Berry, J.W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review, 46*(1), 5-68. doi: 10.1111/j.1464-0597.2006.00256.x

Beautrais, A.L., Joyce, P.R., & Mulder, R.T. (1997). Precipitating factors and life events in serious suicide attempts among youths aged 13 through 24 years. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*(11), 1543-1551. doi: 10.1016/S0890-8567(09)66563-1

Brent, D. A., McMakin, D. L., Kennard, B. D., Goldstein, T. R., Mayes, T. L., & Douaihy, A. B. (2013). Protecting adolescents from self-harm: a critical review of intervention studies. Journal of the American Academy of Child & Adolescent Psychiatry, 52(12), 1260-1271. doi: 10.1016/j.jaac.2013.09.009

Brent, D.A. & Melhem, N. (2008). Familial transmission of suicidal behavior.

    Psychiatric Clinics of North America, 31, 157-177. doi:

    10.1016/j.psc.2008.02.001

Bridge, J. A., Goldstein, T. R., & Brent, D. A. (2006). Adolescent suicide and suicidal

    behavior. *Journal of Child Psychology and Psychiatry*, *47*(3-4), 372-394. doi:

    10.1111/j.1469-7610.2006.01615.x

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development.

    American Psychologist, 32, 513-531. doi: 10.1037/0003-066X.32.7.513

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A.

    Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162).

    Newbury Park, CA: Sage.

Buchanan, R. L., & Smokowski, P. R. (2009). Pathways from acculturation stress to

    substance use among Latino adolescents. *Substance Use & Misuse, 44*, 740-762.

    doi: 10.1080/10826080802544216

Canino, G. & Roberts, R.E. (2001). Suicidal behavior among Latino adolescents. *Suicide*

    and Life-threatening Behavior, 31S, 122-131. doi: 10.1521/suli.31.1.5.122.24218

Cauce, A.M., & Domenech Rodríguez, M. (2002). Latino families: Myths and realities.

    In J. Contreras, A. Neal-Barnett, & K. Kerns (Eds.), *Latino children and families*

    in the United States: Current research and future directions. Westport, CT:

    Praeger Publishers.

Center for Substance Abuse Treatment (2008). *Substance abuse and suicide prevention: Evidence and implications – A White Paper.* (DHHS Pub. No. SMA-08-4352). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Centers for Disease Control and Prevention (2014). Youth Risk Behavior Surveillance – United States, 2013. *Morbidity and Mortality Weekly Report, 63(*4), 1-168.

Coatsworth, J. D., Pantin, H., & Szapocznik, J. (2002). Familias Unidas: A family-centered ecodevelopmental intervention to reduce risk for problem behavior among Hispanic adolescents. *Clinical Child and Family Psychology Review, 5*(2), 113-132. doi: 10.1023/A:1015420503275

Connor, J.J. & Rueter, M.A. (2006). Parent-child relationships as systems of support or risk for adolescent suicidality. *Journal of Family Psychology, 20*(1), 143-155. doi: 10.1037/0893-3200.20.1.143

Cook, B., Alegría, M., Lin, J. Y., & Guo, J. (2009). Pathways and correlates connecting Latinos' mental health with exposure to the United States. *American Journal of Public Health*, 99(12), 2247. doi: 10.2105/AJPH.2008.137091

Cox, R.B., Burr, B., Blow, A.J., & Parra Cardona, J.R. (2011). Latino adolescent substance use in the United States: Using the bioecodevelopmental model as an organizing framework for research and practice. *Journal of Family Theory and Review, 3,* 96-123. doi: 10.1111/j.1756-2589.2011.00086.x

Crosby, A.E., Ortega, L., & Melanson, C. (2011). *Self-directed violence surveillance: Uniform definitions and recommended data elements, Version 1.0.* Atlanta, GA:

Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

Curtis, N. M., Ronan, K. R., & Borduin, C. M. (2004). Multisystemic treatment: a meta-analysis of outcome studies. *Journal of family psychology*, 18(3), 411. doi:10.1037/0893-3200.18.3.411

De La Rosa, M. (2002). Acculturation and Latino adolescents' substance use: a research agenda for the future. *Substance Use & Misuse, 37*(4), 429-456. doi: 10.1081/JA-120002804

De Luca, S. M., Wyman, P., & Warren, K. (2012). Latina adolescent suicide ideations and attempts: Associations with connectedness to parents, peers, and teachers. *Suicide and Life-Threatening Behavior*, *42*(6), 672-683.doi: 10.1111/j.1943-278X.2012.00121.x

Duarte-Velez, Y. M., & Bernal, G. (2007). Suicide behavior among Latino and Latino adolescents: Conceptual and methodological issues. *Death Studies, 31*(5), 425-455. doi: 10.1080/07481180701244579

Duarte-Velez, Y. M., & Bernal, G. (2008). Suicide risk in Latino and Latina adolescents. In M. M. Leach & F.T. Leong (Eds.), *Suicide among racial and ethnic minority groups: Theory, research, and practice.* (pp. 81-115). New York, NY US: Routledge/Taylor & Francis Group.

Evans, E., Hawton, K., & Rodham, K. (2004). Factors associated with suicidal phenomena in adolescents: A systematic review of population-based studies. *Clinical Psychology Review, 24*, 957-979. doi: 10.1016/j.cpr.2004.04.005

Flora, D. B., & Curran, P. J. (2004). An empirical evaluation of alternative methods of

    estimation for confirmatory factor analysis with ordinal data. *Psychological*

    methods, *9*(4), 466. doi: 10.1037/1082-989X.9.4.466

Fortuna, L. R., Perez, D. J., Canino, G., Sribney, W., & Alegria, M. (2007). Prevalence

    and correlates of lifetime suicidal ideation and attempts among Latino subgroups

    in the United States. *The Journal of Clinical Psychiatry*, 68(4), 572.

    doi:10.4088/JCP.v68n0413

Fridrich, A. H., & Flannery, D. J. (1995). The effects of ethnicity and acculturation on

    early adolescent delinquency. *Journal of Child and Family Studies, 4*(1), 69-87.

    doi: 10.1007/BF02233955

Garcia, C., Skay, C., Sieving, R., Naughton, S., & Bearinger, L. (2008). Family and racial

    factors associated with suicide and emotional distress among Latino students.

    Journal of School Health, 78, 487-495. doi: 10.1111/j.1746-1561.2008.00334.x

Goldston, D. B., Molock, S. D., Whitbeck, L. B., Murakami, J. L., Zayas, L. H., & Hall,

    G. C. N. (2008). Cultural considerations in adolescent suicide prevention and

    psychosocial treatment. *American Psychologist, 63*(1), 14-31. doi: 10.1037/0003-

    066X.63.1.14

Gonzales, N. A., Fabrett, F. C., & Knight, G. P. (2009). Acculturation, enculturation, and

    the psychosocial adaptation of Latino youth. In F. A. Villaruel, G. Carlo, J. M.

    Grau, M. Azmitia, N. J. Cabrera & T. J. Chahin (Eds.), *Handbook of U.S. Latino*

    psychology: Developmental and community-based perspectives (pp. 115-134).

    Thousand Oaks, CA: SAGE Publications.

Gould, M.S., Greenberg, T., Velting, D.M., & Shaffer, D. (2003). Youth suicide risk and preventive interventions: A review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(4), 386-405. doi: 10.1097/01.CHI.0000046821.95464.CF

Hausmann-Stabile, C., Kuhlberg, J.A., Zayas, L.H., Nolle, A.P., & Cintron, S.L. (2012). Means, intent, lethality, behaviors, and psychiatric diagnosis in Latina adolescent suicide attempters. *Professional Psychology: Research and Practice, 43*(3), 241-248. doi: 10.1037/a0026258

Hollis, C. (1996). Depression, family environment, and adolescent suicidal behavior. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*(5), 622-630. doi: 10.1097/00004583-199605000-00017

Hovey, J. D., & King, C. A. (1996). Acculturative stress, depression, and suicidal ideation among immigrant and second-generation Latino adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 35*(9), 1183-1192. doi: 10.1097/00004583-199609000-00016

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55. doi: 10.1080/10705519909540118

Huey Jr, S. J., Henggeler, S. W., Rowland, M. D., Halliday-Boykins, C. A., Cunningham, P. B., Pickrel, S. G., & Edwards, J. (2004). Multisystemic therapy effects on attempted suicide by youths presenting psychiatric emergencies. *Journal of the*

American Academy of Child & Adolescent Psychiatry, 43(2), 183-190.doi:

10.1097/00004583-200402000-00014

Joe, S., Cannetto, S.S., & Romer, D. (2008). Advancing prevention research on the role

of culture in suicide prevention. *Suicide and Life-Threatening Behavior, 38*(3),

354-362. doi: 10.1521/suli.2008.38.3.354

Joe, S. & Marcus, S.C. (2003) Datapoints: Trends by race and gender in suicide attempts

among U.S. adolescents, 1991-2001. *Psychiatric Services, 54*(4), 454. doi:

10.1176/appi.ps.54.4.454

Joiner, T.E. (2005). *Why people die by suicide.* Cambridge, MA: Harvard University

Press.

Joiner, T.E., Perez, M., Wagner, K.D., Berenson, A., & Marquina, G.S. (2001). On

fatalism, pessimism, and depressive symptoms among Mexican-American and

other adolescents attending an obstetrics-gynecology clinic. *Behaviour Research

and Therapy, 39*, 887-896. doi: 10.1016/S0005-7967(00)00062-0

Joiner, T.E., Van Orden, K.A., Witte, T.K., Selby, E.A., Ribeiro, J.D., Lewis, R., &

Rudd, M.D. (2009). Main predictions of the interpersonal-psychological theory of

suicidal behavior: Empirical tests in two samples of young adults. *Journal of

Abnormal Psychology, 118*(3), 634-646. doi: 10.1037/a0016500

Kandel, D.B., Raveis, V.H., & Davies, M. (1991). Suicidal ideation in adolescence:

Depression, substance use, and other risk factors. *Journal of Youth and

Adolescence, 20*(2), 289-309. doi: 10.1007/BF01537613

Keith, T.Z. (2006). *Multiple Regression and Beyond.* Boston, MA: Pearson Education, Inc.

Kerr, D. C., Preuss, L. J., & King, C. A. (2006). Suicidal adolescents' social support from family and peers: Gender-specific associations with psychopathology. *Journal of abnormal child psychology*, *34*(1), 99-110. doi: 10.1007/s10802-005-9005-8

Kessler, R.C. (2013). National Comorbidity Survey: Adolescent Supplement (NCS-A), 2001-2004. ICPSR28581-v5. Ann Arbor, MI: Inter-university Consortium for Political and Social Research. doi: 10.3886/ICPSR28581.v5

Kessler, R.C., Avenevoli, S., Costello, E.J., Green, J.G., Gruber, M.J., Heeringa, S., …Zaslavsky, A. (2009). National Comorbidity Survey Replication Adolescent Supplement (NCS-A): II. Overview and design. *Journal of the American Academy of Child & Adolescent Psychiatry, 48*(4), 380-385. doi: 10.1097/CHI.0b013e3181999705

Kessler, R.C., Avenevoli, S., Green, J., Gruber, M.J., Guyer, M., He, Y., …Merikangas, K.R. (2009). National Comorbidity Survey Replication Adolescent Supplement (NCS-A): III. Concordance of DSM-IV/CIDI diagnoses with clinical reassessments. *Journal of the American Academy of Child & Adolescent Psychiatry, 48*(4), 386-399. doi: 10.1097/CHI.0b013e3181999705

King, C.A. & Merchant, C.R. (2008). Social and interpersonal factors relating to adolescent suicidality: A review of the literature. *Archives of Suicide Research, 12*(3), 181-196. doi: 10.1080/13811110802101203

Kline, R.B. (2011). *Principles and practice of structural equation modeling.* New York, NY: The Guilford Press.

Kuhlberg, J.A., Peña, J.B., & Zayas, L.H. (2010). Familism, parent-adolescent conflict, self-esteem, internalizing behaviors and suicide attempts among adolescent Latinas. *Child Psychiatry and Human Development, 41*, 425-440. doi: 10.1007/s10578-010-0179-0

LaFromboise, T., Coleman, H.L.K., & Gerton, J. (1993). Psychological impact of biculturalism: Evidence and theory. *Psychological Bulletin, 114*(3), 395-412. doi: 10.1037/0033-2909.114.3.395

Lara, M., Gamboa, C., Kahramanian, M. I., Morales, L. S., & Bautista, D. E. H. (2005). Acculturation and Latino health in the United States: A review of the literature and its sociopolitical context. *Annual Review of Public Health, 26*, 367-397. doi: 10.1146/annurev.publhealth.26.021304.144615

Langhinrichsen-Rolling, J.R., Friend, J., & Powell, A. (2009). Adolescent suicide, gender, and culture: A rate and risk factor analysis. *Aggression and Violent Behavior, 14*, 402-414. doi: 10.1016/j.avb.2009.06.010

Leenaars, A. (2008). Suicide: A cross-cultural theory. In M.M. Leach & F.T. Leong (Eds.), *Suicide among racial and ethnic minority groups: Theory, research, and practice* (pp.13-38). New York: Routledge. pp. 13-38.

Leong, F.T. & Leach, M.M. (2008). Suicide among racial and ethnic minority groups: An introduction. In M.M. Leach & F.T. Leong (Eds.), *Suicide among racial and*

ethnic minority groups: Theory, research, and practice (pp.1-10). New York: Routledge. pp. 1-10.

Lewinsohn, P.M., Rhode, P., & Seeley, J.R. (1994). Psychosocial risk factors for future adolescent suicide attempts. *Journal of Consulting and Clinical Psychology, 62*(2), 297-305. doi: 10.1037/0022-006X.62.2.297

Lewinsohn, P.M., Rohde, P., Seeley, J.R., & Baldwin, C.L. (2001). Gender differences in suicide attempts from adolescence to young adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*(4), 427-434. doi: 10.1097/00004583-200104000-00011

Lugo Steidel, A.G. & Contreras, J.M. (2003). A new familism scale for use with Latino populations. *Hispanic Journal of Behavioral Sciences, 25*, 312-330. doi: 10.1177/0739986303256912

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, *1*, 130-149. doi: 10.1037/1082-989X.1.2.130

Martinez, C.R. (2006). Effects of differential family acculturation on Latino adolescent substance use. *Family Relations, 55*(3), 306-317. doi: 10.1111/j.1741-3729.2006.00404.x

McKeown, R.E., Garrison, C.Z., Cuffe, S.P., Waller, J.L., Jackson, K.L., & Addy, C.L. (1998). Incidence and predictors of suicidal behaviors in a longitudinal sample of young adolescents. *American Academy of Child and Adolescent Psychiatry, 37*(6), 612-619.

doi: 10.1097/00004583-199806000-00011

Merikangas, K.R., Avenevoli, S., Costello, E.J., Koretz, D., & Kessler, R.C. (2009).
National Comorbidity Survey Replication Adolescent Supplement (NCS-A): I.
Background and measures. *Journal of the American Academy of Child &
Adolescent Psychiatry, 48*(4), 367-379. doi: 10.1097/CHI.0b013e31819996f1

Miniño, A.M. (2010). *Mortality among teenagers aged 12-19 years: United States, 1999-
2006.* (NCHS Data Brief, No. 37). Hyattsville, MD: National Center for Health
Statistics.

Muthén, L.K. and Muthén, B.O. (1998-2012). Mplus User's Guide. Seventh Edition. Los
Angeles, CA: Muthén & Muthén.

Nock, M. K., Green, J. G., Hwang, I., McLaughlin, K. A., Sampson, N. A., Zaslavsky, A.
M., & Kessler, R. C. (2013). Prevalence, correlates, and treatment of lifetime
suicidal behavior among adolescents: results from the National Comorbidity
Survey Replication Adolescent Supplement. *JAMA psychiatry, 70*(3), 300-310.
doi: 10.1001/2013.jamapsychiatry.55

O'Donnell, L., Stueve, A., Wardlaw, D., & O'Donnell, C. (2003). Adolescent suicidality
and adult support: The Reach for Health study of urban youth. *American Journal
of Health Behavior, 27*(6), 633-644. doi: 10.5993/AJHB.27.6.6

Olson, D.H. (2000). Circumplex model of marital and family systems. *Journal of Family
Therapy, 22*(2), 144-67. doi: 10.1111/1467-6427.00144

Peña, J.B., Kuhlberg, J.A., Zayas, L.H., Baumann, A.A., Gulbas, L., Hausmann-Stabile,
C., & Nolle, A.P. (2011). Familism, family environment, and suicide attempts

among Latina youth. *Suicide and Life-Threatening Behavior, 41*(3), 330-341. doi: 10.1111/j.1943-278X.2011.00032.x

Peña, J.B., Wyman, P.A., Brown, C.H., Matthieu, M.M., Olivares, T.E.,… Zayas, L.H. (2008). Immigrant generation status and its association with suicide attempts, substance use, and depressive symptoms among Latino adolescents in the U.S.A. *Prevention Science, 9*, 299-310. doi: 10.1007/s11121-008-0105-x

Peña, J.B., Zayas, L.H., Cabrera-Nguyen, P.C., & Vega, W.A. (2012). US cultural involvement and its association with suicidal behavior among youths in the Dominican Republic. *American Journal of Public Health, 102*(4), 664-671. doi: 10.2105/AJPH.2011.300344

Preacher, K. J., & Coffman, D. L. (2006, May). Computing power and minimum sample size for RMSEA [Computer software]. Available from http://quantpsy.org.

Prinstein, M.J., Boergers, J., Spirito, A., & Little, T.D., & Grapentine, W.L. (2000). Peer functioning, family dysfunction, and psychological symptoms in a risk factor model for adolescent inpatients' suicidal ideation severity. *Journal of Clinical Child Psychology, 29*(3), 392-405. doi: 10.1207/S15374424JCCP2903_10

Prinstein, M.J. (2008). Introduction to the special section on suicide and nonsuicidal self-injury: A review of unique challenges and important directions for self-injury science. *Journal of Consulting and Clinical Psychology, 76*(1), 1-8. doi: 10.1037/0022-006X.76.1.1

Resnick M.D., Bearman P.S., Blum, R.W., Bauman, K.E., Harris, K.M., Jones, J., …Udry, J.R. (1997). Protecting adolescents from harm: Findings from the

National Longitudinal Study on Adolescent Health. *The Journal of the American Medical Association*, *278*(10):823-832. doi: 10.1001/jama.1997.03550100049038

Rew, L., Thomas, N., Horner, S. D., Resnick, M. D., & Beuhring, T. (2001). Correlates of recent suicide attempts in a triethnic group of adolescents. *Journal of Nursing Scholarship, 33*(4), 361-367. doi: 10.1111/j.1547-5069.2001.00361.x

Sam, D.L. (2006). Acculturation: Conceptual background and core components. In D.L. Sam & J.W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 27-42). Cambridge, UK: Cambridge University Press. doi: 10.1017/CBO9780511489891.005

Shaughnessy, L., Doshi, S.R., & Jones, S.E. (2004). Attempted suicide and associated health risk behaviors among Native American high school students. *Journal of School Health, 74*(5), 177-182. doi: 10.1111/j.1746-1561.2004.tb08217.x

Smokowski, P. R., & Bacallao, M. L. (2007). Acculturation, internalizing mental health symptoms, and self-esteem: cultural experiences of Latino adolescents in North Carolina. *Child Psychiatry & Human Development, 37*(3), 273-292. doi: 10.1007/s10578-006-0035-4

Smokowski, P.R., Bacallao, M., & Buchanan, R.L. (2009). Interpersonal mediators linking acculturation stressors to subsequent internalizing symptoms and self-esteem in Latino adolescents. *Journal of Community Psychology, 37*(8), 1024-1045. doi: 10.1002/jcop.20346

Smokowski, P. R., Rose, R. A., & Bacallao, M. (2009). Acculturation and aggression in Latino adolescents: modeling longitudinal trajectories from the Latino

Acculturation and Health Project. *Child Psychiatry & Human Development, 40*(4), 589-608. doi: 10.1007/s10578-009-0146-9

Spirito, A. & Esposito-Smythers, C. (2006a). Attempted and completed suicide in adolescence. *Annual Review of Clinical Psychology, 2*, 237-266. doi: 10.1146/annurev.clinpsy.2.022305.095323

Spirito, A. & Esposito-Smythers, C. (2006b). Addressing adolescent suicidal behavior: Cognitive-behavioral strategies. In P.C. Kendall (Ed.), *Child and adolescent therapy: Cognitive-behavioral procedures* (pp.217-242). New York: The Guilford Press.

Spirito, A., Esposito-Smythers, C., Wolff, J., & Uhl, K. (2011). Cognitive-behavioral therapy for adolescent depression and suicidality. *Child and adolescent psychiatric clinics of North America*, *20*(2), 191-204. doi:10.1016/j.chc.2011.01.012

Strauss, J., Birmaher, B., Bridge, J., Axelson, D., Chiappetta, L., Brent, D., Ryan, N. (2000). Anxiety disorders in suicidal youth. *Canadian Journal of Psychiatry, 45*(8), 739-745.

Suarez-Morales, L., & Lopez, B. (2009). The impact of acculturative stress and daily hassles on pre-adolescent psychological adjustment: examining anxiety symptoms. *The Journal of Primary Prevention, 30*(3-4), 335-349. doi: 10.1007/s10935-009-0175-y

Swanson, J. W., Linskey, A. O., Quintero-Salinas, R., Pumariega, A. J., & Holzer III, C. E. (1992). A binational school survey of depressive symptoms, drug use, and

suicidal ideation. *Journal of the American Academy of Child & Adolescent Psychiatry*, *31*(4), 669-678. doi: 10.1097/00004583-199207000-00014

Szapocznik, J., & Kurtines, W. M. (1993). Family psychology and cultural diversity: Opportunities for theory, research, and application. *American Psychologist*, 48(4), 400.

doi: 10.1037/0003-066X.48.4.400

Szapocznik, J., Kurtines, W.M., & Fernandez, T. (1981). Bicultural involvement and adjustment in Hispanic-American youths. *International Journal of Intercultural Relations, 4*(3), 353-365. doi: 10.1016/0147-1767(80)90010-3

Szapocznik, J., Prado, G., Burlew, A.K., Williams, R.A., & Santisteban, D.A. (2007). Drug abuse in African American and Hispanic adolescents: Culture, development, and behavior. *Annual Review of Clinical Psychology, 3*, 77-105. doi: 10.1146/annurev.clinpsy.3.022806.091408

Szapocznik, J. & Kurtines, W.M. (1993). Family psychology and cultural diversity: Opportunities for theory, research, and application. *American Psychologist, 48*(4), 400-407. doi: 10.1037/0003-066X.48.4.400

Tanaka, J. S. (1993). Multifaceted conceptions of fit in structural equation models. In K. S. Bollen & J.S. Long (Eds.), *Testing structural equation models* (pp. 10-39). Newbury Park, CA: Sage.

U.S. Department of Health and Human Services (HHS) Office of the Surgeon General and National Action Alliance for Suicide Prevention. (2012). *2012 National*

Strategy for Suicide Prevention: Goals and Objectives for Action. Washington, D.C.: HHS.

Van Orden, K.A., Witte, T.K., Cukrowicz, K.C., Braithwaite, S.R., Selby, E.A., & Joiner, T.E. (2010). The interpersonal theory of suicide. *Psychological Review, 117*(2), 575-600. doi: 10.1037/a0018697

Vega, W. A., Khoury, E. L., Zimmerman, R. S., Gil, A. G., & Warheit, G. J. (1995). Cultural conflicts and problem behaviors of Latino adolescents in home and school environments. *Journal of Community Psychology*, *23*(2), 167-179. doi: 10.1002/1520-6629(199504)23:2<167::AID-JCOP2290230207>3.0.CO;2-O

Wagner, B.M., Silverman, M.A.C., & Martin, C.E. (2003). Family factors in youth suicidal behaviors. *American Behavioral Scientist, 46*(9), 1171-1191. doi: 10.1177/0002764202250661

Westefeld, J.S., Bell, A., Bermingham, C., Button, C., Shaw, K., Skow, C., Stinson, R.D., & Woods, T. (2010). Suicide among preadolescents: A call to action. *Journal of Loss and Trauma, 15*, 381-407. doi: 10.1080/15325024.2010.507655

Zayas, L. H. (2011). *Latinas attempting suicide: When cultures, families, and daughters collide*. New York, NY US: Oxford University Press. doi: 10.1093/acprof:oso/9780199734726.001.0001

Zayas, L. H., & Gulbas, L. E. (2012). Are suicide attempts by young Latinas a cultural idiom of distress? *Transcultural psychiatry*, *49*(5), 718-734. doi: 10.1177/1363461512463262

Zayas, L. H., Lester, R. J., Cabassa, L. J., & Fortuna, L. R. (2005). Why do so many

    Latina teens attempt suicide? A conceptual model for research. *American Journal*

    of Orthopsychiatry, 75(2), 275-287. doi: 10.1037/0002-9432.75.2.275

Zayas, L. H., & Pilat, A. M. (2008). Suicidal behavior in Latinas: Explanatory cultural

    factors and implications for intervention. *Suicide and Life-Threatening Behavior,*

    38(3), 334-342. doi: 10.1521/suli.2008.38.3.334