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A longitudinal examination of social connectedness and suicidal thoughts and behaviors among adolescents

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Background: This study examines the relationship between three different types of social connectivity and suicidal thoughts and behaviors. **Methods:** Using the Add Health dataset, three domains of social connection were explored: parental connection, school connection, and social integration. Logistic regression was used to examine whether changes over time in connectedness predicted suicidal thoughts and behavior. **Results:** Youth whose difference scores on social integration and parental connectedness increased were less likely to experience suicidal ideation. Increases in difference scores for perceived school connectedness protected youth who reported ideation from engaging in a suicide attempt. **Conclusions:** Perceptions of social connection are key factors in understanding adolescent suicidal thoughts and behaviors. It is important to consider social connection across different relationship contexts.

Key Practitioner Message

- Suicide is the second leading cause of death among adolescents.
- Increasing social connectedness can provide a protective effect against suicide.
- Due to the dynamic quality of adolescent's social connectivity, schools, and counselors should regularly check adolescents' perceptions of social connection.
- The treatment of adolescents who experience suicidal thoughts and behaviors may benefit from focusing on increasing opportunities for, and skills to facilitate, social connection.

Keywords: Suicide; suicidal behavior; connectedness

Introduction

Suicide is a major health concern affecting over 44,000 people annually in the United States (Drapeau & McIntosh, 2016). Suicide is the 10th leading cause of death overall and the 2nd leading cause of death to those classified as young (ages 15–24 years of age). More important among adolescences is the frequency of suicide attempt behavior. Adolescents attempt to death ratio is 25:1, which is much higher than the 4:1 ratio among the elderly (American Foundation for Suicide Prevention, 2017). In other words, for one adolescent death due to suicide there are 25 attempts made. Additionally, suicide and suicide attempts can cost society in medical expenses and lost productivity. Estimates indicate that suicidal behavior can cost as much as \$93.5 billion annually through costs such as medical expenses due to injuries or loss in productivity due to time away from the job market (Shepard, Gurewicz, Lwin, Reed, & Silverman, 2015). Clearly, there is a need to better understand the risk and protective factors associated with suicidal behavior; this knowledge can have important preventive implications.

This study utilizes the Longitudinal Study of Adolescent to Adult Health (ADD Health) to examine ways in which changes over time in context-specific social

connection predict suicidal ideation and suicide attempt. Specifically, we focus on the longitudinal associations between social connectedness and suicidal thoughts and behaviors. We examine adolescents' general social, family, and school connectedness.

Adolescence is a period of transition and renegotiation for relationships and social ties, particularly with regard to family and school contexts (e.g., Eccles & Roeser, 2011; Laursen & Collins, 2009). Thus, it is important to examine the implications of change over time in perceptions of family and school connections when assessing developmental outcomes. Although a major developmental task of adolescence is autonomy development, the family and the school can help adolescents establish autonomy in a way that still allows for strong social ties (Goldstein, Davis-Keen, & Eccles, 2005; McElhaney, Allen, Stephenson, & Hare, 2009). The Add Health data presents an excellent opportunity for studying these issues using a large, nationally representative sample from the United States; however, no study to date has examined change over time in connection as a predictor of suicidal thoughts and behaviors. Thus, using the Add Health dataset, this study examines changes over time in youth perceptions of parental connectedness, school connectedness, and social integration, and their influences on suicidal thoughts and behavior.

Parental connectedness and suicide

Although previous research has studied the impact of parenting on youth suicide, studies with a specific focus on youths' perceptions of connection with their parents has been scant. The available related evidence, however, suggests that parenting and parent-child relationship characteristics contribute to risk for suicidal thoughts and behaviors. For example, a meta-analysis by McLeod, Weisz, and Wood (2007) examining the literature on parenting and childhood depression found that, while parenting was associated with childhood depression, the amount of variance explained by parenting was small. Lai and McBride-Chang (2001) found that the nature of the parent-child relationship could act as either a risk or protective factor in the development of suicidal ideation. Parenting styles that were authoritarian, that lacked warmth, and that exhibited overcontrol by the mother were significantly related to suicidal ideation among a sample of 15–19-year-old Hong Kong students. In contrast, a positive family climate buffered against the development of suicidal ideation.

A few studies have specifically examined adolescents' perceptions of family connection and suicide risk. Kaminski et al. (2010) examined the relationship between a number of social connectedness variables and self-directed violence. In this research, family and school connectedness both predicted lowered self-directed violence, with family connectedness emerging as the strongest predictor. Similarly, Stone, Luo, Lippy, and McIntosh (2015) found that family, other adult, and school connectedness were all protective against suicidal ideation. Additionally, family and other adult connectedness was protective against suicide attempt. Once more, family connectedness was the strongest protective factor against suicidal thoughts and behaviors. Most recently, Kuramoto-Crawford, Ali, and Wilcox (2016) examined parent-child connectedness, using the ADD Health dataset. They found that those who reported higher parent-child connectedness in adolescence were less likely to report suicide ideation in both adolescence and adulthood. These studies demonstrate the need for additional research focus on adolescents' perceptions of family connection and suicide risk, especially using longitudinal data, as such data has been limited and many of the findings are based on cross-sectional designs.

School connectedness and suicide

Adolescents' school experiences are linked to numerous indicators of adjustment, including academic achievement and motivation, mental health, and self-concept, and identity development (e.g., Eccles, Lord, & Midgley, 1991; Eccles & Roeser, 2011). Given the central role of school to youth development, it is not surprising that the school context is relevant to the understanding of suicidal thoughts and behaviors. For example, a study by Young, Sweeting, and Ellaway (2011) demonstrated that students who had low school engagement were more likely to report suicidal behavior. Although holding Catholic religious beliefs protected against suicide, students attending a Catholic school were at greater risk of reporting suicidal behavior, with students whose religious beliefs differed from that of the school having greater likelihood of suicide attempt.

Using the ADD Health data, McNeely and Falci (2004) examined the relationship between school connectedness, teacher caring, and a number of health-risk behaviors including suicidal thoughts and behaviors. Results indicate that perceptions of teacher caring at wave 1 protected against suicidal thoughts and behaviors initiation from wave 1 to wave 2 (which was collected 1 year later), whereas school connection at wave 1 was not. However, these authors did not examine changes over time in perceptions of school connection (from wave 1 to wave 2); changes in perceptions of school connection may be an important contributing factor to changes in suicide risk.

Similarly, Kidd et al. (2006) also used ADD Health data to examine the relationship between school connectedness and suicidal thoughts and behaviors, this time incorporating measures of peer relations and parental relations. A main finding was that parental relations had the strongest protective effect on suicidal behavior with school relations strengthening this protective effect. However, similar to the McNeely and Falci (2004) study, Kidd et al. (2006) relied on wave 1 scores for the connectivity variables, rather than examining change in connectivity from wave 1 to wave 2. Thus, it remains unclear how changes over time in social connection relate to suicide risk. Finally, in a meta-analysis, Marraccini and Brier (2017) found support for school connectedness as a protective factor against suicidal thoughts and behaviors, calling on increases in school connectedness as potential intervention and prevention efforts to explore.

Social integration and suicide

It is well documented that physical and psychological health are at risk when social connection is lacking. The effects of social exclusion have been well documented and include increased aggressiveness, lowered intelligence, and impairment in self-regulation (Baumesiter, DeWall, Ciarocco, & Twenge, 2005; Baumeister, Brewer, Tice, & Twenge, 2007). Additionally, in examining the relationship between bullying, social connectedness, and suicidal behavior, Arrango, Opperman, Gipson, and King (2016) discovered that lower levels of social connectedness and increased levels of exposure to bullying, as both a victim and perpetrator, was associated with increased suicidal thoughts and behaviors.

Addressing the claims of Durkheim more directly, Duberstein et al. (2004) utilized a case-control design comparing people who died by suicide with living controls. They found that marital status, social interaction, and religious involvement, all of which have been historically used as proxies of social integration, were significant predictors of suicide even when controlling for affective disorder and employment status. Testing the role of belonging in suicide attempt among those addicted to opiates, Conner, Britton, Sworts, and Joiner (2007) found that thwarted belonging predicted those attempting suicide while measures of loneliness and perceptions of burdensomeness did not, when controlling for belonging. Focusing extensively on Native American populations, Hill (2009) found that belonging was negatively related to suicidal ideation. Belonging was significantly associated to participation in the community.

In a systematic review, Hatcher and Stubbersfield (2013) examined studies evaluating the relationship

between a sense of belonging and suicidal thoughts and behaviors. They found support for the relationship between low sense of belonging and increased risk of suicide ideation and behavior. However, the relationship between belonging and suicidal thoughts and behaviors was relatively weak and confounding variables could not be dismissed as potentially influencing this relationship (e.g., the role of burdensomeness). Other work has examined the literature on the role of connectedness and suicide in greater depth and found support for connectedness's role as a protective factor lowering the risk of suicide (Whittlock, Wyman, & Moore, 2014).

These studies suggest that in addition to examining context-specific senses of connection, it is important to assess a sense of general belonging or integration when examining suicidal thoughts and behaviors. Because adolescence is a time of rapid transition in self-concept and social relationships, it may be that changes over time in perceptions of social integration are especially influential in understanding adolescent suicidal thoughts and behaviors. To our knowledge, this issue has not been explored longitudinally with the ADD Health data or any other large, longitudinal, representative sample.

Gender and suicidal thoughts and behaviors

Gender differences in suicidal thoughts and behaviors are also important to include in an analysis of youth suicide. The World Health Organization has reported that, due to efforts to decrease maternal mortality rates, suicide is now the leading cause of death world-wide for 15–19-year-old girls (WHO, 2014). While death by suicide is more common among men than women, women attempt at a greater rate (Drapeau & McIntosh, 2016). Especially in adolescence, suicide risk is greater among females than among males (Lewinsohn, Rohde, Seeley, & Baldwin, 2001). Given that there exists compelling evidence for differences in suicide ideation and attempt rates between males and females, gender will be examined throughout the current analysis.

Theoretical perspectives

The current research was grounded in two theoretical perspectives of suicide: Durkheim's classic work on social integration and Joiner's Interpersonal-Psychological Theory of Suicide (IPTS; Durkheim, 1897; Joiner, 2005).

Durkheim wrote about the relationship between social integration and suicidal thoughts and behaviors from a sociological perspective (Durkheim, 1897). According to Durkheim, suicide was the highest in nations that had high and low levels of social integration and social regulation, while lower suicide rates occurred in nations with moderate levels of both. Although this classic theory of suicide has generated a great deal of research, sociological research on suicide has been criticized for focusing too closely on the traditional formulation of Durkheim's theory without expanding on the original conceptualization (Lester, 2014).

More recently, the *Interpersonal-Psychological Theory of Suicide* (IPTS) has generated a plethora of research studies. The IPTS postulates that suicide is the result of the co-occurrence of three risk factors: (a) thwarted belonging, (b) perceived burdensomeness, and (c) the acquired capability for suicide (Joiner, 2005). Thwarted

belonging is similar to the concept of social integration, focusing on the perception that one has weak social ties. Those who experience thwarted belonging feel that they do not fit into social groups, have perceptions that no one cares about them, and experience a sense of loneliness (Joiner, 2005). Given our focus on understanding the role of social connectedness, both Durkheim and the IPTS model were ideal theoretical frameworks from which to build our study.

The current study

Motivated by this previous research, the primary goal of this study was to examine how changes over time in adolescents' perceived connections to their parents and to school predict changes in suicidal thoughts and behaviors. We also examined how changes in perceptions of social integration predicted changes in suicidal thoughts and behaviors. A one-year time period was examined, using waves 1 and 2 of the ADD Health dataset. We hypothesized that when perceptions of social connectedness to parents decreased, risk for suicidal thoughts and behaviors would increase (H1). We also expected that when adolescents' perceived decreasing connectedness to school, risk for suicidal thoughts and behaviors would increase (H2). Similarly, we predicted that when perceived social integration decreased over time, suicidal thoughts and behaviors would increase (H3). Additionally, given that adolescent girls report more suicide ideation and attempt behavior than do adolescent boys, we hypothesized that gender would predict suicide ideation and attempt status, with female participants reporting higher rates of both (H4). Finally, given the push in recent years to focus on research that differentiates those reporting suicidal ideation from those attempting suicide, we focused on the role of social connectedness in the pathway from suicidal ideation to suicide attempt (Klonsky & May, 2014, 2015). Some research has already begun to focus on those suffering from suicidal ideation and the pathways to suicide attempt (e.g., Gunn, Lester, & McSwain, 2011).

This study stands apart from previous investigations in its use of an in-depth longitudinal dataset on adolescent health. Previous work, such as that of McNeely and Falci (2004) and Kidd et al. (2006), while utilizing the ADD Health to examine similar questions, did not examine the changes in connectivity over time. Additionally, this study examines multiple forms of connectedness (i.e., social, parental, school) and their relationship to suicidal behavior. This study allows us to look at changes in reported social connectedness, school connectedness, and parental connectedness and their relationship with suicidal behavior. Although ADD Health data were collected between 1994 and 1996, the data still represent a unique, large-scale, representative portrait of adolescent development. Thus, important insights into adolescent suicidal behavior can still be illuminated, using this dataset.

Method

Data

The National Longitudinal Study of Adolescent to Adult Health (ADD Health) is a nationally representative sample of adolescents from grades 7 to 12 in the United States (Harris et al., 2009). Four waves of data were collected. This study utilizes

Wave 1 and Wave 2 of the public use data set. Only Waves 1 and 2 were utilized as by Wave 3 the sample was beyond adolescence and moving into young adulthood and the focal questions of this study pertained to adolescence. Additionally, many of the questions used in the current analyses were no longer asked by Wave 3. The initial wave (Wave 1) was collected during the 1994–1995 school year, and Wave 2 was collected in 1996. Details on this sample can be seen in Table 1. The sample is nationally representative with a selection process that ensured racial and ethnic diversity. For an in-depth review of the sampling procedures and ethical guidelines utilized please reference <http://www.cpc.unc.edu/projects/addhealth>. The ADD Health public use data can be accessed through the University of Michigan’s Data Sharing website (<https://www.icpsr.umich.edu/icpsrweb/>).

Participants

Participant data is also summarized in Table 1. Participants in Wave 1 of the public use data ranged in age from 12 to 21 years of age (51.6% female), with an average age of 16.04 years. The sample is racially diverse with a retention rate from Wave 1 to Waves 2 of 71%, with all students still enrolled in high school being included in the sample (Harris, 2013). In-home interviews consisted of an electronic, computer-assisted portion and a self-administered portion to deal with more sensitive questions. All questions used in this study were collected using the in-home computer-assisted interview, except for the suicidal thoughts and behaviors questions which were part of the self-administered portion.

Sampling

Eighty high schools were selected and sorted by size, school type, census region, level of urbanization, and the percentage of white students. Of the original 80 high schools, only 52 were eligible and agreed to participate in the study which prompted researchers to select another 28 schools who were matched with the 28 excluded schools. Additionally, each high school was asked to provide a list of feeder schools (middle schools and junior high schools) who would have students entering the high school. In total, 145 middle, junior high, and high schools

participated in the study with a total of 90,118 students. An in-depth review of the sampling procedures can be found by examining Harris (2013).

Measures

Suicide ideation. Suicide ideation was measured at Wave 1 and Wave 2 by the question ‘During the past 12 months, did you ever seriously think about committing suicide?’ In the current analyses, this variable was coded (0) indicating no ideation in the past year and (1) representing any ideation in the past year. This question was developed for use in the ADD Health and is similar to those used in other large National datasets (e.g., National Survey of Drug Use and Health, Youth Risk Behavior Survey).

Suicidal behavior. Suicide attempt was measured by the question ‘During the past 12 months, how many times did you actually attempt suicide?’ Participants responded using a 4-point Likert scale ranging from 0 (0 times) to 4 (6 or more times). The variable was recorded into a dichotomous variable with 0 indicating no attempt in the past year and 1 indicating the at least one attempt in the past year, as the focal questions of this study pertained to any suicide attempt as opposed to investigating the severity of the suicidal behavior. This question was developed for use in the ADD Health and is similar to those used in other large National datasets (e.g., NSDUH, YRBS).

Social integration. A measure of social integration was computed by summing the scores on five questions that were present in both Wave 1 and Wave 2. This scale had acceptable internal consistency (Wave 1 and 2 Cronbach’s $\alpha = .70$). The questions used to compute this variable asked participants if, in the past week, they, (1) ‘felt lonely’, (2) felt ‘people were unfriendly to you,’ (3) ‘felt that people disliked you,’ (4) ‘feel socially accepted,’ and (5) ‘feel loved and wanted.’ Questions 1–3 were scored on a 4-point Likert scale from never/rarely (0) to most/all of the time (3). Questions 4 and 5 were scored on a 5-point Likert scale from strongly agree (1) to strongly disagree (5). Items were reverse scored so that higher scores corresponded to greater social integration.

School connectivity. The measure for school connectivity was computed by summing two items present at Wave 1 and Wave 2 and had acceptable internal consistency (Wave 1 Cronbach’s $\alpha = .75$; Wave 2 Cronbach’s $\alpha = .77$). The questions that made up this scale asked: (1) you feel close/last year you felt close, to people at your school, (2) you feel like/last year you felt like, you are part of your school. These questions were scored on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Higher scores indicated greater school connectivity. Previous work has supported the use of these questions for the computation of a scale (McNeely & Falci, 2004).

Parental connectivity. The measure for parental connectivity was computed by summing eleven items that were present at both Wave 1 and Wave 2. The measure for parental connectedness had good internal consistency at both waves (Wave 1 Cronbach’s $\alpha = .88$; Wave 2 Cronbach’s $\alpha = .87$). The questions that made up this scale asked about the quality of the child–mother and child–father relationship. With regard to child–mother relationship, the scale included measures of the following: (a) Closeness felt to mother figure (b) perceptions of caring of mother figure (c) perceptions of warmth and loving of mother figure (d) mother’s encouragement of independence (e) satisfaction with communication with mother figure and (f) overall satisfaction with mother–child relationship.

With regard to the child–father relationship, the scale included measures of the following: (1) Closeness to father-figure (2) perceptions of how much the father figure cares about child (3) perceptions of father warmth and loving (4) child’s satisfaction with communication with father and (5) overall satisfaction with child–father relationship. Each of these questions were measured on a 5-point Likert Scale ranging from 1 (not at all) to 5 (very much) with higher scores indicating stronger

Table 1. Descriptive statistics of the sample

	Wave 1	Wave 2
Total sample	6504	4834
Age range	12–21 years ^a	11–21 years
Average age	16.04 years	16.02 years
Race/Ethnicity	% ^b	%
White people	57.2	57.2
Black/African American people	22.5	22.7
Native American/American Indian	0.6	0.6
Asian/Pacific Islander	3.2	3.1
Hispanic/Latino(a)	11.2	11.2
Other	5.4	5.4
Suicidal thoughts and behaviors	N (%) ^c	N (%)
Reported suicide ideation	821 (12.6)	523 (10.8)
Reported suicide attempt	230 (3.5)	192 (4.0)
Females reporting suicidal ideation	518 (63.1)	264 (50.5)
Males reporting suicidal ideation	303 (36.9)	259 (49.5)
Females who have attempted suicide	160 (69.6)	140 (72.9)
Males who have attempted suicide	70 (30.4)	52 (27.1)

^aNo age variable exists for Wave 1, age was computed by subtracting year of interview by year of birth.

^bPercentages of the total sample (W1 N = 6504, W2 N = 4834).

^cPercentages based on subsample of suicidal participants (W1 N = 821, W2 N = 523).

parental connectedness. A similar scale to this has been computed from the ADD Health data in previous analyses (Kuramoto-Crawford et al., 2017).

Difference Scores in connectedness variables. To ascertain how connectedness changed from Wave 1 to Wave 2, we computed difference scores from Wave 1 to Wave 2 in the predictor variables. The score of each predictor variable (social integration, school connectedness, and parental connectedness) at Wave 1 was subtracted from the score of each predictor at Wave 2. This computation was used to illuminate how change from Wave 1 to Wave 2 in social connection predicts suicidal thoughts and behaviors at Wave 2. This technique results in the variables indicating change in the predictors between Wave 1 and Wave 2. A positive score indicates that between Waves 1 and 2 the predictor (e.g., social integration) increased, while a negative score indicates a decrease in the predictor between Waves 1 and 2. This method allows us to assess the impact of changes in social connectivity and their relationship with subsequent suicidal behavior.

Data analysis

Statistics were run using IBM SPSS Statistical Package, Version 23. Given the nature of the variables examined, continuous predictor variables and dichotomous outcome variables, logistic regression was utilized to examine the role of differences in scores between wave 1 and wave 2 for the predictor variables in predicting suicide ideation and attempt at wave 2. Model 1 predicted suicide ideation from the general sample of adolescents while Model 2 predicted suicide attempt among those who experienced suicide ideation at waves 1 and 2. As stated previously, there has been a push in recent years for research that focuses on the pathway from suicide ideation to suicide attempt (Klonsky & May, 2014, 2015). Given this, our analysis of those who reported a suicide attempt was restricted to those reporting suicidal ideation. It is also important to note that in the current sample, no adolescents reported suicide attempts who did not also report suicide ideation and therefore it is important to understand this pathway. Additionally, due to the low probability of our outcome variables (suicide ideation and suicide attempt), sampling weights were not used in these analyses.

Results

Descriptive statistics: Suicidal thoughts and behaviors

In the first set of analyses, we computed descriptive data on participants' suicidal thoughts and behavior. Those reporting suicide ideation at Wave 1 represented 12.6% of the population (821 participants of the 6504) while the vast majority of participants (86.3%) indicated they had not experienced suicide ideation in the previous year. Of

the 821 participants reporting suicidal ideation, 63.1% were female and 36.9% were male. Sixty-nine participants had no information collected on suicide ideation (1.1%). Of the 6504 participants in Wave 1, only 817 reported information on suicide attempt in the previous year (12.6%) with 87.4% of the sample not reporting information on suicide attempt. This is a result of the design of the ADD Health as only those who had indicated experiencing suicide ideation were asked about suicide attempt. Of this subsample, 587 (71.8%) reported no attempt in the past year while 230 (3.5%) reported an attempt. Of the 230 participants who reported an attempted suicide in the sample, 69.6% were female and 30.4% were male.

In Wave 2, 4276 (88.5%) reported no ideation, 523 (10.80%) reported ideation in the past year, and 35 (0.7%) had no information collected on ideation. Males and females were both evenly represented within the sample of those reporting suicidal ideation, with 49.5% male and 50.5% female. There were 523 participants who answered questions on their suicidal behavior (10.8%). Of these 523 participants there were 331 (6.8%) who reported no attempt history and 192 (4.0%) who reported an attempt in the past year. Females were over-represented in the suicide attempt group as compared to males (72.9% vs. 27.1%, respectively).

Descriptive statistics: Social connection

In the second set of analyses, descriptive statistics were computed on the social connection variables. Gender differences across the social connection variables are illustrated in Table 2 for both Waves 1 and 2. As indicated, females, as compared to males, reported greater connection to school at Wave 2. However, males, as compared to females, reported more social integration and greater connection to parents at Wave 1, and also greater connection to parents at Wave 2. However, effects sizes were relatively small (Cohen's $D < .2$), so any interpretation of gender differences across social connectedness variables must be done hesitantly.

Bivariate relations among variables

For the third set of analyses, we examined bivariate relations among study variables (displayed on Table 3). All significant relationships were in the expected direction. To examine specific bivariate relations please see Table 3. For example, social integration at Wave 1 had a significant and positive relationship with the other social

Table 2. Gender differences in social connectedness scores (Wave 1 $N = 6504$; Wave 2 $N = 4834$)

Connectedness variables	N males females	Males		Females		<i>t</i>	<i>df</i>	Sig.
		mean (<i>SD</i>)	mean (<i>SD</i>)					
Social Integration W1	3132 3343	4.31 (0.61)	4.19 (0.68)	7.51	6473	.001		
Social Integration W2	2302 2513	4.36 (0.59)	4.26 (0.65)	5.31	4813	.001		
School connectedness W1	3087 3277	7.58 (1.77)	7.54 (1.84)	.923	6362	.356		
School connectedness W2	2114 2328	7.56 (1.74)	7.55 (1.83)	.246	4440	.806		
Parental connectedness W1	2101 2188	13.23 (1.61)	12.86 (1.90)	6.81	4287	.001		
Parental connectedness W2	1592 1718	13.01 (1.59)	12.67 (1.88)	5.63	3308	.001		

Table 3. Pearson correlations among the predictor and outcome variables (Wave 1 *N* = 6504; Wave 2 *N* = 4834)

Variables	1	2	3	4	5	6	7	8	9	10
1. Suicidal Ideation W1	–									
2. Suicidal Ideation W2	.34*	–								
3. Suicide Attempt W1 ^a	–	.15*	–							
4. Suicide Attempt W2	.16*	–	.31*	–						
5. Parental Connectedness W1	–.25*	–.16*	–.05	–.15*	–					
6. Parental Connectedness W2	–.19*	–.19*	–.05	–.15*	.65*	–				
7. Social Integration W1	–.27*	–.17*	–.09*	–.16*	.41*	.31*	–			
8. Social Integration W2	–.21*	–.22*	–.08*	–.10*	.30*	.39*	.51*	–		
9. School Connectedness W1	–.14*	–.07*	–.10*	–.06	.27*	.23*	.35*	.23*	–	
10. School Connectedness W2	–.12*	–.10*	–.04*	–.11*	.22*	.25*	.30*	.36*	.46*	–

^aAll participants reporting a suicide attempt report ideation.
**p* < .001.

connectedness variables at Wave 1. Also, we found a significant positive relationship between suicide ideation at Wave 1 and 2, and a negative relationship between suicide ideation and social integration at wave 1.

Predicting suicidal thoughts and behaviors from changes in social connection

The next step in the analysis was to assess ways in which change over time in social connectivity predicts suicidal thoughts and behaviors. Thus, we used the newly computed difference scores (reported above) as predictors. Logistic regression was used to determine the impact of our hypothesized predictor variables on the likelihood of reporting suicide ideation and suicide attempt.¹

The first logistic regression (Model 1) focused on predicting suicidal ideation at Wave 2. This analysis included our three hypothesized predictor variables (difference scores in social integration, school connectivity, and parental connectivity) predicting the likelihood of suicide ideation at Wave 2. Gender and suicide ideation at Wave 1 were included in the analysis as controls. The second logistic regression (Model 2) focused on predicting suicide attempt at Wave 2. This analysis included only the 233 youth who reported suicidal ideation at both wave 1 and wave 2 to test the pathway from ideation to attempt (Klonsky & May, 2014, 2015). This logistic regression included our hypothesized predictor variables, gender, and suicide attempt at Wave 1. It was important to include gender in the analyses based on the well-documented literature showing that adolescent girls, as compared to adolescent boys, are at a greater risk for suicidal thoughts and actions (Gunn & Goldstein, 2016).

Predicting suicidal ideation from changes in social connection

Model 1, which included five predictor variables (social integration difference score, school connectivity difference score, parental connectivity difference score, gender, and suicide ideation at Wave 1) was statistically significant, χ^2 (5, *N* = 4753) = 264.87, *p* < .001. This result indicates that the model distinguished between those who reported no suicide ideation and those who did. The model explained between 8.6% (Cox & Snell *R*²) and 18.1% (Nagelkerke *R*²) of the variance in suicide ideation status and correctly classified 90.1% of cases. As can be seen in Table 4, four of the five predictors made a unique contribution to the model (difference score for social integration, difference score for parental connectedness, gender, and suicide ideation at Wave 1). The strongest predictor of reporting suicide ideation at Wave 2 was suicide ideation at Wave 1 (odds ratio of 8.78), indicating that youth who reported suicide ideation at Wave 1 were almost nine times more likely to report suicide ideation at Wave 2. Gender had the next highest odds ratio (1.83). Females in our study were almost two times more likely than males to report suicide ideation. Social integration difference scores and parental connectivity difference scores also emerged as significant negative predictors of suicidal ideation (odds ratios of 0.92 and 0.85, respectively). As the mean scores for social integration and parental connectivity difference scores increased from Wave 1 to Wave 2, the likelihood of reporting suicidal ideation at Wave 2 decreased.

Table 4. Model 1: logistic regression predicting likelihood of reporting suicidal ideation in Wave 2 of ADD health (*N* = 4753)

Difference scores	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	<i>p</i>	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Social Integration	–0.09	.03	7.76	1	.005	0.919	0.87	0.98
School connectedness	–0.04	.04	1.17	1	.279	0.960	0.89	1.0
Parental connectedness	–0.16	.04	13.28	1	.001	0.851	0.78	0.93
Gender	0.61	.14	19.31	1	.001	1.837	1.40	2.41
Suicide Ideation	2.17	.14	233.42	1	.001	8.78	6.64	11.60

–2 Log likelihood = 1540.213, Cox & Snell *R*² = .087, Nagelkerke *R*² = .183.

Table 5. Model 2: Logistic regression predicting likelihood of reporting suicide attempt in Wave 2 of ADD health ($N = 230$)

Difference scores	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	<i>p</i>	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Social Integration	0.11	.09	1.58	1	.209	1.12	0.94	1.32
School connectedness	-0.25	.11	5.18	1	.023	0.78	0.63	0.97
Parental connectedness	0.06	.12	0.22	1	.641	1.06	0.83	1.35
Gender	0.32	.47	0.45	1	.501	1.38	0.54	3.48
Suicide Attempt	1.69	.43	15.27	1	.001	5.44	2.33	12.72

-2 Log likelihood = 138.473, Cox & Snell $R^2 = .202$, Nagelkerke $R^2 = .270$.

Predicting suicide attempt from changes in social connection

The second logistic regression (Model 2) that included five predictor variables (social integration difference scores, school connectedness difference scores, parental connectedness difference scores, gender, and suicide attempt at Wave 1) was statistically significant, $\chi^2(5, N = 230) = 25.99, p < .001$. Thus, the model distinguished between those who reported a suicide attempt and those who did not among the subsample of those who experienced consistent suicide ideation between Waves 1 and 2. The model as a whole explained between 18.6% (Cox & Snell R^2) and 24.9% (Nagelkerke R^2) of the variance in suicide attempt status and correctly classified 54.8% of cases. As shown in Table 5 only two predictors (suicide attempt at Wave 1 and changes in school connectedness) contributed significantly to the model. Suicide attempt at Wave 1 had an odds ratio of 5.44, indicating that those who experienced suicidal ideation who reported a suicide attempt at Wave 1 were more than five times as likely to report a suicide attempt at Wave 2. School connectivity had an odds ratio of 0.77, indicating that those reporting suicidal ideation who reported increases in school connectedness had a lower likelihood of reporting suicide attempts at Wave 2.

Discussion

This study investigated longitudinal associations between changes in social connection and suicidal behavior during adolescence. Suicide is the 10th leading cause of death for the general population and it is the 2nd leading cause of death for adolescents (Drapeau & McIntosh, 2016). Given the dire public health concern that suicide presents, it is imperative to better understand risk and protective factors. Using a large, nationally representative sample (ADD Health), we assess whether changes in perceptions of social connection over time are related to suicidal thoughts and behaviors. Building on previous theory and research focusing on social connection and suicidal behavior (e.g., Durkheim, 1897; Joiner, 2005; McNeely & Falci, 2004, 2004; Young et al., 2011), we hypothesized that adolescents with decreases in perceptions of social connectedness would be at an increased risk for suicidal thoughts and behaviors. Our measures of social connectedness focused on changes in perceptions of connection from Wave 1 to Wave 2, and included changes in perceptions of parental connection, changes in perception of school connection, and changes in perception of general social integration.

Our predictions were partially supported in the analyses. Changes in parental connectedness and social integration were both found to be protective factors against the reporting of suicidal ideation (H1 and H2). Adolescents who reported increases in levels of parental connectedness over time also reported less suicidal ideation at Wave 2. Additionally, adolescents who reported increases in social integration over time were also less likely to report suicidal ideation (H3). When predicting suicide attempt among those who reported suicide ideation at Waves 1 and 2, however, only past suicide attempt behavior and school connectivity were significant. The IPTS model of suicidal behavior explains the leap from motivation (thwarted belonging + perceived burdensomeness) to attempt through the construct of the acquired capability for suicide. According to this theoretical model, suicide ideation is the byproduct of failures to feel socially connected and viewing oneself as a burden on those around you, but only through exposure to painful and provocative experiences can ideation morph into behavior (Joiner, 2005). It is therefore plausible that past suicide attempt, a potential proxy measure of the acquired capability, was related to attempt behavior due to its connection to increases in the acquired capability for suicide. With regard to the importance of school connectivity in lowering suicide attempt likelihood, interpretations are less clear and more suspect until future work replicates these findings. Perhaps those who are facing high enough suicidal thoughts and behaviors as to attempt are more impacted by school connectivity because they are noticed more and given the necessary aid to lower their suicidal thoughts and behaviors? At this point and with the current data, a clear answer for this finding cannot be clarified. Future work is needed to tease out the specifics of this finding. One potentially beneficial avenue of future research lies in the growing body of literature on attachment and suicidal behavior. Findings have indicated the role attachment to parents and peers may have on self-harm and suicidal behavior and future work should examine attachment style alongside connectedness (e.g., Glazebrook, Townsend, & Sayal, 2015; Zisk, Abbott, Ewing, Diamond, & Kobak, 2017).

As noted above, adolescence is a time characterized by intense social transition. Adolescents' relationships with their family, peers, school, and community rapidly transform during the shift toward autonomy (Goldstein et al., 2005; McElhaney et al., 2009; Zimmer-Gembeck, Ducat, & Collins, 2011). Thus, some degree of fluctuation in perceptions of social connection is typical, and likely shifts in both directions in terms of favorability

(although this study is not able to address potential day-to-day fluctuation). This being said, the current results demonstrate that adolescents who experience relatively large shifts in the direction of feeling less socially connected are at an increased risk for suicidal thoughts and behaviors. It is important to note that this result emerged even after controlling for previous suicidal thoughts and behaviors. While it was beyond the scope of this study to examine predictors of change in social connectivity, the current results suggest that this would be an important direction for future research. Why do some adolescents decrease (or increase) in perceptions of connectivity more than others?

In addition to changes in social connectedness, gender and previous ideation, and attempt history were included in the models as controls. As was hypothesized, suicide ideation at Wave 1 and suicide attempt at Wave 1 predicted suicide ideation and suicide attempt at Wave 2, respectively. This supports the well-established finding that past suicidal thoughts and behaviors is a risk factor for current and future suicidal thoughts and behaviors (e.g., Horwitz, Czyz, & King, 2015; Lewinsohn, Rohde, & Seeley, 1994). Gender was also a significant predictor, with females exhibiting greater suicide ideation compared to their male counterparts. This is consistent with the literature on gender and suicide ideation (e.g., Gunn & Goldstein, 2016). It is not clear why a similar gender difference did not emerge for suicide attempt. One potential explanation may be the small number of participants attempting suicide (230 in Wave 1) in the sample which potentially lowered the likelihood of detectable gender differences.

Given the significant public health concern of suicide, the present findings are an important contribution to the literature. Rates of suicide are on the rise, with rates for young females (aged 10–14) and older males (aged 45–64) increasing the most (Curtin, Warner, & Hede-gaard, 2016). Based on the current findings as well as existing literature, a clear implication is to increase community- and school-based opportunities for involvement in social activities (e.g., sports, clubs, and volunteer work). Such participation provides important opportunities to establish social bonds and connection. Adolescents should also receive social skill assistance training to increase their social skills and interpersonal relationships. Additionally, with the importance of parental connection highlighted by these findings, efforts to promote positive family connections could have vital, life-saving effects. For example, community-based parent-education classes could be offered where parents are taught about adolescent development. Stone et al. (2017) provide an excellent source for evidence-based interventions that can be utilized.

Limitations of this study should be noted. Wave 1 of this study was collected in 1994–1995, and Wave 2 in 1996. Given the close proximity in time between these two measurement periods, the longer-term effects of our predictors on suicide risk in later adolescent to early adulthood is less clear. Although ADD Health data collection has continued for an additional two waves, variables measuring our predictor variables were not continued past the initial two waves. Thus, we were unable to address longer term impacts of these variables based on available data. Future research

should address social connection as respondents move into adulthood. Another limitation to this study is the small number of participants who reported information on suicide attempt (only 12.6% of the original sample). This is due to the design of the ADD Health, which only asks participants about suicide attempt behavior if suicide ideation is indicated. Due to this, our results concerning suicide attempters must be examined with caution. Relatedly, given the increased salience of the Internet among younger cohorts, new predictors may have emerged that are important for future research. Another interesting direction for future research would be to develop scales of social connection that include online communication (e.g., through social media, texting, or email). An additional limitation that must be addressed is the nature of our change variables. In computing the changes in connection variables, we are examining the changes between a single measurement at one time point and another measurement a year later. It is possible that the measurement does not reflect a yearlong change in connection but rather reveal differences between two scores at two times with varying degrees of fluctuation in between. Suicidal behaviors were also assessed with a single item for measurement. The use of a single item is not ideal and future research examining social connectedness and suicidal behavior should make use of multi-item measures of suicidal behavior. Finally, while our scales showed acceptable to good levels of internal consistency, we must be wary of the items used to measure the forms of connectedness. It could be that these questions do not measure connectedness and while previous research has utilized similar questions from the ADD Health, these questions are not validated psychometric scales for connectedness (Kuramoto-Crawford et al., 2017; McNeely & Falci, 2004).

Despite these limitations, this study provides a significant contribution to the literature on the development of adolescent suicidal thoughts and behaviors. Adolescence is normatively a time of transition and change in social connection; adolescents who experienced relatively large decreases in perceived connection were at an increased risk for suicidal thoughts and behavior. Given the body of evidence and our own findings, the role of social connectedness in alleviating suicide risk is compelling.²

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The authors have declared that they have no competing or potential conflicts of interest.

Ethical information

This study involves data that is publicly accessible and so required no further consent. The ADD Health public use data can be accessed through the University of Michigan's Data Sharing website (<https://www.icpsr.umich.edu/icpsrweb/>).

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NOTES

1. Results from the logistic regressions were compared to general estimated equation (GEE) results. Result did not differ indicating that the repeated observations structure of the data did not bias the results.
2. Both the syntax and the dataset are available at https://figshare.com/articles/Syntax_for_A_Longitudinal_Examination_of_Social_Connectedness_and_Suicidal_Thoughts_and_Behaviors_among_Adolescents_/5971360 and https://figshare.com/articles/corrected_dataset_sav/5971357, respectively.

References

- American Foundation for Suicide Prevention (2017). Suicide statistics. Available from: <https://afsp.org/about-suicide/suicide-statistics/> [last accessed January 20, 2018].
- Arrango, A., Opperman, K.J., Gipson, P.Y., & King, C.A. (2016). Suicidal ideation and suicide attempts among youth who report bullying victimization, bully perpetration and/or low social connectedness. *Journal of Adolescence*, *51*, 19–29.
- Baumesiter, R.F., DeWall, C.N., Ciarocco, N.J., & Twenge, J.M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology*, *88*, 589–604.
- Baumestier, R.F., Brewer, L.E., Tice, D.M., & Twenge, J.M. (2007). Thwarting the need to belong: Understanding the interpersonal and inner effects of social exclusion. *Social and Personality Psychology Compass*, *1*, 506–520.
- Conner, K.R., Britton, P.C., Sworts, L.M., & Joiner, T.E., Jr (2007). Suicide attempts among individuals with opiate dependence: The critical role of belonging. *Addictive Behaviors*, *32*, 1395–1404.
- Curtin, S.C., Warner, M., & Hedegaard, H. (2016). *Increase in suicides in the United States, 1999-2014*. NCHS data brief, no 241., Hyattsville, MD: National Center for Health Statistics.
- Drapeau, C.W., & McIntosh, J.L. (for the American Association of Suicidology) (2016). *U.S.A. suicide 2015. Official final data*. Washington, DC: American Association of Suicidology. Available from: <http://www.suicidology.org> [last accessed 23 December 2016].
- Duberstein, P.R., Conwell, Y., Conner, K.R., Eberly, S., Evinger, J.S., & Caine, E.D. (2004). Poor social integration and suicide: Fact or artifact? A case-control study. *Psychological Medicine*, *34*, 1331–1337.
- Durkheim, E. (1897). *On suicide* (R. Buss, Trans.). New York: Penguin Books.
- Eccles, J.S., Lord, S.E., & Midgley, C. (1991). What are we doing to early adolescents? The impact of educational contexts on early adolescents. *American Journal of Education*, *99*, 521–542.
- Eccles, J.S., & Roeser, R.W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*, 225–241.
- Glazebrook, K., Townsend, E., & Sayal, K. (2015). The role of attachment style in predicting repetition of adolescent self-harm: A longitudinal study. *Suicide and Life-Threatening Behavior*, *45*, 664–678.
- Goldstein, S.E., Davis-Keen, P.E., & Eccles, J.S. (2005). Parents, peers, and problem behavior: A longitudinal investigation of the impact of relationship perceptions and characteristics on the development of adolescent problem behavior. *Developmental Psychology*, *41*, 401–413.
- Gunn, J.F., III, & Goldstein, S.E. (2016). Bullying and suicidal behavior during adolescence: A developmental perspective. *Adolescent Research Review*, *2*, 77–97.
- Gunn, J.F., III, Lester, D., & McSwain, S. (2011). Testing the warning signs of suicidal behavior among suicide ideators using the 2009 National Survey on Drug Abuse and Health. *International Journal of Emergency Mental Health*, *13*, 147–154.
- Harris, K.M. (2013). The add health study: Design and accomplishments. [WWW document]. Available from: <http://www.cpc.unc.edu/projects/addhealth/documentation/guides/DesignPaperWIIV.pdf> [last accessed January 15, 2018].
- Harris, K.M., Halpern, C.T., Whitsel, E., Hussey, J., Tabor, J., Entzel, P., & Udry, J.R. (2009). The National Longitudinal Study of Adolescent to Adult Health: Research Design [WWW document]. Available from: <http://www.cpc.unc.edu/projects/addhealth/design> [last accessed January 15, 2018].
- Hatcher, S., & Stubbersfield, O. (2013). Sense of belonging and suicide: A systematic review. *Canadian Journal of Psychiatry*, *58*, 432–436.
- Hill, D.L. (2009). Relationship between sense of belonging as connectedness and suicide in American Indians. *Archives of Psychiatric Nursing*, *23*, 65–74.
- Horwitz, A.G., Czyz, E.K., & King, C.A. (2015). Predicting future suicide attempts among adolescent and emerging adult psychiatric emergency patients. *Journal of Clinical Child and Adolescent Psychology*, *44*, 751–761.
- Joiner, T.E., Jr (2005). *Why people die by suicide?* Cambridge, MA: Harvard University Press.
- Kaminski, J.W., Puddy, R.W., Hal, D.M., Cashman, S.Y., Crosby, A.E., & Ortega, L.A.G. (2010). The relative influence of different domains of social connectedness on self-directed violence in adolescence. *Journal of Youth and Adolescence*, *39*, 460–473.
- Kidd, S., Henrich, C.C., Brookmeyer, K.A., Davidson, L., King, R.A., & Shahar, G. (2006). The social context of adolescent suicide attempts: Interactive effects of parent, peer, and school social relations. *Suicide and Life-Threatening Behavior*, *36*, 386–395.
- Klonsky, E.D., & May, A.M. (2014). Differentiating suicide attempters from suicide ideators: A critical frontier for suicidology research. *Suicide and Life-Threatening Behavior*, *44*, 1–5.
- Klonsky, E.D., & May, A.M. (2015). The three-step theory (3ST): A new theory of suicide rooted in the “ideation-to-action” framework. *International Journal of Cognitive Therapy*, *8*, 114–129.
- Kuramoto-Crawford, S.J., Ali, M.M., & Wilcox, H.C. (2017). Parent-child connectedness and long-term risk for suicidal ideation in a nationally representative sample of US adolescents. *Crisis*, *38*, 309–318.
- Lai, K.W., & McBride-Chang, C. (2001). Suicidal ideation, parenting style, and family climate among Hong Kong adolescents. *International Journal of Psychology*, *30*, 81–87.
- Laursen, B., & Collins, W.A. (2009). Parent-child relationships during adolescence. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (3rd edn, vol. 2, pp. 3–42). New York: Wiley.
- Lester, D. (2014). Three classic sociological theories of suicide. In J.F. Gunn III & D. Lester (Eds.), *Theories of suicide: Past, present, and future* (pp. 213–229). Springfield, IL: Charles C Thomas.
- Lewinsohn, P.M., Rohde, P., & Seeley, J.R. (1994). Psychosocial risk factors for future adolescent suicide attempts. *Journal of Consulting and Clinical Psychology*, *62*, 297–305.
- 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*, 427–434.
- Marraccini, M.E., & Brier, Z.M. (2017). School connectedness and suicidality: A systematic meta-analysis. *School Psychology Quarterly*, *32*, 5–21.
- McElhaney, K.B., Allen, J.P., Stephenson, J.C., & Hare, A.L. (2009). Attachment and autonomy during adolescence. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (3rd edn, vol. 1, pp. 358–403). New York: Wiley.
- McLeod, B.D., Weisz, J.R., & Wood, J.J. (2007). Examining the association between parenting and childhood depression: A meta-analysis. *Clinical Psychology Review*, *27*, 986–1003.
- McNeely, C., & Falci, C. (2004). School connectedness and the transition into and out of health-risk behavior among adolescents: A comparison of school belonging and teacher support. *Journal of School Health*, *74*, 284–292.
- Shepard, D.S., Gurewich, D., Lwin, A.K., Reed, G.A., & Silverman, M. (2015). Suicide and suicidal attempts in the United States: Costs and policy implications. *Suicide and Life-Threatening Behavior*, *46*, 352–362.
- Stone, D.M., Holland, K.M., Bartholow, B., Crosby, A.E., Davis, S., & Wilkins, N. (2017). *Preventing suicide: A technical*

- package of policies, programs, and practices.* Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
- Stone, D.M., Luo, F., Lippy, C., & McIntosh, W.L. (2015). The role of social connectedness and sexual orientation in the prevention of youth suicidal ideation and attempts among sexually active adolescents. *Suicide and Life-Threatening Behavior, 45*, 415–430.
- Whittlock, J., Wyman, P.A., & Moore, S.R. (2014). Connectedness and suicide prevention in adolescents: Pathways and implications. *Suicide and Life-Threatening Behavior, 44*, 246–272.
- World Health Organization (2014). *Health for the world's adolescents: A second change in the second decade.* Available from: http://apps.who.int/adolescent/second-decade/files/1612_MNCAH_HWA_Executive_Summary.pdf [last accessed January 20, 2018].
- Young, R., Sweeting, H., & Ellaway, A. (2011). Do schools differ in suicide risk? The influence of school and neighbourhood on attempted suicide, suicidal ideation and self-harm among secondary school pupils. *BMC Public Health, 11*, 874.
- Zimmer-Gembeck, M.J., Ducat, W.H., & Collins, W.A. (2011). The development of autonomy. In B.B. Brown & M. Pearlstein (Eds.), *Encyclopedia of adolescence*, (Vol. 1 pp. 66–76). Amsterdam, The Netherlands: Elsevier.
- Zisk, A., Abbott, C.H., Ewing, S.K., Diamond, G.S., & Kobak, R. (2017). The suicide narrative interview: Adolescents' attachment expectancies and symptom severity in a clinical sample. *Attachment and Human Development, 19*, 447–462.

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