

RESEARCH ARTICLE

## Social Integration and Suicidality: The Case of U.S. Hispanic Adolescents

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**Abstract:** We examined how Hispanic adolescents' integration with family, peer, and religion is associated with suicidality; and how substance use mediates between suicidality and integration. Using logistic regression, our secondary data analysis of a nationally representative sample of Hispanic adolescents revealed that familial integration was associated with a low likelihood of suicide attempt, while peer integration was associated with high likelihood of suicidal thoughts. Although religious integration was not directly associated with suicidality, this was associated with a low likelihood of drug use: drug use is a robust predictor of suicidality. These observed differences in the direction of associations underscore how integration does not necessarily associate with a low likelihood of suicidality; rather, integration may either be negatively, positively, or not even associated with suicidality. Furthermore, the observed mediating role of drug use suggests that improvement in the early detection of suicidality might lie at the nexus of social integration and substance use.

**Keywords:** suicidality, spheres of social integration, substance use, U.S. Hispanic adolescents

Suicidality (i.e., thinking or attempting to kill one's self; Locke & Newcomb, 2005; Bridge, Goldstein, & Brent, 2006) afflicts many Americans; it is a robust predictor of suicide (Styka, White, Zumwalt, & Lathrop, 2010). An early manifestation of suicidality typically occurs during adolescence (Judge & Billick, 2004) of which Hispanics exhibit the highest prevalence rate among major U.S. ethnoracial groups (Centers for Disease Control and Prevention [CDC], 2014; Cuellar & Curry, 2007). Yet, very few studies have ever been conducted on this subset of the U.S.

population (Cuellar & Curry, 2007; Maimon & Kuhl, 2008; Styka et al., 2010).

Earlier, Cuellar and Curry (2007) and more recently Kann et al. (2014) reported that the prevalence rate of having considered and/or attempted suicide was highest among young Hispanic females/males (26.0%/11.5%) compared to females/males of other U.S. ethnoracial groups. Very similar patterns were observed in the case of planning suicide (females, 20.1%; males, 11.2%), attempting suicide (females, 15.6%; males, 6.9%), and attempting suicide treated by either a physician

or a nurse (females, 5.4%; males, 2.8%; Kann et al., 2014; Piña-Watson, Dornhecker, & Salinas, 2015). These patterns make a compelling reason to research suicidality among Hispanic adolescents in the U.S.

It is typically taken for granted that integration to social life (i.e., family, religion, and peer) protects from suicidality, regardless of ethnoracial identity (Hsieh, 2017) and levels of analysis (Maimon & Kuhl, 2008). In this study, we examined how integration to family, religion, and peer is associated with the likelihood of suicidality. Specifically, we sought answers to the questions: (i) Are high levels of familial, religious, and peer integration associated with low likelihoods of drug and alcohol use? (ii) Are high levels of familial, religious, and peer integration associated with low likelihoods of suicidal thoughts and suicide attempts? (iii) Does substance use (i.e., drugs or alcohol) mediate between integration and suicidality? An affirmative answer to the last question opens the possibility of improving knowledge in regards to the early detection of suicidality.

## Literature Review

### *Suicidality*

Majority of adolescents that have committed suicide have a history of suicidality (i.e., suicidal thoughts and suicide attempts; Bridge et al., 2006; Cuellar & Curry, 2007; Hausmann-Stabile, Gulbas, & Zayas, 2013; Queralt, 1993). Research results vary in regards to factors that are protective against and risk for suicidality. Maimon and Kuhl (2008) have shown that familial and religious integration were buffers against adolescent suicide attempts. Having a strong familial connection, specifically to parents, significantly reduces the likelihood of adolescent suicidality and suicide (Bridge et al., 2006; Maimon & Kuhl, 2008).

While Maimon and Kuhl's (2008) results share similarities with other studies (e.g., Borowsky, Ireland, & Resnick, 2001; Cuellar & Curry, 2007), other factors such as drug and alcohol use, as well as depression, have also been reported as being risk factors for suicidality (Bridge et al., 2006; Cuellar & Curry, 2007; Tuan, Dalman, Thiem, Nghi, & Allebeck, 2009; Eaton et al., 2011). Duarte-Velez and Bernal (2007) observed that low familial integration led to depression, which

is a significant predictor for suicidality, while Peña, Matthieu, Zayas, Masyn, and Caine (2010) reported that drug use coupled with depression is a powerful risk factor for suicidality.

In the U.S. youth population, a high prevalence of depression was found among Hispanic adolescents, especially females (Arria et al., 2009; Cuellar & Curry, 2007; Duarte-Velez & Bernal, 2007). As such, depression is a factor to consider in the study of suicidality. Imitation is yet another factor to consider in the understanding of suicidality (Hedstrom, Liu, & Nordvick, 2008). If it is not unlikely for an adolescent suicide victim to have relatives who attempted or committed suicide (Queralt, 1993) and 20% of adolescents knew of someone who had committed suicide within the past year (Median & Luna, 2006), then imitation should be considered as a risk factor in the study of adolescent suicide and suicidality (Hedstrom et al., 2008).

Yet, other factors known to impact suicidality include scholastic performance, being born in the U.S., and religion. According to Borowsky et al. (2001), grades were associated with suicidality. They asserted that having a high grade point average was a protective factor. A relationship also exists between suicidality and whether an individual was U.S.-born or not. Intriguingly, U.S.-born Hispanics are more likely to commit suicide than their foreign-born counterpart (Peña, Zayas, Cabrera-Nguyen, & Vega, 2012). Past studies indicate that being Catholic aid in the prevention of suicidality. As evidenced, one of Durkheim's (1951) assertions was that Catholics have a lower incidence of suicide (Bankston, Allen, & Cunningham, 1983). Hence, in investigating the link between integration and suicidality, these aforementioned factors should be considered as controls in the building of predictive models of suicidality.

### *Hispanic Adolescents*

Hispanics are the fastest-growing U.S. minority group (Chang, Sanna, Hirsch & Jeglic, 2010; Cuellar & Curry, 2007). They are also observed to be at high risk for suicidality due to challenges in acculturation, socioeconomic hardship, marginalization, negative stereotyping, and language barriers (Betz, Krzyzaniak, Hedegaard, & Lowenstein, 2011); this is especially

true in the case of Hispanic adolescents (Locke & Newcomb, 2005; Piña-Watson et al., 2015). Typically, this high risk is further exacerbated by issues relating to immigrant status (Bridge et al., 2006; Hausmann-Stabile et al., 2013). For instance, a U.S. Hispanic adolescent, who has a family member that is not a U.S. citizen and resides in another country contends with the stresses brought about by physical separation, infrequent contact, and interrupted communication. This situation triggers severe emotional stress, feeling of isolation, and depression which can lead to suicidality (Bridge et al., 2006).

Also, the challenges of acculturating into a new culture and environment may prove very stressful especially for adolescents (Hausmann-Stabile et al., 2013), who already have family-separation issues to contend with. This is in addition to the many other changes (e.g., emotional, mental, or physical) and status transitions (e.g., from child to adult; from middle to high school) that occur during adolescence (Bridge et al., 2006; Maimon & Kuhl, 2008). For instance, one may be faced with new norms, values, and lifestyles. Alternatively, one may have to “manage” two cultures, which may lead to a conflicted identity, conflict with parental aspirations and expectations, social marginalization and isolation, bullying and harassment, and loss of sense of belonging (Chesin & Jeglic, 2012). These stressors can have adverse effects on an adolescent, which may lead to emotional and behavioral issues, and eventually to suicidality (Lipsicas & Mäkinen, 2010).

Low socioeconomic status can also be a stressor for Hispanics: First generation Hispanics and those new to the U.S., for example, may not have the sufficient background, resources (financial or social), support (financial, social, or emotional), or skills (e.g., English-speaking and writing skills) to find well-paying jobs. The feeling of being trapped and inability to escape poverty can lead to feelings of anomie, marginalization, inferiority, and isolation (Hausmann-Stabile et al., 2013). Yet again, all of these can lead an individual to emotional distress and pathological thinking such as suicidal thoughts (Zhang, 2010). While it is important to note that suicidality is a robust predictor of suicide, it is equally important to recognize that emotional distress and pathological thinking are predictors of

suicidality itself (Kessler, Borges, & Walters, 1999). This implies that studies on suicidality should not only focus on the direct impact of predictors but should also delve into the mediating relationships that might be occurring among predictors. We do exactly this in our study.

### *Social Integration*

**Familial integration.** *Familism* refers to the centrality, salience, and importance of family in a person’s values, identity, and socialization. Familism is dominant and strong among Hispanics, and is manifested by high levels of familial integration (e.g., active involvement in familial matters and activities) and strong familial bonds (e.g., closeness to parents; Kuhlberg, Peña, & Zayas, 2010). Although high levels of familial integration have been shown to be associated with reduced suicidal thoughts and suicide attempts (Arria et al., 2009; Bridge et al., 2006), it has also been shown to trigger the same when the degree of integration makes separation from or loss of a family member too painful and traumatic (Kuhlberg et al., 2010).

Furthermore, strong familial integration is protective against suicidality when it functions as a social support system (e.g., providing emotional support and affection); but it can also trigger suicidality if that strong integration and bonding turn out to be overly regulating and oppressive (Bankston et al. 1983; Zhang, 2010). For adolescents, having a family that is caring, loving, and supportive helps them in times of emotional distress and personal problems, which are particularly replete at this transitional life stage. Especially so for adolescents, who are yet establishing self-identity and sense of self, strong familial integration provides them with a sense belonging, safe haven, and emotional outlet where they can freely find and express themselves. In contrast, low integration to family breeds feelings of isolation and loneliness—a feeling of being trapped with nowhere else to go—which can lead to suicidal thoughts and suicide attempts (Arria et al., 2009; Bridge et al., 2006).

**Religious integration.** Hispanic culture and heritage are deeply rooted in the Catholic faith. That said, integration to religion is yet another important factor shaping the identity, sense of self, and

socialization of the Hispanic adolescent. Integration to religion is manifested in many forms such as active participation and involvement in church services, prayers, or religious activities. Through family and church-related activities, religious activities very much become a part of the growing up socialization of Hispanics. Studies have shown that high levels of religious integration deter suicidality (Bankston et al., 1983; Kubrin, Wadsworth & Di Pietro, 2006). Many studies report that suicidality is low when individuals manifest strong belief in the importance of religion, dedication and active participation in religious activities and services, and practice of religious rituals (Kubrin et al., 2006). Religious integration can be especially beneficial to individuals who do not have strong familial support because active involvement in religious activities provides one with a sense of belongingness, alleviates feelings of isolation, and provides moral guidance (Maimon & Kuhl, 2008). For adolescents who already have a strong and supportive familial environment, religious integration helps strengthen an already-solid protective shield against suicidality.

**Peer integration.** Involvement with and attachment to peers is yet another sphere of integration that influences suicidality among adolescents (Arria et al., 2009; Maimon & Kuhl, 2008). Peer influence and pressure are especially strong during adolescence (Arria et al., 2009). Similar to other spheres of social life, peer integration can protect adolescents against suicidality. Peers can have a positive influence and help adolescents with personal concerns and problems that maybe awkward to discuss with parents or family. By way of discussing personal problems, hanging out, and socializing with peers, peer integration can serve as an outlet for emotional stress and as a social support system (Maimon & Kuhl, 2008). These social support provisions reduce not only emotional stress but also the likelihood of suicidality.

However, high peer integration can also have the opposite effect when peers take the form of a “malignant” social support system in that they encourage or socialize one to deviant behaviors, illegal activities, and inspire “pathological thoughts” such as suicidal ideation. Low peer integration can also have deleterious effects on adolescents (Arria et al. 2009;

Chang et al., 2010). For example, loneliness and isolation can result from having no peers to interact with, which can lead to pathological thoughts and behavior as a result of not having anyone to talk to or to be friends with (Chang et al., 2010). Low peer integration can also create stressful situations for adolescents, especially so if this results to an individual being left out, being the target of bullying, gossip, teasing, or insult; all of which could make an adolescent depressed and turn suicidal.

### *Substance Use*

For Hispanic adolescents who may not have high integration to familial, religious, or peer groups, substance use (i.e., drug and alcohol) may be the only options to cope with or escape from stresses (Tuan et al., 2009). Individuals who experience suicidal thoughts have engaged in deviant behaviors such as drug use and alcohol usage as a coping mechanism. Drug abuse is one of the primary risk factors for adolescent suicidality (Cuellar & Curry, 2007; Medina & Luna, 2006; Tuan et al., 2009). Adolescents who abused substances were found to be 12.8 times more likely to have a history of suicide attempts compared to non-substance users (Judge & Billick, 2004). Furthermore, drugs provide a dysfunctional coping strategy that serves as a brief getaway from problems but is very likely to results in mental decline towards depression (Medina & Luna, 2006). The most common drugs linked to suicidality include: marijuana, cocaine, heroin, inhalants, and hallucinogens (Cuellar & Curry, 2007). However, for Hispanic adolescents, marijuana and prescription drugs are the most preferred (Cuellar & Curry, 2007; Luncheon, Bae, Lurie, & Singh, 2008). Drug use is not the only deviant behavior associated with suicidality. Research has also shown that alcohol use can also be a factor (Eaton et al., 2011).

### **Conceptual Framework**

We posit that Hispanic adolescents’ connectedness to family, religion, and peer is associated with the likelihood of suicidal thoughts and attempts differently. In the familial sphere, strong attachment to parents, doing various activities with parents, and spending quality time with parents ensures adolescents’ personal



and social well-being. Feeling loved and being cared for (by parents) and having people to love and to care for in return (the parents) strengthen adolescents' attachment to family. Such affective bonding protects adolescents from harboring pathological attitudes, engaging in deviant or illegal behaviors such as drug use and alcohol use. However, there is also evidence that closeness to the family can trigger suicidality in cases of the loss of a family member.

In the case of adolescents' religious integration: (i) With the typical Hispanic families dedicatedly religious; and (ii) with Hispanic parents typically raising their kids with an emphasis on the importance of religion, we argue that the norms and values instilled by this style of upbringing protect adolescents from suicidal thoughts and attempts. This is even more the case because suicidality is a capital sin in the Catholic faith. Because most Hispanics are Catholics, we find no reason to suspect that Hispanic adolescents' religious integration would "push" them toward pathological thoughts and deviant behaviors that could, in turn, breed sentiments that encourage thoughts and attempts to kill one's self.

In the case of integration to peers (i.e., friends with whom adolescents hang out with, or discuss personal problems), we argue that active participation in this sphere can either be a protective barrier against or a risk factor for adolescents' substance use and suicidality. We hypothesize that the outcome depends on whether peers create a "haven" for illegal activities, deviant behaviors, and pathological thinking; or a "forum" that challenges familial values, religious teachings, and societal norms. However, deep involvement with peers can also be protective against substance use and suicidality if peer's actions and thinking reflect mainstream norms and values, and if these mirror the aspirations, sensibilities, and values of family and community (Maimon & Kuhl, 2008).

Given (i) the conservativeness and the religiosity of the typical Hispanic family, and the tendency of peers to try new things; and (ii) the ever decreasing intensity, extensity, and diversity of interaction of adolescents with family members; and the increasingly limited participation in religious activities compared to activities with peer (arguably as a result of adolescents' greater opportunities for face-to-face interaction in

school, after school, and on weekends; and through technology-mediated interactions), it is likely that peer's influence on adolescents gains more salience over that of family and religion.

Hence, it is likely that while integration to family and religion may protect adolescents from deviant behavior (e.g., substance use and suicide attempt) and pathological thinking (e.g., suicidal thought), it is also likely that peer integration may encourage adolescents toward deviant behaviors and pathological thinking. This is especially the case when the degree and volume of interaction with peer dwarf those of family and religion in terms of intensity, extensity, and diversity.

Hence, we forward three hypotheses among Hispanic adolescents:

- H1: High levels of familial and religious integration are associated with a low likelihood of drug and alcohol use. In contrast, high levels of peer integration are associated with a high likelihood of drug and alcohol use.
- H2: High levels of familial and religious integration are associated with a low likelihood of suicidal thoughts and suicide attempts. However, high levels of peer integration are associated with a high likelihood of drug and alcohol use.
- H3: Alcohol and drug use are associated with a high likelihood of suicidal thoughts and suicide attempts.

## Methods

### *Data*

Our data was from the National Longitudinal Study of Adolescent Health (Add Health), 1994–2008, which is a nationally representative study of youths in grades 7<sup>th</sup> through 12<sup>th</sup>. The data we used were collected by Add Health investigators from 1994 to 1995 (when respondents were adolescents) via an in-home interview. Our target population comprised of Hispanic adolescents in the U.S. with our sample comprising 743 respondents.

### *Dependent Variables*

We examined two aspects of suicidality: suicidal thoughts and suicide attempts. To measure suicidal thoughts, we used the question: "During the past 12 months, did you ever seriously think about committing suicide?" To measure suicide attempts, we used the question: "During the past 12 months, how many times did you actually attempt suicide?" From the second question, we created a binary variable with responses coded 1 if the respondent attempted suicide, and 0 if not attempted.

### *Independent Variables*

Our independent variables represent integration with family, religion, and peer. To enhance measurement validity, we used multiple items to measure integration in each sphere. To measure religious integration, we constructed two variables: *attendance in religious activities* and the *importance of religion*. For attendance in religious activities, we calculated the average of responses to two questions: the first was, "In the past 12 months, how often did you attend religious services?" The second was, "How often do you attend youth services?" Possible responses to both of these questions were: 1 if once a week or more, 2 if once a month or more/less than once a week, 3 if less than once a month, 4 if never.

Importance of religion was derived from two questions: the first question, "How important is religion to you?" allowed for four possible responses that ranged from 1 (important) to 4 (not important). The second question: "How often do you pray?" allowed for responses ranging from 1 (highest frequency) to 4 (lowest frequency). The average of the responses to these two questions was used to indicate the importance of religion.

We used five variables to measure peer integration: (1) Total number of friends, (2) proportion of friends whom respondent (R) visited at their homes, (3) proportion of friends whom R hanged out with after school, (4) proportion of friends whom R spent time with over the weekend, and (5) proportion of friends whom R discussed about a problem. The total number of friends was obtained by calculating how many friends a respondent had from a series of 10 questions. There were five questions the respondents were asked in reference

to their male friends, and another five questions in reference to their female friends.

For the question: "Did you go to {name}'s house during the past seven days?" if the respondent answered "yes" to this question, we took that as respondent had a friend. If the respondent answered "no," we took that to mean the respondent did not have a friend. This was done for the rest of the questions pertaining to the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> male and female friends. The binary responses to the 10 questions were totaled. Based on this computational scheme, a respondent had a total number of friends ranging from 0 to 10.

For the next four variables (proportion of friends whom R visited at their homes, proportion of friends whom R hanged out with after school, proportion of friends whom R spent time with over the weekend, and proportion of friends whom R discussed about a problem), we calculated proportions in reference to the respondent's activity with each of his/her friend(s). For example, for the question "Did you go to {name}'s house during the past seven days?" which was answerable by "yes" (1) or "no" (0) for each of the friends listed, we added these binary responses and divided the sum by respondent's total number of friends. We call this variable proportion of friends whom R visited at the home which had values ranging from 0.00 to 1.00, inclusive.

We followed the same procedure to compute the proportion of friends whom R hanged out after school which was derived from the question, "Did you meet {name} after school to hang out or go somewhere during the past seven days?" The next variable, proportion of friends whom R spent time with over the weekend, was derived from the question, "Did you spend time with {name} during the past weekend?" The last variable, proportion of friends whom R discussed about a problem, was derived from the question, "Did you talk to {name} about a problem during the past seven days?"

We used two measures for familial integration: attachment to parents and activities with parents. *Attachment to parents* was derived from four questions, each of which ranged from 1 (not very close) to 5 (very close): (i) "How close do you feel to your {mother/adoptive mother/stepmother/foster mother/etc.}?" (ii) "How close do you feel to your

{father/adoptive father/stepfather/foster father/ etc.}?” (iii) “How much do you think she cares about you?” and (iv) “How much do you think he cares about you?” The average was calculated from the responses to these four questions.

The variable *activities with parents* was derived from two set of questions. The first set of questions asked, “Which of the things listed have you done with your mother?” Each of the questions in this first set was answerable by a “yes” (1) or a “no” (0). The second set asked the question, “Which of the things listed have you done with your father?” Again, each of the questions in this second set was answerable by a “yes” (1) or a “no” (0). The list of activities for both sets of questions included: (i) gone shopping; (ii) played a sport; (iii) gone to a movie, play, museum, concert, and sports event; and (iv) worked on a project for school. There were two steps in creating our final *parental activities* variable. The first step involved totaling respondents’ activities with mother and activities with father, separately. Each of these totals ranged from 0-4. The second step was to calculate the average of the activities with mother and activities with father.

#### *Mediating Variables*

One of our two mediating variables was *ever tried drugs*; this a dummy variable derived from three different questions answerable by “yes” (1) or “no” (0). The first question asked, “During the past 30 days, how many times have you used marijuana?” The second asked, “During the past 30 days, how many times have you used cocaine?” The third and last question asked, “During the past 30 days, how many times have you used any other types of illegal drugs?” Other types of illegal drugs include LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills without a doctor’s prescription. We totaled these responses and 1 (yes) if the total was greater than zero or coded 0 (no) if the total was equal to zero. Another mediating variable was alcohol usage in the last 12 months (*alcohol\_12*), which was derived from the following question, “During the past 12 months, on how many days did you drink alcohol?” This was converted to a dummy variable which was coded 1 if the response was other than zero.

#### *Control Variables*

Our controls are comprised of several variables which included: *gender* (1 = if male; 0 = if female), *high school* (1 = if 9<sup>th</sup> through 12<sup>th</sup> grade; 0 if = 7<sup>th</sup> and 8<sup>th</sup> grade), and *U.S. born* (1 = if yes; 0 = if no). Also included were *English grade*, *math grade*, *history grade*, and *science grade*. These variables indicated respondent’s letter grade (1=D; 2=C; 3=D; 4=A).

*Family member attempted suicide* is a variable that measured whether or not the respondent has had any family members who attempted suicide. This variable pertained to the question, “Have any of your family members tried to kill themselves during the past 12 months?” Responses were coded 1 if “yes” and 0 if “no.” Similarly, the variable *Friend attempted suicide* was derived from the question, “Have any of your friends tried to kill themselves during the past 12 months?” and was also transformed into a dummy variable where a “yes” was coded 1.

*Depressed* is a dummy variable that indicated whether the respondent felt depressed (1) or not (0). This was derived from the question, “How often was the following (depressed) true during the last week?” The original variable had four categories, which we were recorded into a dichotomy. *Catholic* is also a dummy variable that indicated whether the respondent was Catholic (1) or not (0). This was derived from the question, “What is your religion?”

#### *Analytical Strategy*

Our analytical strategy is in the form of a binary logistic regression analysis, which we carried out in two stages. In the first stage, we explored the relationship of drug use and alcohol use with our control and integration variables. Four regression models were generated for this stage of the analysis (Table 2). The first two regressions test the relationship between controls and substance use variables. The last two regressions test the relationship between substance use, control, and integration variables. In the second stage, we examined how our control, integration, and substance use variables influenced suicidality (i.e., suicidal thoughts and suicide attempts). The analyses in stage 2 were conducted in the same manner as the regression models in stage 1; this time, substance-use variables were cast as independent variables (Tables 3 and 4).

## Results

### *Descriptive Statistics*

Of the 743 adolescents, 48% were male, 74% were born in the U.S., 71% were in high school, and 60% were Catholic (Table 1). In regards to having a family member or a friend who attempted suicide, there were 6% and 19%, respectively. The

average grade in English was a 2.7; Math, 2.45; History, 2.73; and Science, 2.69. Out of a maximum of 10 friends, the average number of friends was at 3.00. Mean probability of a respondent going to a friend's house was at 0.41, hanging out with friends after school, 0.48; hanging out with friends on weekends, 0.48; and discussing a personal problem with friends, 0.49.

**Table 1**

### *Descriptive Statistics*

<b>Variables</b>	<b>n</b>	<b>Mean</b>	<b>SD</b>
Male (1=yes; 0=no)	743	.48	.050
US Born (1=yes; 0=no)	742	.74	.441
High School (1=yes; 0=no)	717	.71	.454
Catholic (1=yes; 0=no)	743	.60	.782
Family Attempts (1=yes; 0=no)	728	.06	.231
Friends Attempts (1=yes; 0=no)	727	.19	.392
English Grade (1=D; 2=C; 3=B; 4=A)	683	2.70	.940
Math Grade (1=D; 2=C; 3=B; 4=A)	645	2.45	1.032
History Grade (1=D; 2=C; 3=B; 4=A)	601	2.73	.985
Science Grade (1=D; 2=C; 3=B; 4=A)	597	2.69	1.015
Depressed (1=yes; 0=no)	738	.45	.497
Total number of Friends	743	3.06	2.519
Prop. of going to friend's house (0-1)	721	.41	.374
Prop. of hanging out with friends after school (0-1)	721	.48	.391
Prop. of hanging out with friends on weekend (0-1)	721	.48	.388
Prop. of discussing problems with friends (0-1)	721	.49	.409
Attachment to Parents	725	4.61	.623
Activities with Parents	723	2.11	1.323
Religion Attendance	660	2.52	.993
Religion Importance	661	1.81	.841
Even Tried Drugs in past 30 days (1=yes; 0=no)	727	.16	.365
Alcohol usage in past 12 months (1=yes; 0=no)	740	.48	.500
Suicide thoughts (1=yes; 0=no)	728	.14	.343
Suicide attempts (1=yes; 0=no)	743	.03	.180

Note: Attachment to parents (1=not very close ... 5= very close); activities with parents (0=no activities ... 4=all four activities); religious attendance (1=at least once a week ... 4=never); religious importance (1=very important ... 4=not important)



In terms of attachment to parent(s), the average score was at 4.61 out of 5.00, indicating that the typical adolescent had close to very close attachment to parent(s). In regards to engaging in activities with parents, the average respondent scored 2.52, indicating that the typical adolescent engaged in about 2 to 3 (out of 4) activities with parent(s). In terms of religious integration, the average attendance in religious services and activities was at 2.52 (which was about less than once to once a month) while the average for importance of religion was at 1.81 (where 1 is important and 4 not important). Our two substance use variables had the following percentages: 16% reported having used drugs while 48% had consumed alcohol. The percentage of respondents who had suicidal thoughts was at 14%, while those who had attempted suicide was at 3%.

#### *Regression Results for Substance Use*

Table 2 presents two sets of binary logistic regression results that model drug and alcohol use. Model 2a shows the relationship between drug use and alcohol use with our control variables. Being a U.S. born and being in high school were significant predictors of both drug and alcohol use. Two other statistically significant controls were being Catholic and having a friend who attempted suicide. Being Catholic was negatively associated with drug use; while having a friend who attempted suicide was positively associated with alcohol use. Having high grades in English and Science were associated with a lower likelihood for drug use while having a high grade in Math was associated with a lower likelihood for alcohol use. We also noted that respondents who experienced depression had a higher chance of drug use and alcohol use; these results are consistent with previous studies (Arria et al., 2009; Medina & Luna, 2006).

In Model 2b, we added social integration variables to our set of predictors. Being a U.S born and in high school remain significant for alcohol use, but not for drug use. Being Catholic and having a friend who attempted suicide also produced similar results as

Model 2a. For Model 2b, being Catholic reduced the likelihood of drug use; while having a friend attempt suicide increased the likelihood of alcohol use. The impact of scholastic performance was almost identical to those of Model 2a except for Science not being a significant factor; English was significantly negatively associated with drug use and Math was significantly negatively associated with alcohol use. Depression was also significant in this model, where being depressed had a positive association with both drug use and alcohol use.

In regards to our integration variables, there was an adverse influence of peer in the sense that adolescents who hang out with friends after school had higher chances for drug use. We also observed that the stronger the attachment to parents, the lower the chances for alcohol use. Furthermore, adolescents who were more into attending religious services and activities were less likely to have ever tried drugs.

#### *Regression Results for Suicidality*

Models 3a to 3d (Table 3) and 4a to 4d (Table 4) indicate that certain variables remain robust predictors across our regression models (M1-M4) for suicidal thoughts and suicide attempts, respectively. Females are more likely to think of killing themselves than males. While those who had a family member attempt suicide were more likely to harbor suicidal thoughts (Hedstrom et al., 2008). Those who had a friend that attempted suicide showed a greater proclivity for both suicidal thoughts and suicide attempts (Hedstrom et al., 2008; Zhang, 2010).

There were also familial integration and peer integration variables that were predictive of suicidality. Adolescents who discussed problems with peers were more likely to harbor suicidal thoughts. In contrast, the stronger the attachment of adolescents to parents the less likely they were to attempt suicide. Adolescents who ever tried drugs were more likely to report suicidal thoughts and to attempt suicide. Propensity for drug use, however, was greatly reduced by adolescents' attendance in religious activities and services but was enhanced by hanging out with friends after school.

**Table 2**  
Binary Logistic Regression Results for Drug and for Alcohol Use

Predictors	Model 2a						Model 2b					
	Drugs (1=yes; 0=no)			Alcohol (1=yes; 0=no)			Drug (1=yes; 0=no)			Alcohol (1=yes; 0=no)		
	B	exp(B)	SE	B	exp(B)	SE	B	exp(B)	SE	B	exp(B)	SE
Intercept	1.49	4.42	0.78	1.69	5.40	0.54	2.11	8.25	1.68	2.70	14.8	1.25
Male (1=yes; 0=no)	0.11	1.11	0.30	-0.03	0.97	0.22	0.32	1.37	0.39	0.09	1.09	0.25
US Born (1=yes; 0=no)	1.34	3.82	0.47 **	1.29	3.64	0.26 ***	0.78	2.17	0.49	1.07	2.91	0.29 ***
High School (1=yes; 0=no)	1.17	3.21	0.35 **	1.33	3.78	0.22	0.80	2.22	0.42	1.13	3.09	0.25 ***
Catholic (1=yes; 0=no)	-1.01	0.37	0.30 **	0.05	1.05	0.21	-0.95	0.39	0.36 *	0.06	1.06	0.25
Family Attempts (1=yes; 0=no)	0.28	1.32	0.57	0.30	1.35	0.49	0.47	1.60	0.63	0.15	1.17	0.53
Friends Attempts (1=yes; 0=no)	0.23	1.26	0.35	0.87	2.40	0.27	-0.03	0.97	0.42	0.78	2.18	0.31 *
English Grade (1=D; 2=C; 3=B; 4=A)	-0.41	0.66	0.18 *	-0.07	0.93	0.13	-0.46	0.63	0.21 *	-0.14	0.87	0.15
Math Grade (1=D; 2=C; 3=B; 4=A)	-0.13	0.87	0.16	-0.26	0.77	0.11 **	-0.11	0.90	0.18	-0.34	0.71	0.13 **
History Grade (1=D; 2=C; 3=B; 4=A)	-0.01	0.99	0.16	0.16	1.18	0.12	-0.01	1.00	0.20	0.20	1.22	0.24
Science Grade (1=D; 2=C; 3=B; 4=A)	-0.32	0.73	0.16 *	-0.14	0.87	0.12	-0.21	0.81	0.19	-0.13	0.88	0.05
Depressed (1=yes; 0=no)	0.67	1.96	0.31 *	0.58	1.78	0.21 **	1.15	3.16	0.38 **	0.64	1.89	0.39
Total number of friends	-	-	-	-	-	-	0.10	1.11	0.06	0.07	1.08	0.05
Prop. of going to friend's house (0-1)	-	-	-	-	-	-	-0.59	0.56	0.62	0.43	1.53	0.39
Prop. of hanging out with friends after school (0-1)	-	-	-	-	-	-	1.18	3.25	0.52 *	0.38	1.47	0.35
Prop. of hanging out with friends on weekend (0-1)	-	-	-	-	-	-	-0.15	0.86	0.59	0.07	1.08	0.37
Prop. of discussing problems with friends (0-1)	-	-	-	-	-	-	0.35	1.42	0.49	1.05	2.86	0.31
Attachment to Parents (1=not very close ... 5=very close)	-	-	-	-	-	-	-0.31	0.73	0.26	-0.11	0.90	0.21 **
Activities with Parents (1=not activities ... 4=all four activities)	-	-	-	-	-	-	-0.15	0.86	0.14	0.07	1.07	0.09
Religious Attendance (1=at least once a week ... 4=never)	-	-	-	-	-	-	0.45	1.57	0.19	0.17	1.19	0.13
Religious Importance (1= very important ... 1=not never)	-	-	-	-	-	-	0.21	1.24	0.20	0.14	1.15	0.15
Nagelkerke R <sup>2</sup>	23.70			25.70			28.20			32.80		

\*, \*\*, \*\*\* denotes significance at the .05, .01, .001, respectively.

**Table 3**  
*Binary Logistic Regression Results for Suicidal Thoughts*

Predictors	Model 3a		Model 3b		Model 3c		Model 3d	
	B	SE	B	SE	B	SE	B	SE
Intercept	2.27	0.78	2.72	0.81	1.52	1.56	1.79	1.59
Male (1=yes; 0=no)	-1.12	0.33	-1.16	0.31	0.79	0.42	-0.85	0.42 *
US Born (1=yes; 0=no)	0.71	2.03	0.54	1.72	0.68	1.98	0.61	1.84
High School (1=yes; 0=no)	0.46	1.59	0.35	1.42	0.12	1.13	0.05	1.05
Catholic (1=yes; 0=no)	-0.01	0.99	0.13	1.14	0.11	1.11	0.20	1.23
Family Attempts (1=yes; 0=no)	1.33	3.78	1.29	3.63	1.41	4.09	1.35	3.85
Friends Attempts (1=yes; 0=no)	1.42	4.15	1.42	4.12	1.40	4.05	1.42	4.12
English Grade (1=D; 2=C; 3=B; 4=A)	-0.07	0.94	-0.01	1.00	0.00	1.00	0.06	1.06
Math Grade (1=D; 2=C; 3=B; 4=A)	-0.13	0.88	-0.11	0.89	-0.09	0.92	-0.09	0.92
History Grade (1=D; 2=C; 3=B; 4=A)	0.19	1.20	0.19	1.21	0.09	1.10	0.10	1.11
Science Grade (1=D; 2=C; 3=B; 4=A)	-0.42	0.66	-0.37	0.69	-0.40	0.67	-0.38	0.68
Depressed (1=yes; 0=no)	0.92	2.51	0.92	2.50	0.64	1.90	0.59	1.80
Total number of friends	-	-	-	-	0.04	1.04	0.03	1.03
Prop. of going to friend's house (0-1)	-	-	-	-	0.23	1.26	0.35	1.42
Prop. of hanging out with friends after school (0-1)	-	-	-	-	-0.42	0.65	-0.63	0.53
Prop. of hanging out with friends on weekend (0-1)	-	-	-	-	-0.04	0.96	-0.05	0.96
Prop. of discussing problems with friends (0-1)	-	-	-	-	1.40	4.05	1.45	4.25
Attachment to Parents (1=not very close ... 5=very close)	-	-	-	-	-0.32	0.73	-0.30	0.74
Activities with Parents (1=not activities ... 4=all four activities)	-	-	-	-	-0.24	0.79	-0.22	0.81
Religious Attendance (1=at least once a week ... 4=never)	-	-	-	-	-0.05	0.95	-0.09	0.91
Religious Importance (1=very important ... 1=not never)	-	-	-	-	0.25	1.28	0.25	1.28
Ever tried drugs in the past 30 days (1=yes; 0=no)	1.00	2.70	1.00	2.70	-	-	0.98	2.65
Alcohol use in past 12 months (1=yes; 0=no)	0.06	1.07	0.06	1.07	-	-	-0.01	0.99
Nagelkerke R <sup>2</sup>	29.10		31.30		32.80		34.50	

\*, \*\*, \*\*\* denotes significance at the .05, .01, .001, respectively.

**Table 4**  
*Binary Logistic Regression Results for Suicide Attempt*

Predictors	Model 4a			Model 4b			Model 4c			Model 4d			
	B	exp(B)	SE	Attempt (1=yes; 0=no)	B	exp(B)	SE	Attempt (1=yes; 0=no)	B	exp(B)	SE	Attempt (1=yes; 0=no)	
Intercept	2.63	13.80	1.32	4.48	87.88	1.59	2.86	0.15	1.16	2.86	1.91	6.73	3.20
Male (1=yes; 0=no)	-0.70	0.50	0.64	-0.65	0.52	0.65	0.97	-0.53	0.59	0.97	-0.62	0.54	1.05
US Born (1=yes; 0=no)	-	-	-	-	-	-	-	-	-	-	-	-	-
High School (1=yes; 0=no)	0.38	1.47	0.62	0.18	1.20	0.69	0.87	0.71	2.04	0.87	0.46	1.58	1.03
Catholic (1=yes; 0=no)	-0.67	0.51	0.59	-0.43	0.65	0.64	0.89	-0.53	0.59	0.89	-0.23	0.80	1.01
Family Attempts (1=yes; 0=no)	-0.19	0.83	0.89 *	-0.23	0.79	0.97	1.61	-0.97	0.38	1.61	-1.93	0.15	2.41
Friends Attempts (1=yes; 0=no)	2.18	8.85	0.61 ***	2.49	12.00	0.68 ***	0.88 **	2.52	12.38	0.88 **	2.91	18.28	0.99 **
English Grade (1=D; 2=C; 3=B; 4=A)	-0.76	0.47	0.32 *	-0.77	0.46	0.34 *	0.41 *	-1.07	0.34	0.41 *	-1.05	0.35	0.44
Math Grade (1=D; 2=C; 3=B; 4=A)	-0.21	0.81	0.31	-0.19	0.83	0.32	0.42	-0.31	0.73	0.42	-0.51	0.60	0.48
History Grade (1=D; 2=C; 3=B; 4=A)	0.22	1.25	0.30	0.40	1.49	0.33	0.47	0.65	1.91	0.47	0.94	2.56	0.59
Science Grade (1=D; 2=C; 3=B; 4=A)	-0.19	0.82	0.29	0.00	1.00	0.32	0.42	-0.24	0.79	0.42	0.10	1.11	0.52
Depressed (1=yes; 0=no)	1.41	4.11	0.70	1.74	5.67	0.77 *	0.89	0.84	2.32	0.89	0.99	2.69	0.98
Total number of friends	-	-	-	-	-	-	0.15	0.04	1.04	0.15	0.00	1.00	0.17
Prop. of going to friend's house (0-1)	-	-	-	-	-	-	1.45	0.82	2.27	1.45	0.97	2.63	1.55
Prop. of hanging out with friends after school (0-1)	-	-	-	-	-	-	1.08	0.98	2.66	1.08	1.07	2.91	1.27
Prop. of hanging out with friends on weekend (0-1)	-	-	-	-	-	-	1.45	-0.62	0.54	1.45	-0.63	0.53	1.65
Prop. of discussing problems with friends (0-1)	-	-	-	-	-	-	1.25	0.46	1.58	1.25	0.27	1.31	1.36
Attachment to Parents (1=not very close ... 5=very close)	-	-	-	-	-	-	1.43 *	-1.01	0.37	1.43 *	-1.02	0.36	0.49 *
Activities with Parents (1=not activities ... 4=all four activities)	-	-	-	-	-	-	1.34	-0.25	0.78	1.34	-0.25	0.78	0.38
Religious Attendance (1=at least once a week ... 4=never)	-	-	-	-	-	-	0.41	0.16	1.17	0.41	0.16	1.17	0.47
Religious Importance (1= very important ... 1=not never)	-	-	-	-	-	-	0.43	0.20	1.22	0.43	0.23	1.26	0.46
Ever tried drugs in the past 30 days (1=yes; 0=no)	-	-	-	2.30	9.94	0.71 **	-	-	-	-	2.51	12.30	1.01 *
Alcohol use in past 12 months (1=yes; 0=no)	-	-	-	-0.57	0.56	0.75	-	-	-	-	-0.84	0.43	1.15
Nagelkerke R <sup>2</sup>	28.80			37.40				42.50			49.50		

\*, \*\*, \*\*\* denotes significance at the .05, .01, .001, respectively.



## Discussion

Hispanic adolescents who indicated having a strong attachment to parents appear to have harbored a “distaste for suicidality.” This observation is consistent with previous studies (e.g., Bridge et al., 2006; Borowsky et al., 2001; Maiman & Kuhl, 2008). In addition to being a seemingly protective factor against suicidality, strong attachment to parents also appear to have shielded these adolescents against alcohol use—a behavior which was not associated with suicidality. These results tend to signal the importance of having a close and personal relationship between parents and children.

Parents who have affective relationship and open communication with their children are “in the know” of their children’s whereabouts. They are also able to sense promptly if their children have problems, which, if unresolved or recognized belatedly, may lead children to deviant behaviors such as alcoholism, drug use, and ultimately suicide. An open and caring parent-child relationship also creates strong bonding between parents and their children. That relationship is likely to pull adolescents away from illegal activities, deviant behaviors, and pathological thoughts.

We also observed that religious integration in the form of frequent church attendance appears to be protective against substance use (i.e., drug use), but not for suicidal thoughts or attempts. Indeed, the one result that ran counter our expectation pertained to the influence of religious integration because it did not turn out to be a direct protective factor against suicidality. Instead, it appears to protect against suicidality indirectly by way of being associated with reduced drug use.

Both familial and peer integration were directly associated with suicidality, but these associations ran in different directions: peer integration was directly positively associated with suicidal thoughts, while familial integration was directly negatively associated with suicide attempts. These significant, albeit opposite, influences of integration might be attributable to the more frequent encounters and exposure of adolescents to parents and peers than to religious activities. Closeness to family provides adolescents with intimate and stable social support that forms a

protective barrier against suicidality. Immersion to peer, although providing social support, may also be a “breeding ground” for adolescents to challenge parental authority, deviate from social norms, and weaken the parent-child relationship.

Chang et al. (2010) asserted that low peer integration has an adverse effect on suicidality. This adverse effect can be brought about by feelings of loneliness and having no sense of belonging with one’s own age group, which can cause adolescents to feel isolated or disconnected from others. In our study, peer integration was directly positively associated with drug use and suicidal thoughts and was indirectly associated with suicide attempts. In particular, those who hang out with peers after school were predicted to have higher risks for drug use. This might be due to the diminished parental control and influence as a consequence of adolescents becoming more influenced by peers (on a daily basis, after school, and during weekends; and perhaps with greater frequencies and for longer durations as a consequence of adolescents having similar time schedules with peers) than by parents.

Discussing personal problems with peers was found to be a strong predictor of suicidal thoughts. Again, this might be attributable to the “lack of” or the “weakened” parental influence on an adolescent’s life as a result of the ever-decreasing opportunities to bond with parents. These diminished opportunities may be due to differences in schedules between parents and adolescents, and the similarity in schedules between peers and adolescents. Furthermore, peer integration as a risk factor for suicidality can also be interpreted as adolescents having suppressed personal issues and problems, and utilizing their peer to cope with those issues. With less matured and less experienced people to discuss problems with, adolescents may learn to escape from problems (e.g., alcohol use, drug use, suicidal thoughts) rather than facing and solving them responsibly and maturely.

In regards to our control variables, family members’ and friends’ attempts at suicide were used to measure imitation. Not only was imitation associated with alcohol and drug use, it was also positively associated with suicidality (i.e., both thoughts and attempts). In regards to drug and alcohol use, adolescents who had

friends attempt suicide were more likely to consume alcohol. This can be construed as a coping mechanism for those adolescents who have to deal with the fact of having a friend attempt suicide. Other factors that were consistent with past research were gender and depression, whereby females and those who reported to experience depression were more likely to suffer from suicidal thoughts (Cuellar & Curry, 2007).

Although attachment to parents was not a significant factor against drug use, it is critical for parents to (i) develop close, strong, and caring relationship with their children, and (ii) to have a sense of their children's problems, sentiments, and thoughts lest these children seek help only from peers, who by themselves may have a very juvenile and immature response to problems and challenges that life presents. This situation may exacerbate rather than attenuate the likelihood of suicidality (Arria et al., 2009).

Parents knowing who their children are friends with is more important than ever because peer influence, pressure, and presence are steadily becoming stronger as a result of increased interaction afforded by communication technologies. Peers, more often than not, are far better than parents at maintaining influence and presence in adolescents' life as a result of peers' "voracious" utilization of communication technologies and similarities in their activities and schedules. Indeed, the intensive, extensive, and diverse use of communication technologies among peers greatly magnify peers' presence and influence on an adolescent's attitude, behavior, sensibilities, and thoughts. At the same time, all these can greatly reduce the influence of family and religion in adolescents' social life.

Undoubtedly, drug use played a crucial mediating role between integration and suicidality. Drug use as a factor predicting suicidality is consistent with past studies (Arria et al., 2009; Cuellar & Curry, 2007; Luncheon et al., 2008). Especially noteworthy is how peer integration appears to have encouraged trying drugs, thereby resulting in increased likelihood of suicide attempt. Also, it is noted how religious integration discouraged trying drugs and thereby resulting in decreased likelihood of suicide attempt. The identification of drug use as a mediating factor opens the possibility of improving early warning

signs of suicidality given that substance use seems to manifest earlier and maybe easier to detect than suicidality itself.

## Conclusion

We investigated how integration to family, religion, and peer are linked to suicidality (Hsieh, 2017). We also examined the possible mediating role of alcohol and drug use. We performed our investigation on a subset of the U.S. population (Hispanic adolescents) that has consistently exhibited high rates of suicidal thoughts and attempts (Cuellar & Curry, 2007; Kann et al., 2014). Our results highlight how integration to these spheres of social life can be negatively, positively, or not associated with suicidality.

In regards to our first question "Does social integration protect Hispanic adolescents against alcohol and drug use?," our findings indicate that integration with family, peer, and religion have differential outcomes. Peer integration was directly and positively associated with drug use, while religious integration was directly and negatively associated with drug use. Familial integration, however, was not linked to drug use at all. With these results, we hypothesize that peer integration may have had provided adolescents with a conducive social environment that encouraged illegal activities, deviant behaviors, and pathological thoughts such as drug use and suicidal thoughts. In contrast, religious integration appeared to shield against drug use, which was associated with reduced likelihood of suicidality.

As to the question "Do high levels of integration reduce Hispanic adolescents' likelihood of suicidality?," our response is: integration in a sphere of social life does not necessarily shield against suicidality. Rather, depending on the sphere (and perhaps depending on the ethnic identity), integration appears to be either protective against, a risk factor for, or a non-factor in suicidality. In this study, Hispanic adolescents' integration to family (i.e., doing activities with parents; being emotionally close to parents) appears to be a crucial protective factor against suicidal thoughts. In contrast, integration to peers (i.e., discussing personal problems with peers) turned-out to be a risk factor for suicidal ideation. We hypothesize that peer integration

may have inspired and bred attitudes, behaviors, and thoughts that counter traditional authority figures and social norms. Alternatively, it may have encouraged escaping from problems rather than facing and solving these in a responsible, mature, and appropriate manner.

Intriguingly, religious integration showed no direct association with either suicidal thoughts or attempts. However, to answer our third question (i.e., if alcohol use and drug use among Hispanic adolescents mediated between social integration and suicidality), we observed that drug use was made more likely by peer integration (i.e., by hanging out with friends after school), but made less likely by religious integration (i.e., through participation in religious activities and services). Because drug use itself is a strong predictor of both suicidal thoughts and suicide attempts, the attenuating effect of religious integration on drug use translates to lower likelihoods of suicidality. Our results, in tandem with the surprisingly high R-squared values (e.g.,  $R^2 = 49.50$  for suicide attempt) of our logistic regression models, highlight the potential of improving early detection of suicidality to be at the nexus of social integration and substance use.

### Limitations

Our investigation into the relationship among suicidality, substance use, and social integration has limitations, which the reader must be aware of. First, while we analyzed data from a high-quality nationally representative sample with sufficiently large sample size, it is still an old dataset. We encourage future researchers to use a more recent nationally representative dataset that is reflective of the social realities and social issues in contemporary digital society (e.g., cyberspace and cyberbullying). Second, our dataset comprises a mix of adolescents from various Hispanic ethnic groups. Focusing on a specific ethnic group will yield the much-needed granular results and refined modeling of the predictors and the mediators of suicidality (Cuellar & Curry, 2007). Third, our use of secondary data generates concerns in terms of measurement validity (e.g., content validity). That said, we encourage future researchers to engage in primary data collection and analytical approaches that combine both quantitative and qualitative approaches

(e.g., face-to-face surveys in tandem with in-depth unstructured interviews).

### Conflict of interest

None.

### Ethical clearance

The study was approved by the institution.

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