

Prospective Relations between Peer Victimization and Suicidal Ideation:
An Examination of Cognitive Mediators

By

Kathryn M. Roeder

Dissertation

Submitted to the Faculty of the
Graduate School of Vanderbilt University
in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Psychology

August 11, 2017

Nashville, Tennessee

Approved:

David A. Cole, Ph.D.

Bruce E. Compas, Ph.D.

Gordon D. Logan, Ph.D.

Bahr Weiss, Ph.D.

Copyright © 2017 by Kathryn M. Roeder

All Rights Reserved

ACKNOWLEDGEMENTS

I would like to thank my mentor, Dr. David Cole, for his encouragement, guidance, and feedback throughout my time at Vanderbilt. His generous support has been invaluable to me, and I am thankful for the contributions he has made to my development as a psychologist. I would also like to thank the members of the Cole Lab for their hard work and support, and I especially wish to acknowledge Lauren Stoner for the many hours she put into subject recruitment and data collection for this project.

Finally, most importantly, I wish to thank my wonderful parents. Mom and Dad, thank you for always giving me a place to belong. I would not have reached this point without your continuing love and support, and in my endeavors, I hope you can see a reflection of the care, dedication, and generosity of spirit that you have always provided.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
Chapter	
I. INTRODUCTION.....	1
Specific Aim 1: Test whether the association between peer victimization and suicidal ideation is mediated by hopelessness.	6
Specific Aim 2: Test whether perceived burdensomeness and thwarted belongingness mediate the relation between peer victimization and suicidal ideation.....	8
Specific Aim 3: Analyze longitudinal relations between hopelessness, perceived burdensomeness, and thwarted belongingness.	10
II. METHODS.....	12
Participants	12
Measures.....	13
Procedures	16
III. RESULTS.....	20
Analytic Strategy	20
Specific Aim 1: Test whether hopelessness mediates the relation between peer victimization and suicidal ideation.....	21
Specific Aim 2a: Test whether perceived burdensomeness mediates the relation between peer victimization and suicidal ideation.....	23
Specific Aim 2b: Test whether thwarted belongingness mediates the relation between peer victimization and suicidal ideation.	25
Specific Aim 3: Test the longitudinal relations between hopelessness, perceived burdensomeness, and thwarted belongingness.	26
Post-hoc Analyses	28
IV. DISCUSSION.....	31
Limitations.....	37
Future Directions.....	38
REFERENCES	43

LIST OF TABLES

Table	Page
1. Variable Means and Standard Deviations at Time 1	39
2. Variable Correlations at Time 1 and Time 2	40
3. Longitudinal Relations between Peer Victimization, Cognition, and Suicidal Ideation	41
4. Perceived Burdensomeness, Thwarted Belongingness, and Their Interaction as Predictors of Suicidal Ideation	42

LIST OF FIGURES

Figure	Page
1. Hopelessness as a Mediator between Peer Victimization and Suicidal Ideation.....	23
2a. Perceived Burdensomeness as a Mediator between Peer Victimization and Suicidal Ideation	24
2b. Thwarted Belongingness as a Mediator between Peer Victimization and Suicidal Ideation.. ..	26
3. Longitudinal Relations between Hopelessness, Perceived Burdensomeness, and Thwarted Belongingness	27
4. Hopelessness, Perceived Burdensomeness, and Thwarted Belongingness as Indicators of Cognitive Vulnerability.	30

Chapter I

INTRODUCTION

Peer victimization, defined as being the target of repeated, aggressive behaviors by one's peers (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, et al., 2001), represents a significant concern for youth. Nearly one-third of students in the sixth through tenth grades in the United States report moderate or frequent involvement in bullying, whether as a bully (13.0%), a victim (10.6%), or both (6.3%; Nansel et al., 2001). Rates of peer victimization peak during adolescence (Kaufman, Chen, Choy, Ruddy, Miller, et al., 1999; Nansel et al., 2001; Spence, de Young, Toon & Bond, 2009); however, peer victimization does not cease completely with the transition to adulthood. Peer victimization continues to affect 8-10% of adults and has been documented in both educational and professional settings (Allen, Holland & Reynolds, 2015; Askew et al., 2012; Chapell, Casey, de la Cruz & Ferrell, 2004; Miller & Rayner, 2012; Ortega, Høgh, Pejtersen, & Olsen, 2009). Additionally, the experience of victimization as a child or adolescent is associated with increased rates of victimization as an adult, especially in the workplace (Smith, Singer, Hoel & Cooper, 2003). Such findings indicate that peer victimization is not unique to childhood and adolescence, but a phenomenon that persists to varying degrees across the developmental spectrum.

The widespread nature of peer victimization is especially concerning, as peer victimization is concurrently associated with increased risk for suicidal ideation and behaviors in children, adolescents, and adults (Balducci, Alfano & Fraccaroli, 2009; Kaltiala-Heino et al., 2000; Kaminski & Fang, 2009; Kim, Koh, & Leventhal, 2005; Rigby & Slee, 1999). Existing

studies indicate that the cross-sectional link between victimization and suicidal ideation and behavior remains significant even after controlling for other suicide risk factors, such as depression and gender (Balducci et al., 2009; Kaltiala-Heino et al., 2000; Kaminski & Fang, 2009). Such studies support that victimization is independently associated with suicidality; however, no conclusions regarding the direction of this relation can be inferred from these cross-sectional designs.

Longitudinal studies of the prospective relation between peer victimization and suicide are relatively recent developments, with the earliest such study published in 2009. The current literature review identified a total of six studies that examined peer victimization as a prospective risk factor for increases in suicidal ideation. Two of the six studies supported peer victimization as a longitudinal predictor of suicidal ideation for the study sample as a whole. Specifically, peer victimization predicted future suicidality over a ten-month period among Korean middle students (Kim, Leventhal, Koh & Boyce, 2009) and over a two-year period among Canadian adolescents assessed at 13 and 15 years of age (Geoffroy, Boivin, Arseneault, Turecki, Vitaro, et al., 2016). Three additional studies indicated that peer victimization conferred risk for suicidal ideation, but only for certain subpopulations or certain types of victimization. In a large study of Dutch youth, traditional but not cyber victimization at age 12 predicted suicidal ideation at age 14 (Bannink, Broeren, van de Looij-Jansen, de Waart & Raat, 2014). Heilbron and Prinstein (2010) found that overt but not relational victimization predicted increases in suicidal ideation for American middle school girls over a two-year period; neither type of victimization predicted suicidal ideation among boys. In a large sample of American students, peer victimization during childhood or adolescence predicted suicidality in early adulthood among participants who were both bullies and victims, but not among participants who were victims only (Copeland, Wolke,

Angold & Costello, 2013). The current review identified one study that did not support the link between peer victimization and future suicidality. In a large study of 14- and 15-year-old Norwegian students, peer victimization did not significantly predict future suicidal ideation after controlling for baseline suicidal ideation (Undheim, 2013). Considered jointly, these results indicate that peer victimization is prospective risk factor for suicidal ideation among some, but perhaps not all, subgroups of adolescents.

Research on peer victimization in the workplace and suicide risk during adulthood is also relatively new, and a recent systematic review of workplace bullying and suicide found no published articles on this topic prior to 2007 (Leach, Pyser & Butterworth, 2016). To our knowledge, two English-language articles have been published that examined longitudinal relations between workplace victimization and suicidal ideation. In a large, representative sample of Norwegian employees, Nielsen, Einarsen, Notelaers, and Nielsen (2016) found that physical intimidation, but not other types of workplace victimization, prospectively predicted suicidal ideation at two-year and five-year follow-up, after controlling for baseline victimization. In a small sample of identified targets of workplace bullying in Italy, decreases in victimization during the follow-up period were associated with decreases in suicidal ideation (Romeo, Balducci, Quintarelli, Riolfi, Pelizza, et al., 2013).

Considered jointly, these studies offer preliminary support for peer victimization as a risk factor for increased suicidal thoughts and behaviors in both youth and adult populations; however, the mechanisms underlying this relation remain unclear. Why would the experience of being teased be related to the desire to hurt oneself? How does the experience of victimization get “under the skin”—or more specifically, inside the brain?

The current literature does not adequately address this question. In addition to relying heavily on cross-sectional data, research on peer victimization and suicidal thoughts and behaviors has been largely atheoretical. Existing studies in this area have tended to focus on identifying demographic markers of increased risk, without testing a priori, theory-driven hypotheses regarding mechanisms of action. Demographic research clearly represents a clinically meaningful contribution to the field, as it can help identify vulnerable populations; however, without examining underlying mechanisms, research in this area cannot inform the development of interventions that are most likely to be effective.

Integration of research on peer victimization with cognitive theories of suicide offers one potential avenue for elucidating these mechanisms. It may be the case that peer victimization influences the development of cognitive constructs that confer vulnerability to suicidal ideation; in turn, these cognitions underlie the observed relation between peer victimization and suicide risk. In recent decades, two cognitive theories of suicidal behavior have received considerable research attention: Beck's hopelessness model and Joiner's interpersonal-psychological model. Beck proposed that suicidal ideation arose when a person "believed he could not tolerate a continuation of his suffering and he could see no solution to his problem" (p. 1146; Beck, Kovacs & Weissman, 1975). With this definition, Beck conceptualized hopelessness as the primary cognitive construct underlying suicidal ideation, one that conferred additional risk above and beyond specific psychiatric diagnoses (Beck, Steer, Kovacs & Garrison, 1985). Considerable evidence supports the role of hopelessness as a longitudinal predictor of suicidal ideation and behavior in both adolescents (Asarnow et al., 2011; Groholt, Ekeberg & Haldorsen, 2006; Huth-Bocks, Kerr, Ivey, Kramer & King, 2007; Mazza & Reynolds, 1998; Mustanski & Liu, 2013; Stewart, Kennard, Lee, Mayes, Hughes, et al., 2005) and adults (Beck, Brown, Berchick, Stewart

& Steer, 1990; Brown et al., 2000; Chioqueta & Stiles, 2003; Schneider, Philipp & Müller, 2001; Steer et al., 1993), and Beck's hopelessness theory continues to be a dominant influence within the field of suicide research.

Joiner's interpersonal-psychological theory is a much more recent development. In 2005, Joiner outlined a model whereby suicidal ideation, or "desire for suicide," emerges from the confluence of thwarted belongingness and perceived burdensomeness (Joiner, 2005). In this model, thwarted belongingness is defined as the subjective experience of feeling disconnected from other people, regardless of objective social resources. Perceived burdensomeness refers to the subjective belief that one's continued presence is detrimental to other people. This theory has received considerable research attention, with nearly 70 peer-reviewed articles published in the past decade. A recent systematic review indicated consistent cross-sectional support for the role of perceived burdensomeness, but mixed support for thwarted belongingness and the Burdensomeness x Belongingness interaction (see Ma, Batterham, Calear & Han, 2016 for review). A notable shortcoming of the existing literature is the relative dearth of longitudinal studies, which precludes rigorous tests of the proposed mechanisms. Additionally, the current literature has overwhelmingly focused on adult populations, and to date, we are aware of only two longitudinal studies of Joiner's model with adolescents (Czyz, Berona & King, 2016; Miller, Esposito-Smythers & Leichtweis, 2015).

Beck's hopelessness theory and Joiner's interpersonal-psychological theory hold promise for illuminating the underlying dynamics that drive suicidal ideation; however, a criticism of suicide research is that theoretical models are typically studied in isolation from each other (Kleiman, Law & Anestis, 2014; Mann, Waternaux, Haas & Malone, 1999). Because of this, it is unclear how cognitive risk factors relate to each other over time. Additionally, it is unclear how

these cognitions develop, or how their development relates to negative life events. The proposed study will address these gaps in the literature by examining Beck's hopelessness theory and Joiner's interpersonal-psychological theory over time and in the same sample. Additionally, the proposed study will examine these cognitive theories in relation to a specific interpersonal stressor (peer victimization). These specific aims are detailed below.

Specific Aim 1: Test whether the association between peer victimization and suicidal ideation is mediated by hopelessness.

The first goal of the proposed study is to test whether the observed relation between peer victimization and increased suicidal ideation is mediated by changes in hopelessness. To date, we are aware of only two published studies that have tested the proposed mediational model, and both studies are limited by their lack of longitudinal data. Using a cross-sectional design, Bonanno and Hymel (2010) measured peer victimization, hopelessness, and suicidal ideation in a sample of 399 high school students. In this study, peer victimization was significantly related to increased levels of social hopelessness, and social hopelessness accounted for a significant amount of the covariance between peer victimization and suicidal ideation. Roxborough and colleagues (2012) examined the links between perfectionism, suicidality, and social hopelessness among a sample of 152 child and adolescent psychiatric inpatients. In this study, the relation between interpersonal perfectionism and suicidality was partially accounted for by social hopelessness. Cross-sectional data cannot be used to infer directionality, causality, or mediation, and attempts to do so can be misleading (see Cole & Maxwell, 2003); however, these cross-sectional studies provide preliminary evidence that the constructs of interest covary in ways that would be consistent with the proposed mediational model.

Two related lines of research provide further support for hopelessness as a potential mediator: (1) studies of the relation between peer victimization and hopelessness; and (2) studies of the relation between hopelessness and peer victimization. Studies of the prospective link between peer victimization and subsequent hopelessness are rare, and to our knowledge, only two such studies have been published. In the first study, peer victimization predicted increases in hopelessness in a sample of fourth- and fifth-grade students, and this relation remained significant even after controlling for depressive symptoms (Hanley & Gibb, 2011). In the second such study, emotional victimization by peers predicted increases in hopelessness in a sample of middle school students (Hamilton, Connolly, Liu, Stange, Abramson, et al., 2015). No studies were identified that examined the longitudinal relations between peer victimization in adults and hopelessness; however, the literature does support a prospective link between workplace bullying and increases in symptoms of depression and anxiety (Einarsen & Nielsen, 2015), as well as a prospective relation between workplace teasing and decrements in general mental health (Hogh, Henricksson & Burr, 2005).

A significantly larger body of research has examined the longitudinal relations between hopelessness and suicidal ideation. Hopelessness has been identified as a prospective risk factor for suicidal thoughts and behaviors in high school samples (Mazza & Reynolds, 1998; Mustanski & Liu, 2013; Nrugham, Larsson & Sund, 2008; Stewart et al., 2005), as well as samples of adolescent psychiatric outpatients (Asarnow et al., 2011; Wilkinson, Kelvin, Roberts, Dubicka & Goodyer, 2011) and inpatients (Brinkman-Sull, Overholser & Silverman, 2000; Goldston et al., 2001; Groholt et al., 2006; Huth-Bocks et al., 2007; Spirito, Valeri, Boergers & Donaldson, 2003). Extant research similarly supports hopelessness as a prospective risk factor among adults, with supporting evidence emerging from both community and clinical samples of adults (Beck et

al., 1990; Brown et al., 2000; Chioqueta & Stiles, 2003; Schneider et al., 2001; Steer, Kumar & Beck, 1993).

Considered jointly, these lines of research provide preliminary support for the proposed mediational model. A very small but consistent literature supports peer victimization as a prospective predictor of increased hopelessness (in children and adolescents) or decrements in related areas of mental health (in adults). There is considerable support for hopelessness as a prospective risk factor for future suicidality, in both adolescents and adults. To our knowledge, the current study is the first of its kind to directly test hopelessness as a longitudinal mediator of the relation between peer victimization and suicidal ideation.

Specific Aim 2: Test whether perceived burdensomeness and thwarted belongingness mediate the relation between peer victimization and suicidal ideation.

Joiner and colleagues developed the Interpersonal Needs Questionnaire (INQ; van Orden, Witte, Gordon, Bender & Joiner, 2008) to measure thwarted belongingness and perceived burdensomeness, as defined in the interpersonal-psychological theory of suicide. To our knowledge, the INQ has not been studied in longitudinal studies of peer victimization at any age. In order to assess existing evidence for the proposed link between peer victimization and thwarted belongingness and perceived burdensomeness, we identified self-report measures whose items closely paralleled the items of the INQ. This search yielded Asher's Loneliness Scale (Asher, Hymel & Renshaw, 1984); the Louvain Loneliness Scale for Children and Adolescents (Marcoen, Goossens & Caes, 1987); the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet & Farley, 1988); the Social Connectedness Scale (Lee & Robbins, 1995); and the UCLA Loneliness Scale (Russell, Peplau & Ferguson, 1978). In

prospective studies of elementary school children (Kochenderfer-Ladd & Wardrop, 2001) and middle school students (Ostrov & Godleski, 2013), peer victimization predicted future scores on Asher's Loneliness Scale; however, this relation was not observed in a sample of children with endocrine disorders (Devine et al., 2008). In an adult sample of French-Canadian workers, scores on the UCLA Loneliness Scale were positively correlated with reports of workplace bullying (Dussault & Frenette, 2014). These related findings indicate that the interpersonal-psychological theory of suicide may hold promise as a potential explanation for the observed relations between peer victimization and suicidal thoughts and behaviors.

Regarding suicidality, several cross-sectional studies support perceived burdensomeness as a correlate of suicidal thoughts and behaviors throughout adulthood, while thwarted belongingness and the interaction between the two have received less consistent support (see Ma et al., 2016 for systematic review). Longitudinal studies are far less common, and we identified only three such studies. In a sample of young adults with elevated symptoms of depression, Kleiman, Liu and Riskind (2014) found support for perceived burdensomeness and thwarted belongingness as predictors of future suicidal ideation. Two additional studies examined the interpersonal-psychological theory among adolescent clinical samples. In a sample of adolescent psychiatric inpatients, neither perceived burdensomeness nor thwarted belongingness predicted post-hospitalization suicide attempt; additionally, the two-way interaction between burdensomeness and belongingness, as well as the three-way interaction including acquired capability, did not predict future suicide attempt (Czyz, Berona & King, 2015). Among adolescents in a partial hospitalization program, neither perceived burdensomeness nor thwarted belongingness predicted future suicidal ideation as part of a larger model including depressive

symptoms; however, the study did not report the significance of burdensomeness or belongingness in a simplified model (Miller, Esposito-Smythers & Leichtweis, 2016).

Overall, the existing evidence (or lack thereof) provides only preliminary support for the proposed mediational model. The INQ has not been studied in relation to peer victimization among youth or adults, though there is some evidence of a relation between peer victimization and scores on questionnaires that are similar to the INQ. The INQ is only just beginning to be utilized among children and adolescents, with the first such study being published in 2015. Many important aspects of the Joiner's theory have yet to be rigorously tested, especially among young populations, and the current literature is characterized by a relative lack of longitudinal studies. To our knowledge, the current study is the first to analyze whether the cognitive risk factors proposed by the interpersonal-psychological theory mediate the relation between peer victimization and suicidal ideation at any age.

Specific Aim 3: Analyze longitudinal relations between hopelessness, perceived burdensomeness and thwarted belongingness.

Both hopelessness and perceived burdensomeness/thwarted belongingness have been the focus of many studies on suicidal thoughts and behaviors; however, they have rarely been studied in tandem, and it is unknown how these factors may influence each other over time. For example, it may be the case that increasing thoughts of thwarted belongingness and perceived burdensomeness generalize into an overall perception of hopelessness. Alternatively, hopelessness may drive increases in perceived burdensomeness and thwarted belongingness, or these constructs may mutually influence each other over time. Such theoretical distinctions are not purely academic. An investigation of these influences would facilitate a more integrated

cognitive model of suicidal ideation, which could have significant implications for suicide prevention efforts. To date, we are aware of no studies that have analyzed the longitudinal relations between hopelessness (as defined by Beck) and perceived burdensomeness and thwarted belongingness (as defined by Joiner) in the same sample. The current study provides a novel contribution to the literature by gathering longitudinal data on these constructs.

Chapter II

METHODS

Participants

To address the study goals, participants were drawn from two samples. The first sample consisted of ninth through twelfth graders enrolled in regular education classes at a public high school in middle Tennessee. A total of 192 students completed at least one wave of data collection: 56 (29%) students participated in Time 1 only; 23 (12%) participated in Time 2 only; and 113 (59%) participated in both Time 1 and Time 2. The total high school sample was 62% female, 87% White/Caucasian, 9% Hispanic, 8% Black/African-American, and 4% Asian/Asian-American. (Percentages do not sum to 100% as students were able to identify as more than one race or ethnicity.) Students who participated in only one wave did not differ from those who completed both waves on gender, race, or mean levels of variables of interest (peer victimization, hopelessness, perceived burdensomeness, thwarted belongingness, and suicidal ideation).

The second sample consisted of undergraduates participating in a university-based psychology research pool. A total of 142 undergraduates completed at least one wave of data collection: 34 (24%) students completed Time 1 only, and 108 (76%) completed both waves. The total undergraduate sample was 78% female, 67% White/Caucasian, 21% Asian/Asian-American, 11% Black/African-American, 11% Hispanic, 2% Native American, and 2% Arabic/Middle Eastern. (As in the high school sample, participants were able to endorse more than one racial or ethnic category.) Undergraduates who participated in only one wave did not differ from those who completed both waves on gender, race, or mean levels of peer

victimization, hopelessness, perceived burdensomeness, or suicidal ideation. There was a significant difference between groups in levels of thwarted belongingness, such that those who reported higher thwarted belongingness (that is, weaker sense of belonging) at Time 1 were more likely to complete the survey again at Time 2.

Measures

Peer victimization. Peer victimization was assessed via the Peer Victimization Self-Report (PVSUR; Cole, Maxwell, Dukewich & Yosick, 2010). This 25-item questionnaire was developed by expanding on items used by Ladd and Kochenderfer-Ladd (2002) and Prinstein, Cheah & Guyer (2005), and it assesses a wide range of physical and non-physical types of victimization. For all items, the stem is, “How often have people your age...” Sample responses include: (1) “Called you names,” (2) “Pushed or shoved you around,” (3) “Told lies about you,” or (4) “Sent mean messages to you by phone or online.” (Five items assessed positive peer interactions but were not included in the current analyses.) Each item was rated on a 4-point scale (1 = never, 2 = rarely, 3 = sometimes, 4 = a lot). Participants were asked to respond based on their experiences during the preceding four months. In previous studies with school-age samples, the scale demonstrated strong evidence of convergent validity with peer nomination and parent-report measures of victimization (Cole et al., 2010). Previous studies have shown the scales to have acceptable internal consistency, with Cronbach’s alphas of 0.77 and 0.86 for relational and physical victimization respectively (Tran, Cole, & Weiss, 2012).

An additional 8 items were adapted from the Negative Acts Questionnaire (NEQ; Einarssen, Hoel & Notalaers, 2009) and the Cyberbullying Experiences Survey (CES; Doane, Kelley, Chiang & Padilla, 2013). Both the NEQ and the CES were originally developed for adult

samples. By adding items similar to those on the NEQ and CES, such as “Swore at you in a mean way” or “Pretended to be someone else online,” we aimed to make our assessment of peer victimization more applicable across a wider age range. Combined with the PVSQR, these items were summed to create a measure of overall victimization, with higher scores indicating higher victimization. For the composite measure, Cronbach’s alpha was .946 (Time 1) and .934 (Time 2) in the high school sample and .879 (Time 1) and .919 (Time 2) in the undergraduate sample, indicating excellent internal consistency.

Hopelessness. The Beck Hopelessness Scale (BHS; Beck & Steer, 1988) is a 20-item, true/false questionnaire that assesses negative expectations about the future. Sample items include “All I can see ahead of me is unpleasantness rather than pleasantness” and “In the future, I expect to succeed in what concerns me most” (reverse coded). Total scores on the BHS range from 0 to 20, with higher scores indicating greater hopelessness. The BHS has been widely used with adolescent and adult samples, and it has demonstrated strong internal consistency, test-retest reliability, convergent validity, and discriminant validity (see Goldston et al., 2001; Osman et al., 1998; Reinecke et al., 2001). In the current study, Cronbach’s alpha was .892 (Time 1) and .886 (Time 2) in the high school sample and .861 (Time 1) and .841 (Time 2) in the undergraduate sample, indicating good internal consistency.

Perceived burdensomeness and thwarted belongingness. The Interpersonal Needs Questionnaire (INQ; van Orden et al., 2008) is a self-report questionnaire that assesses the extent to which the respondent feels connected to others (e.g., “These days, other people care about me”) and the extent to which the respondent believes that they are a burden (e.g., “These days, I think I make things worse for the people in my life”). Participants use a 7-point Likert scale to indicate the degree to which each item reflects their recent thoughts and feelings. The scale

yields subscale scores for burdensomeness and belongingness, such that higher numbers reflect higher levels of thwarted belongingness and perceived burdensomeness. This measure has demonstrated strong internal consistency, with alphas ranging from .85 to .89, as well as convergent and predictive validity in both adolescents (Czyz, Berona & King, 2015; Hill et al., 2015) and adults (Hallensleben, Spangenberg, Kapusta, Forkmann & Glaesmer, 2016; van Orden, Cukrowicz, Witte & Joiner, 2012).

Hill and colleagues (2015) compared the 10-, 12-, 15-, 18-, and 25-item versions of the INQ in adolescent and undergraduate samples. They found that the 10-item and 15-item versions demonstrated the strongest psychometric properties and supported the proposed burdensomeness and belongingness subscales, while other versions were less consistent. Consequently, we examined the structure of this measure in our own samples. We performed a confirmatory factor analysis on the 10-, 15-, and 18-item versions of the INQ. Of these, only the INQ-15 (van Orden et al., 2012) demonstrated minimally acceptable fit and supported the two-factor structure in both samples ($RMSEA < .10$; $TLI > .90$). Accordingly, the INQ-15 was retained for subsequent analyses. For the perceived burdensomeness subscale of the INQ-15, coefficient alpha ranged from .86 to .94 in the current sample. For the thwarted belongingness subscale, coefficient alpha was above .89 at both time points in both samples. Thus, the subscales of the INQ-15 demonstrated very good to excellent internal consistency in both samples.

Suicidal ideation. The Suicidal Ideation Questionnaire-Jr. (SIQ-JR; Reynolds, 1988) is a 15-item self-report questionnaire, specifically developed for adolescents, that assesses thoughts related to death and suicide. Each item is answered on a 7-point scale (from “I never had this thought” to “Almost every day”), yielding total scores that range from 0 to 90. Higher scores indicate greater frequency of suicidal thoughts, and the published clinical cutoff is a total score

of 31. Several studies support its strong internal consistency and test-retest reliability in both community and clinical samples (Keane et al., 1996; King et al., 2009; Reynolds, 1988; Reynolds & Mazza, 1999; Thompson & Eggert, 1999). In the current study, Cronbach's alpha ranged from .925 to .967 across waves for both samples, indicating excellent internal consistency.

Procedures

High school recruitment. Prior to data collection, the principal investigator submitted a study proposal to the local school board. After obtaining the school board's permission to conduct the study and approach local schools regarding study participation, the principal investigator met with a local high school principal to explain the study, request permission to distribute study information to students, and discuss the consent process. After receiving the principal's permission, we distributed information sheets and consent forms (approximately 2,000 in total) to all homeroom teachers. Teachers were asked to distribute the forms to all students in regular education classes. Students were informed that they would receive Amazon gift cards (\$10 for Time 1 and \$15 for Time 2) if they completed the online survey. Students were instructed to give the consent forms to their parents, so that their parents could decide whether to grant permission for study participation. Students were given daily reminders to return completed forms to their homeroom teachers. After one week, study personnel returned to the school to collect completed forms.

On the consent form, parents were asked to provide their child's email address or phone number, so that their child could be contacted to complete the survey online. A total of 303 students returned signed consent forms that included sufficient contact information. Consented

students were sent text messages and emails that contained personalized links to the survey, which prevented participants from completing the survey multiple times or under a false name. Both parents and students were informed that the study contained questions about sensitive topics, such as hopelessness and thoughts of suicide, and that students would be contacted by the research staff if they endorsed these thoughts. Parents and students were also informed that if suicidal thoughts were severe, or if the student did not respond to the research staff, parents and/or school counselors would be contacted. Students completed an online assent form prior to starting the survey. After survey completion, participants were emailed a digital gift card to Amazon.com (\$10 for Time 1). A total of 169 high school students (56% of consented students) completed the survey during Time 1.

Four months later, consented students were contacted again and asked to complete the survey a second time. All students with parental consent were contacted for Time 2, even if they had not completed the Time 1 survey. Again, students were sent personalized survey links via text and email, completed an online assent form, and received an Amazon gift card (\$15 for Time 2) upon survey completion. For the second wave, 136 students (45% of eligible students) completed the survey. Of participants who completed the survey during the first wave, 113 (83%) completed the survey a second time. All procedures were approved by the Institutional Review Board at Vanderbilt University.

Undergraduate recruitment. Undergraduate participants were recruited from a university psychology research pool. Research pool members were eligible for the current study if they were a) at least 18 years old; b) able to participate in the study for course credit; and c) able to complete the online questionnaire within the designated time frame. A brief description of the study was posted on the research pool website. Interested participants could connect to the online

survey through their personal account on the research pool website, which prevented participants from taking the survey more than once. Participants were informed that the study contained questions about sensitive topics, such as hopelessness and thoughts of suicide, and that they would be contacted by the research staff if they endorsed these thoughts. They were also informed that if their thoughts were severe, or if they did not respond to the research staff, the campus counseling center and/or school administrators would be contacted. After survey completion, participants automatically received course credit for research participation. A total of 142 undergraduates completed the survey during Time 1.

Four months later, students were contacted again and invited to complete the survey a second time. Participants were sent personalized survey links via email, completed an online consent form, and received an Amazon gift card (\$15 for Time 2) upon survey completion. For the second wave, 108 students (76% of Time 1 participants) completed the survey. All procedures were approved by the Institutional Review Board at Vanderbilt University.

Data collection. Survey data were collected via Qualtrics, a secure research platform developed to facilitate online data collection. Participants were sent individualized links to complete study questionnaires on the Qualtrics website. Undergraduate participants read an online version of the informed consent document and typed their names to indicate their consent. High school participants followed a similar procedure, digitally signing an assent document. Typed names were considered documentation of consent (or assent) by the participating individual. In order to participate, participants were also required to provide a phone number and email address, so that the research staff could contact participants who endorsed suicidal ideation. After completing the surveys described above, participants received research credits (undergraduate participants at Time 1) or digital gift cards to Amazon.com (all other waves).

The principal investigator received automatic email notifications from Qualtrics when a participant completed the survey and endorsed elevated levels of depression, hopelessness, or suicidal ideation. The PI immediately reviewed responses to the BDI-II and SIQ-JR and contacted participants who scored in the moderate to severe range of depressive symptoms (BDI-II > 20) or above the clinical cutoff for suicidal thoughts (SIQ-JR > 31). The PI also contacted any participants who endorsed any level of suicidal behavior (writing a note, telling someone they were thinking of committing suicide, or attempting suicide) within the past month. This follow-up occurred within 24 hours of survey completion and followed IRB-approved safety protocols for risk assessment, referral, and follow-up.

Chapter III

RESULTS

Analytic Strategy

The current study used a two-wave, cross-lagged panel analysis to examine longitudinal relations between: peer victimization, as measured by the Peer Victimization Self-Report (PVSR; Cole et al., 2010); hopelessness, as measured by the Beck Hopelessness Scale (BHS; Beck & Steer, 1988); thwarted belongingness and perceived burdensomeness, as measured by the Interpersonal Needs Questionnaire, 15-item version (INQ-15; van Orden et al., 2012); and suicidal ideation, as measured by the Suicidal Ideation Questionnaire, Junior version (SIQ-JR; Reynolds, 1988). Analyses were conducted with the IBM SPSS Statistics AMOS package, using full information maximum likelihood (FIML) to account for missing data.

Analyses were based on a “half-longitudinal” design, as outlined by Cole and Maxwell (2003). In this context, stationarity “implies that the degree to which one set of variables produces change in another set remains the same over time” (p. 560; Cole & Maxwell, 2003). The assumption of stationarity is not always appropriate; for example, in a study assessing symptom change during a course of treatment, or in a study of adjustment during the transition to puberty, the causal structure might not exhibit stationarity. Indeed, changes in strengths of relations over time may even be the analytic focus. For the current study, the assumption of stationarity is appropriate, as we do not expect the relations between variables to differ substantially at Time 1 versus Time 2.

Because the assumption of stationarity is reasonable for the current study, we were able to test longitudinal mediational models using two waves of data. In order to establish mediation, it is necessary to demonstrate three things regarding the paths between X (predictor), M (mediator), and Y (outcome). First, the path between X at Time 1 (X1) and M at Time 2 (M2) must be significant, after controlling for M at Time 1 (M1). Second, the path between M1 and Y2 must be significant, after controlling for Y1. Finally, and crucially, the overall model fit must be adequate (Cole & Maxwell, 2003; Preacher, 2015). For example, in order to establish hopelessness as a mediator between peer victimization and suicidal ideation, we would need to show that a) peer victimization at Time 1 significantly predicted hopelessness at Time 2 (after controlling for Time 1 hopelessness); b) hopelessness at Time 1 significantly predicted suicidal ideation at Time 2 (after controlling for Time 1 suicidal ideation); and c) the model containing both of these relations adequately fit the observed data. These analyses are detailed below.

All variables of interest demonstrated highly skewed distributions (skewness statistics .80-2.79). These variables were log transformed to reduce violations of normality assumptions, and all mediational analyses were conducted using transformed scores. To facilitate comparison with other samples, descriptive statistics (Table 1) are reported using the original metrics. Variable correlations are shown in Table 2.

Specific Aim 1: Test whether hopelessness mediates the relation between peer victimization and suicidal ideation.

Hopelessness (HS; measured by the BHS) was tested as a mediator of the relation between peer victimization (PV; measured by the PVSR) and suicidal ideation (SI; measured by SIQ-JR) using the half-longitudinal design described above. The model was run using two

groups: one group for high school participants, and one group for undergraduate participants. In the two-group analyses, model fit was excellent ($\chi^2_{(df=8, N=334)} = 7.644, p = .469$; RMSEA 90% CI = [.000, .062]; NFI = .987; TLI = 1.003). Paths of interest (peer victimization as a predictor of hopelessness and hopelessness as a predictor for suicidal ideation) were constrained to be equal across groups—that is, the regression weight for peer victimization predicting hopelessness in the high school group was constrained to be equal to the regression weight for peer victimization predicting hopelessness in the undergraduate group. Stability coefficients were also constrained to be equal across groups. When these paths were constrained to be equal across groups, there was not a significant change in model fit ($\chi^2_{(df=5, N=334)} = 4.692, p = .45$). Fit for the constrained model remained excellent ($\chi^2_{(df=13, N=334)} = 12.336, p = .500$; RMSEA 90% CI = [.000, .052]; NFI = .980; TLI = 1.004). Accordingly, these constraints were maintained for final analyses.

With cross-group constraints applied, peer victimization (assessed by the PVSR) was not a significant predictor of hopelessness (assessed by the BHS; $B = -.153, SE(B) = 3.07, p = .617$; $\beta_{Adol} = -.030, \beta_{College} = -.020$). Hopelessness was a highly significant predictor of future suicidal ideation (assessed by the SIQ-JR; $B = .256, SE(B) = .086, p = .003$; $\beta_{Adol} = .162, \beta_{College} = .164$). These results are summarized in Figure 1. (See Table 3 for all unstandardized and standardized regression weights.)

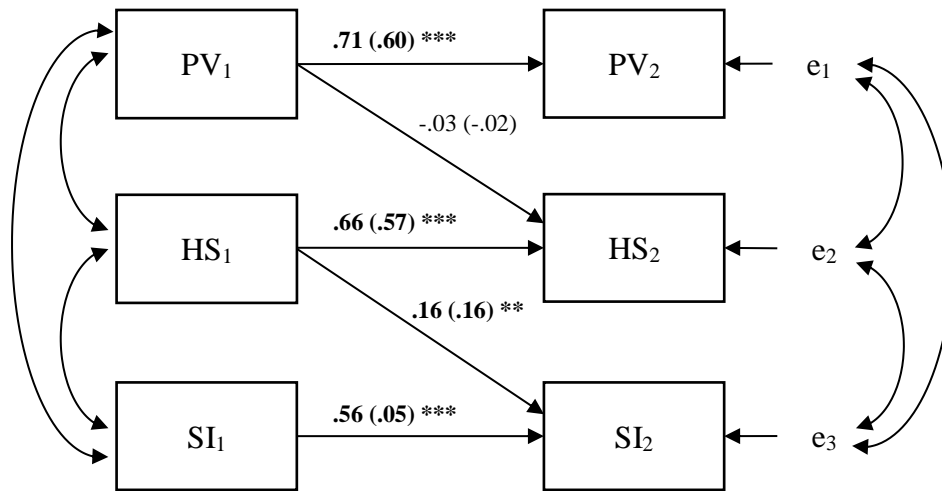


Figure 1. Hopelessness (HS) as a longitudinal mediator between peer victimization (PV) and suicidal ideation (SI). Standardized weights for the high school sample are listed first, with standardized weights for the college sample in parentheses. Significance markers indicate whether the unstandardized weight for the whole sample was significantly different from zero. * $p < .05$; ** $p < .01$; *** $p < .001$

Specific Aim 2a: Test whether perceived burdensomeness mediates the relation between peer victimization and suicidal ideation.

Perceived burdensomeness (PB; as measured by the INQ-15) was tested as a mediator of the relation between peer victimization (PV; measured by Peer Victimization Self-Report) and suicidal ideation (SI; measured by SIQ-JR) using a half-longitudinal design. The model was run using two groups (high school and undergraduate participants). In two-group analyses, model fit was excellent ($\chi^2_{(df=8, N=334)} = 9.92, p = .27$; RMSEA 90% CI = [.000, .073]; NFI = .985; TLI = .984). Cross-group constraints were added for peer victimization as a predictor of perceived burdensomeness, perceived burdensomeness as a predictor for suicidal ideation, and stability coefficients. When these paths were constrained to be equal across groups, there was not a

significant change in fit ($\chi^2_{(df=5, N=334)} = 5.21, p = .39$). Fit for the constrained model remained excellent ($\chi^2_{(df=13, N=334)} = 15.13, p = .30$; RMSEA 90% CI = [.000, .061]; NFI = .978; TLI = .989).

With cross-group constraints applied, peer victimization was a significant predictor of perceived burdensomeness ($B = .387, SE(B) = .175, p = .027; \beta_{Adol} = .137, \beta_{College} = .103$).¹ Perceived burdensomeness was a highly significant predictor of future suicidal ideation ($B = .410, SE(B) = .147, p = .005; \beta_{Adol} = .160, \beta_{College} = .160$). These results are summarized in Figure 2a below; see Table 3 for all standardized and unstandardized regression weights.

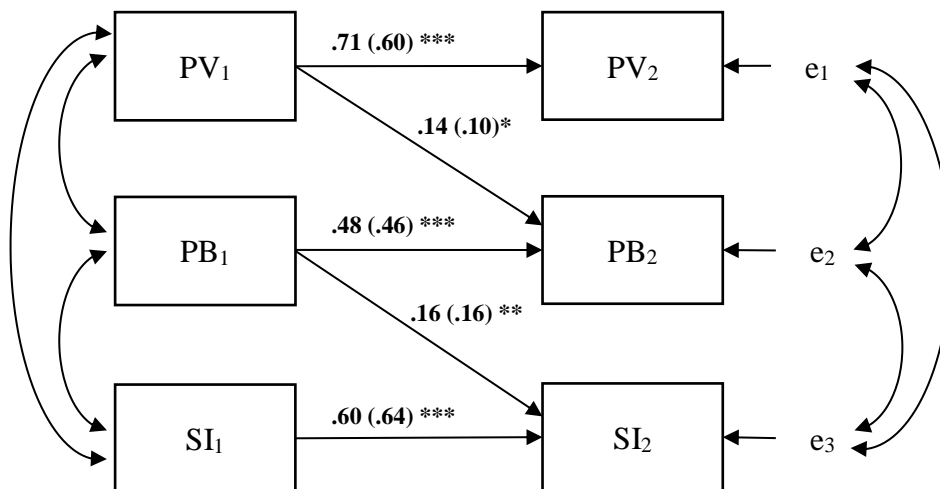


Figure 2a. Perceived burdensomeness (PB) as a mediator between peer victimization (PV) and suicidal ideation (SI). Standardized weights for the high school sample are listed first, with standardized weights for the college sample in parentheses. Significance markers indicate whether the unstandardized weight for the whole sample was significantly different from zero. * $p < .05$; ** $p < .01$; *** $p < .001$

¹ When these analyses were conducted with the 18-item version of the INQ, this relation was marginally significant ($p = .052$). All other mediation analyses yielded the same pattern of results regardless of whether the 18-item or the 15-item version of the INQ was used.

Specific Aim 2b: Test whether thwarted belongingness mediates the relation between peer victimization and suicidal ideation.

Thwarted belongingness (as measured by the INQ) was tested as a mediator of the relation between peer victimization (PV) and suicidal ideation (SI) using a half-longitudinal design. The model was run using two groups (high school and undergraduate participants). In two-group analyses, model fit was excellent ($\chi^2_{(df=8, N=334)} = 6.607, p = .580$); RMSEA 90% CI = [.000, .057]; NFI = .989; TLI = 1.013). Cross-group constraints were added for: peer victimization as a predictor of thwarted belongingness; thwarted belongingness as a predictor for suicidal ideation; and cross-wave stability estimates. When these paths were constrained, there was not a significant change in model fit ($\chi^2_{(df=5, N=334)} = 2.064, p = .804$). Fit for the constrained model remained excellent ($\chi^2_{(df=8, N=334)} = 8.671, p = .797$; RMSEA 90% CI = [.000, .036]; NFI = .986; TLI = 1.024). Accordingly, these constraints were maintained for final analyses.

With cross-group constraints applied, peer victimization (assessed by the PVSR) was not a significant predictor of thwarted belongingness (assessed by the INQ; $B = .219, SE(B) = .188, p = .244; \beta_{Adol} = .068, \beta_{College} = .051$). Thwarted belongingness did significantly predict future suicidal ideation (assessed by the SIQ-JR; $B = .327, SE(B) = .131, p = .013; \beta_{Adol} = .125, \beta_{College} = .139$). Results are summarized in Figure 2b; see Table 3 for regression weights.

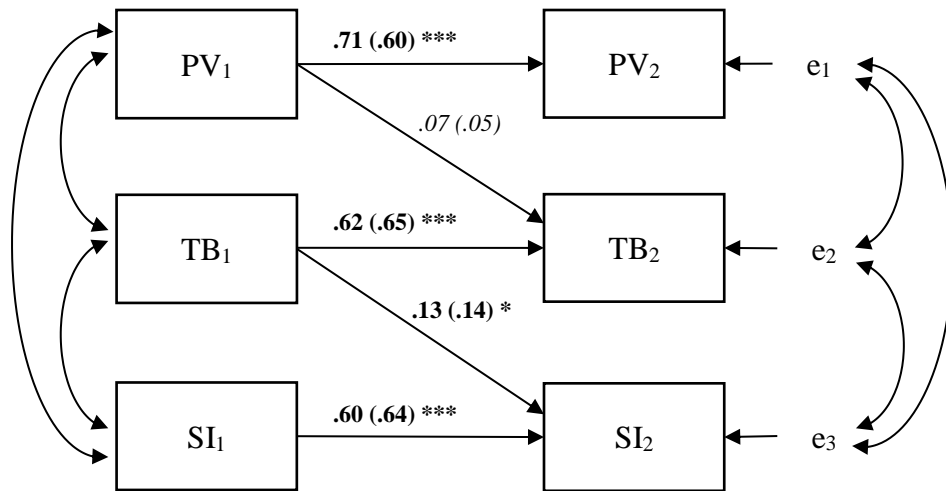


Figure 2b. Thwarted belongingness (PB) as a mediator between peer victimization (PV) and suicidal ideation (SI). Standardized weights for the high school sample are listed first, with standardized weights for the college sample in parentheses. Significance markers indicate whether the unstandardized weight for the whole sample was significantly different from zero. * $p < .05$; ** $p < .01$; *** $p < .001$

Specific Aim 3: Test the longitudinal relations between hopelessness, perceived burdensomeness, and thwarted belongingness.

As noted above, these were exploratory analyses, and we did not have a priori hypotheses regarding how cognitive risk factors might predict each other over time; thus, we analyzed a model in which all cognitions at Time 1 were tested as predictors of all cognitions at Time 2 (see Figure 3). Because this was a saturated model, fit was perfect in the unconstrained two-group analyses. Cross-group constraints were added for Time 1 covariances, as well as longitudinal paths between cognitions. When these paths were constrained, there was not a significant change in model fit ($\chi^2_{(df=12, N=334)} = 14.651, p = .261$), and fit for the constrained model remained

excellent (RMSEA 90% CI = [.000, .064]; NFI = .982; TLI = .988). Accordingly, these constraints were maintained for final analyses.

With cross-group constraints applied, hopelessness and thwarted belongingness (TB) exhibited a reciprocal relationship, such that hopelessness significantly predicted thwarted belongingness ($B = .106$, $SE(B) = .044$, $p = .017$; $\beta_{Adol} = .158$, $\beta_{College} = .163$), and thwarted belongingness significantly predicted hopelessness ($B = .334$, $SE(B) = .13$, $p = .010$; $\beta_{Adol} = .197$, $\beta_{College} = .196$). Perceived burdensomeness was not a significant predictor of either hopelessness or thwarted belongingness; hopelessness and thwarted belongingness also did not predict perceived burdensomeness. These results are depicted in Figure 3; see Table 3 for standardized and unstandardized regression weights.

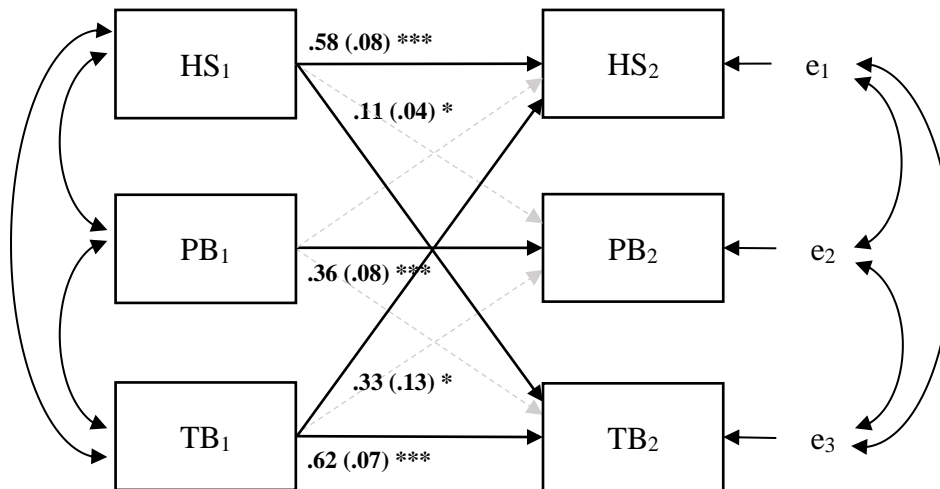


Figure 3. Longitudinal relations between hopelessness (HS), perceived burdensomeness (PB), and thwarted belongingness (TB). Standardized weights for the high school sample are listed first, with standardized weights for the college sample in parentheses. Significance markers indicate whether the unstandardized weight for the whole sample was significantly different from zero. Nonsignificant paths are indicated by dashed gray lines. * $p < .05$; ** $p < .01$; *** $p < .001$

Post-hoc Analyses

Interaction between thwarted belongingness and perceived burdensomeness. Joiner's interpersonal-psychological model stipulates that the interaction of perceived burdensomeness and thwarted belongingness is a significant predictor of suicidal ideation, over and above the main effects of each of these variables. In the current study, it was not feasible to simultaneously test perceived burdensomeness (PB), thwarted belongingness (TB), and their interaction as part of a mediational model between peer victimization (PV) and suicidal ideation; however, we were able to examine PB, TB, and the PBxTB interaction as predictors of future suicidal ideation. To test this model, Time 1 PB, Time 1 TB, and their interaction were entered as predictors of Time 2 suicidal ideation, with Time 1 suicidal ideation as a covariate. As above, cross-group constraints were applied for longitudinal paths. Model fit was excellent ($\chi^2_{(df=4, N=334)} = 2.274, p = .685$; RMSEA 90% CI = [.000, .063]; NFI = .999; TLI = 1.006). In this model, neither the PBxTB interaction nor the PB or TB main effects were statistically significant (see Table 4). When the PBxTB interaction was removed from the model, the main effect for TB became marginally significant ($B = .278, SE(B) = .163, p = .088; \beta_{Adol} = .106, \beta_{College} = .118$), and the main effect for PB remained nonsignificant. Regression coefficients for both models are shown in Table 4.

Hopelessness, perceived burdensomeness, and thwarted belongingness as simultaneous predictors of suicidal ideation. In individual analyses, all three proposed mediators were significant predictors of future suicidal ideation. All three were then entered as predictors of suicidal ideation in a single model, to determine if one had incremental predictive utility over and above the other two. As above, longitudinal paths were constrained to be equal across groups, and model fit was excellent ($\chi^2_{(df=4, N=334)} = 2.103, p = .717$; RMSEA 90% CI = [.000,

.061]; NFI = .997; TLI = 1.022). When hopelessness, perceived burdensomeness, and thwarted belongingness were included in the same model, none emerged as a unique predictor of future suicidal ideation, after accounting for the other two variables.

To test whether this was due to multicollinearity among cognitive variables, rather than a lack of predictive value, an additional model was tested, with all three cognitive variables loading onto a single cognitive factor (see Figure 4). With cross-group constraints applied, this model demonstrated good fit (RMSEA 90% CI = [.012, .053], NFI = .951, TLI = .967), and cognition significantly predicted future suicidal ideation ($B = .513$, $SE(B) = .150$, $p < .001$; $\beta_{Adol} = .247$, $\beta_{College} = .248$). These results support the hypothesis that the cognitive variables of interest do indeed predict future suicidal ideation, but the high correlations between the measures prevent them from having significant, unique contributions when all are included in the same model.

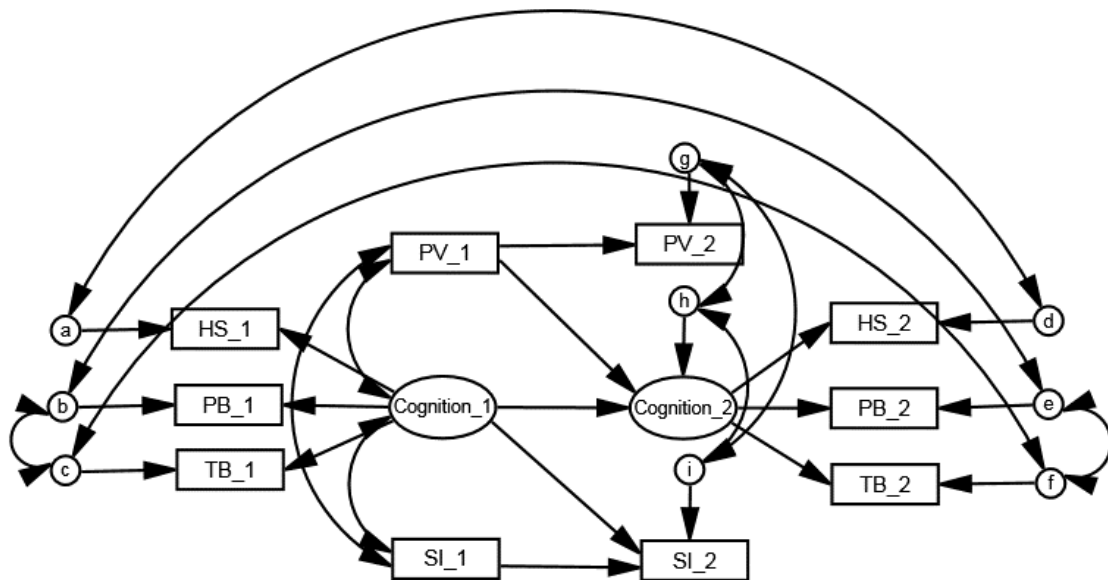


Figure 4. Hopelessness (HS), perceived burdensomeness (PB), and thwarted belongingness (TB) as indicators of cognitive vulnerability. PV = peer victimization, measured by the Peer Victimization Self-Report (Cole et al., 2010); HS = hopelessness, measured by the Beck Hopelessness Scale (Beck & Steer, 1988); PB = perceived burdensomeness, measured by the Interpersonal Needs Questionnaire, 15-item version, Perceived Burdensomeness subscale (van Orden et al., 2012); TB = thwarted belongingness, measured by the Interpersonal Needs Questionnaire, 15-item version, Thwarted Belongingness subscale (van Orden et al., 2012); SI = suicidal ideation, measured by the Suicidal Ideation Questionnaire, Jr. Version (Reynolds, 1988).

Chapter IV

DISCUSSION

The current study examined potential cognitive mechanisms underlying the observed link between peer victimization and future suicidal ideation. We focused on two cognitive models of suicidal ideation, Beck's hopelessness model (Beck, Kovacs & Weissman, 1975) and Joiner's interpersonal-psychological model (2005), and tested whether their proposed cognitive risk factors mediate the relation between peer victimization and suicidal ideation. To our knowledge, this is the first study to address these questions with a longitudinal test of theory-based, cognitive risk factors (hopelessness, perceived burdensomeness, and thwarted belongingness) as mediators.

Several key findings emerged. First, peer victimization prospectively predicted increases in perceived burdensomeness, but it did not predict changes in hopelessness or thwarted belongingness. Second, all three cognitive variables prospectively predicted future suicidal ideation, and these findings address some inconsistencies and methodological limitations of the existing literature. Third, none of the cognitive variables uniquely predicted suicidal ideation when all three variables were included in the same model, which likely reflects the high degree of multicollinearity between the cognitive variables. Fourth, exploratory analyses indicated that hopelessness and thwarted belongingness might influence each other over time, whereas perceived burdensomeness did not demonstrate significant longitudinal relations with either of these variables. These conclusions, as well as study limitations and future directions, are discussed below.

Perceived burdensomeness as a mediator

Our first major finding supported perceived burdensomeness, but not hopelessness or thwarted belongingness, as a mediator of the link between peer victimization and increased suicidal ideation. In both the high school and undergraduate samples, experiencing victimization by one's peers was predictive of increases in perceived burdensomeness, and perceived burdensomeness predicted future suicidal ideation. These findings have meaningful implications for intervention development. Existing evidence indicates that perceived burdensomeness and thwarted belongingness are differentially associated with life events. For example, in a sample of Australian adults (Christensen, Batterham, Mackinnon, Donker & Soubelet, 2014), thwarted belongingness (but not perceived burdensomeness) was associated with positive support from family and friends, while perceived burdensomeness (but not thwarted belongingness) was associated with rumination.

These differential associations could have important implications for intervention development and delivery. To date, many suicide prevention programs for young people have focused on increasing access to social resources; for examples, see the Youth-Nominated Support Team—Version II (King et al., 2009) and C-CARE (Eggert, Nicholas & Owens, 1995). If positive social support is associated with thwarted belongingness but not perceived burdensomeness, then social support-focused interventions may not be effective in decreasing perceived burdensomeness. In a related vein, a recent study by Buitron, Hill, and Pettit (2016) found that mindfulness moderated the link between perceived burdensomeness and suicidal ideation; however, this pattern was not observed with thwarted belongingness. As evidenced by these studies, distinguishing between cognitive risk factors is not a purely academic endeavor; on the contrary, a more precise understanding of cognitive mechanisms may be crucial in

developing and delivering effective interventions. The current findings indicate that, for victimized adolescents and young adults, interventions that specifically target perceived burdensomeness might be effective in preventing future suicidal ideation.

Joiner's interpersonal-psychological model

Second, the current results add to the growing body of literature indicating mixed support for Joiner's interpersonal-psychological model of suicidal ideation. Joiner posited that the interaction of perceived burdensomeness and thwarted belongingness gives rise to suicidal ideation; however, a recent review (Ma et al., 2016) indicated inconsistent support for this theory. Specifically, Ma and colleagues noted that perceived burdensomeness was more consistently associated with suicidal ideation than was thwarted belongingness, and the interaction of the two, a cornerstone of Joiner's original model, was not consistently supported as a correlate of suicidal ideation (2016). The review also noted that the existing literature was dominated by cross-sectional data (63 of 66 included studies) and thus could not test the longitudinal predictions of the theory. Additionally, tests of Joiner's model have largely relied on adult samples, and the theory's applicability to suicide risk in youth is just beginning to be tested.

The current study expanded on the existing literature by (a) providing a longitudinal test of Joiner's theory, which is necessary for elucidating causal mechanisms; and (b) including both an adolescent and a young adult sample, allowing for tests of age differences. Our results provide support for some, but not all, aspects of the interpersonal-psychological model of suicidal ideation. Consistent with the interpersonal-psychological theory, our results supported perceived burdensomeness and thwarted belongingness as precursors to suicidal ideation among community adolescents and young adults. Contrary to the theory, the interaction of perceived

burdensomeness and thwarted belongingness was not a significant predictor of suicidal ideation for either age group. Moreover, when both perceived burdensomeness and thwarted belongingness were included in the same model, neither construct uniquely contributed to the prediction of suicidal ideation.

The current results contradict two of the three existing longitudinal studies of the interpersonal-psychological theory of suicide. Neither Czyz et al. (2015) nor Miller et al. (2016) found support for perceived burdensomeness, thwarted belongingness, or their interaction as predictors of future suicidality. Differences between the studies provide possible explanations for these discrepancies. First, Czyz and colleagues (2015) examined Joiner's theory as a predictor of suicide attempt, whereas the current study examined suicidal ideation. The current literature supports differences in risk factors for suicidal ideation compared to suicide attempts (Nock et al., 2008; Nock & Kessler, 2006); thus, it may be the case that the interpersonal-psychological theory identifies significant predictors for suicidal ideation, but not suicide attempts. Second, both Czyz et al. (2015) and Miller et al. (2016) studied high-risk clinical populations: adolescents in psychiatric inpatient treatment and a partial hospitalization program, respectively. This represents a substantial difference from the current samples of community adolescents.

Measurement error may also play a role in the lack of consensus between studies. The Interpersonal Needs Questionnaire (INQ; van Orden et al., 2008), which was developed to assess perceived burdensomeness and thwarted belongingness as defined by Joiner (2005), currently exists in 10-, 12-, 15-, 18-, and 25-item versions. A recent publication study compared the psychometric properties of each version in adolescents and young adults (Hill et al., 2015). Hill and colleagues found that only the 10- and 15-item versions consistently supported the proposed two-factor structure of the measure. We performed confirmatory factor analyses of the 10-, 15-,

and 18-item versions of the INQ and found that only the 15-item version showed strong support for the theorized factors of perceived burdensomeness and thwarted belongingness in both samples. Consequently, we used the 15-item version for our analyses. Using the 18-item version, Miller et al. (2015) did not find support for the role of perceived burdensomeness or thwarted belongingness in their study of adolescents in intensive treatment. Czyz et al. (2016) measured burdensomeness with three items that were similar to items on the PB subscale of the 18-item version; however, these items were quite different from the items on the 10- and 15-item versions. Thus, discrepant findings across studies may be a function of differences in measurement (and possible measurement-related problems). With continued refinement of the INQ and more precise measurement of the proposed factors, more consistent results concerning perceived burdensomeness and thwarted belongingness may emerge.

Beck's hopelessness model

Our findings also have implications for the hopelessness theory of suicide. Hopelessness in relation to suicide risk has been extensively studied among adults, and these studies support hopelessness as a risk factor for future suicide risk among adults, even after controlling for sex and depressive symptoms (Beck et al., 1990; Brown et al., 2000; Chioqueta & Stiles, 2003; Schneider et al., 2001; Steer et al., 1993). This relation has been less studied among adolescents, and some authors state that results regarding the role of hopelessness in adolescent suicidality are inconsistent (Huth-Bocks et al., 2007; Nruham et al., 2008; Wilkinson et al., 2011).

A closer examination of longitudinal studies of hopelessness and suicide risk among adolescents reveals a potentially meaningful pattern. Among studies that used a validated measure of hopelessness, support for Beck's hopelessness theory of suicide among adolescents

was remarkably consistent (Asarnow et al., 2011; Mazza & Reynolds, 1998; Mustanski & Liu, 2013; Stewart et al., 2005). Among studies that relied on single items drawn from other measures to assess hopelessness, Beck's theory was not supported (Lewinsohn, Rohde & Seeley, 1994; Wilkinson et al., 2011). Thus, the current study aimed to address the inconsistencies by studying hopelessness and suicidal ideation using validated measures, in a longitudinal design, with adolescents. Our results indicated that hopelessness is indeed a prospective predictor of suicidal ideation among adolescents; moreover, this relation did not significantly differ between our adolescent and young adult samples. Such findings support our hypothesis that the so-called "mixed support" among adolescents may be more reflective of measurement error than of true age-related differences.

Longitudinal relations between cognitive variables

Fourth, the current study provides exploratory evidence regarding the longitudinal relations between the proposed cognitive risk factors for suicide. A frequent criticism of suicide research is that it often addresses a single model of suicide risk, rather than integrating or comparing models; accordingly, very little is known about the relative contributions of proposed risk factors, or how they might influence each other. To address these questions, the current study examined how hopelessness, thwarted belongingness, and perceived burdensomeness related to each other over time. Our results indicated that hopelessness and thwarted belongingness influence each other over time, while perceived burdensomeness did not exhibit longitudinal relations with either of these constructs. It may be the case that perceived burdensomeness changes more slowly than do the other factors; as such, future studies may need

to follow participants for a longer period of time in order to contribute to attempts to integrate cognitive theories of suicide risk.

Limitations

These conclusions must be interpreted in light of the limitations of the current study. First, although the study was sufficiently powered to detect small to medium effect sizes, we did not have sufficient power to detect very small effect sizes. Thus, peer victimization may have exerted an effect on hopelessness or thwarted belongingness that we were unable to detect. Second, the current study only included two time points. Multiple time points would allow for a more nuanced understanding of mediational processes and proximal versus distal risk factors. Third, this study focused on nonclinical samples, with relatively low levels of psychopathology and suicidal ideation. Clinical samples with preexisting psychopathology may be especially vulnerable to the cognitive impact of interpersonal stressors such as peer victimization. In these vulnerable populations, relations between variables of interest could differ substantially, and these group differences could have substantial implications for intervention efforts. Fourth, the Interpersonal Needs Questionnaire, used to assess perceived burdensomeness and thwarted belongingness, was developed for use with adults, and it has not been specifically adapted and validated for use with younger audiences. Although our analyses provide preliminary support for the 15-item version, further validation of the INQ is necessary to rule out measurement-related problems. Finally, the current study relied on a self-selected sample of participants. Because the study sample is not representative, the ability to generalize study results may be limited.

Future Directions

The current study's findings, as well as its methodological limitations, indicate several promising areas for further investigation. First, the current results indicate that perceived burdensomeness may underlie the observed link between peer victimization and future suicidal ideation. Studies of interventions that target perceived burdensomeness will provide a stronger test of this hypothesis. If the hypothesized relation is supported, such interventions could inform school-based efforts to provide effective support to victims of bullying. Second, our results add to a small but growing body of literature indicating the need for continued refinement of the Interpersonal Needs Questionnaire (van Orden et al., 2008). Some inconsistencies in the current literature may be due to measurement-related problems, and further development in this area would facilitate a clearer understanding of the mechanisms of suicide risk. Third, our data are consistent with the hypothesis that so-called "mixed" or "inconsistent" results regarding the role of hopelessness in adolescent suicide may be reflective of imprecise measurement. Intervention studies that use validated measures of hopelessness will provide further insight regarding mechanisms of suicide risk in adolescents. Finally, when all three cognitive mediators were tested simultaneously, one did not exhibit incremental predictive utility above the other two. Factor analysis with larger samples could clarify whether the three measures are better understood as indicators of a single latent variable, rather than distinct constructs.

Table 1

Variable Means and Standard Deviations at Time 1

Measures	High School (N=166)		Undergraduate (N=142)	
	Mean	SD	Mean	SD
Age (years)	16.20	1.04	19.60	1.06
PVSR	1.44	0.44	1.31	0.26
BHS	3.46	4.12	3.99	3.84
INQ-15-PB	11.18	7.65	9.40	6.17
INQ-15-TB	21.35	11.54	20.94	11.08
SIQ-JR	10.50	17.14	7.18	10.56

Note. PVSR = Peer Victimization Self-Report (Cole et al., 2010); BHS = Beck Hopelessness Scale (Beck & Steer, 1988); INQ-15-PB = Interpersonal Needs Questionnaire (15-item version), Perceived Burdensomeness subscale (van Orden et al., 2012); INQ-15-TB = Interpersonal Needs Questionnaire (15-item version), Thwarted Belongingness subscale (van Orden et al., 2012); SIQ-JR = Suicidal Ideation Questionnaire, Jr. Version (Reynolds, 1988).

Table 2

Variable Correlations at Time 1 and Time 2

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Age T1		-.229**	-0.071	.028	-.078	.092	-.065	.089	.109	.09	.109	-.072
2. Gender	.223**		.101	-.051	.074	.093	.031	.078	-.040	.000	-.076	-.009
3. PVSr T1	-.010	-.015		.241**	.329**	.297**	.223**	.589**	.160	.333**	.266**	.257**
4. BHS T1	.196*	.025	.445**		.609**	.606**	.580**	.155	.586**	.396**	.448**	.478**
5. INQ-15-PB T1	.059	-.025	.555**	.730**		.597**	.681**	.341**	.320**	.449**	.310**	.576**
6. INQ-15-TB T1	.186*	.021	.393**	.679**	.690**		.400**	.228*	.463**	.450**	.657**	.414**
7. SIQ-JR T1	.108	.054	.530**	.653**	.745**	.560**		.139	.304**	.303**	.243*	.678**
8. PVSr T2	-.032	-.027	.677**	.239*	.398**	.328**	.291**		.203*	.436**	.230*	.311**
9. BHS T2	.122	.144	.279**	.659**	.508**	.575**	.508**	.402**		.537**	.572**	.472**
10. INQ-15-PB T2	-.017	-.008	.313**	.434**	.571**	.410**	.361**	.452**	.600**		.621**	.661**
11. INQ-15-TB T2	.041	.070	.300**	.490**	.490**	.645**	.325**	.443**	.647**	.613**		.495**
12. SIQ-JR T2	.004	.066	.339**	.431**	.551**	.467**	.509**	.463**	.689**	.716**	.531**	

Note. Values below the diagonal are for high school participants. Values above the diagonal are for undergraduate participants.

PVSr = Peer Victimization Self-Report (Cole et al., 2010); BHS = Beck Hopelessness Scale (Beck & Steer, 1988); INQ-15-PB = Interpersonal Needs Questionnaire (15-item version), Perceived Burdensomeness subscale (van Orden et al., 2012); INQ-15-TB = Interpersonal Needs Questionnaire (15-item version), Thwarted Belongingness subscale (van Orden et al., 2012); SIQ-JR = Suicidal Ideation Questionnaire, Jr. Version (Reynolds, 1988).

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3

Longitudinal Relations between Peer Victimization, Cognition, and Suicidal Ideation

	<i>B</i>	<i>SE(B)</i>	<i>p</i>	β_{Adol}	$\beta_{College}$
Hopelessness (HS)					
PV ₁ → PV ₂	0.631	0.045	< .001	0.708	0.595
HS ₁ → HS ₂	0.673	0.059	< .001	0.659	0.572
PV ₁ → HS ₂	-0.153	0.307	0.617	-0.030	-0.020
HS ₁ → SI ₂	0.256	0.086	0.003	0.162	0.164
SI ₁ → S ₂	0.559	0.05	< .001	0.571	0.595
Perceived Burdensomeness (TB)					
PV ₁ → PV ₂	0.636	0.045	< .001	0.713	0.598
PB ₁ → PB ₂	0.441	0.056	< .001	0.481	0.463
PV ₁ → PB ₂	0.387	0.175	0.027	0.137	0.103
PB ₁ → SI ₂	0.41	0.147	0.005	0.160	0.160
SI ₁ → S ₂	0.547	0.051	< .001	0.561	0.583
Thwarted Belongingness (TB)					
PV ₁ → PV ₂	0.630	0.045	< .001	0.709	0.595
TB ₁ → TB ₂	0.652	0.054	< .001	0.624	0.653
PV ₁ → TB ₂	0.219	0.188	0.244	0.068	0.051
TB ₁ → SI ₂	0.327	0.131	0.013	0.125	0.139
SI ₁ → S ₂	0.601	0.05	< .001	0.603	0.639

Note. PV = peer victimization, as measured by the Peer Victimization Self-Report (Cole et al., 2010); HS = hopelessness, as measured by the Beck Hopelessness Scale (Beck & Steer, 1988); PB = perceived burdensomeness, as measured by the Interpersonal Needs Questionnaire, 15-item version, Perceived Burdensomeness subscale (van Orden et al., 2012); TB = thwarted belongingness, as measured by the Interpersonal Needs Questionnaire, 15-item version, Thwarted Belongingness subscale (van Orden et al., 2012); SI = suicidal ideation, as measured by the Suicidal Ideation Questionnaire, Jr. Version (Reynolds, 1988).

Table 4

Perceived Burdensomeness, Thwarted Belongingness, and Their Interaction as Predictors of Suicidal Ideation

	<i>B</i>	<i>SE(B)</i>	<i>p</i>	β_{Adol}	$\beta_{College}$
With PBxTB Interaction					
PB ₁	.704	1.176	.599	.265	.275
TB ₁	.555	.755	.462	.212	.237
PBxTB ₁	-.295	.781	.706	-.252	-.260
SI ₁	.545	.059	< .001	.546	.581
Without PBxTB Interaction					
PB ₁	.266	.188	.156	.100	.104
TB ₁	.278	.163	.088	.106	.118
SI ₁	.546	.059	< .001	.547	.581

Note. PV = peer victimization, as measured by the Peer Victimization Self-Report (Cole et al., 2010); HS = hopelessness, as measured by the Beck Hopelessness Scale (Beck & Steer, 1988); PB = perceived burdensomeness, as measured by the Interpersonal Needs Questionnaire, 15-item version, Perceived Burdensomeness subscale (van Orden et al., 2012); TB = thwarted belongingness, as measured by the Interpersonal Needs Questionnaire, 15-item version, Thwarted Belongingness subscale (van Orden et al., 2012); SI = suicidal ideation, as measured by the Suicidal Ideation Questionnaire, Jr. Version (Reynolds, 1988).

REFERENCES

- Allen, B. C., Holland, P., & Reynolds, R. (2015). The effect of bullying on burnout in nurses: The moderating role of psychological detachment. *Journal of Advanced Nursing*, *71*(2), 381-390.
- Asarnow, J. R., Porta, G., Spirito, A., Emslie, G., Clarke, G., Wagner, K. D.,...Brent, D. A. (2011). Suicide attempts and nonsuicidal self-injury in the Treatment of Resistant Depression in Adolescents: Findings from the TORDIA study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *50*(8), 772-781.
- Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. *Child Development*, *55*, 1456-1464.
- Askew, D. A., Schluter, P. J., Dick, M. L., Régo, P. M., Turner, C., & Wilkinson, D. (2012). Bullying in the Australian medical workforce: cross-sectional data from an Australian e-Cohort study. *Australian Health Review*, *36*(2), 197-204.
- Balducci, C., Alfano, V., & Fraccaroli, F. (2009). Relationships between mobbing at work and MMPI-2 personality profile, posttraumatic stress symptoms, and suicidal ideation and behavior. *Violence and Victims*, *24*(1), 52-67.
- Bannink, R., Broeren, S., van de Looij-Jansen, P. M., de Waart, F. G., & Raat, H. (2014). Cyber and traditional bullying victimization as a risk factor for mental health problems and suicidal ideation in adolescents. *PloS One*, *9*(4), e94026.
- Beck, A. T., Brown, G., Berchick, R. J., Stewart, B. L., & Steer, R. A. (1990). Relationship between hopelessness and ultimate suicide: A replication with psychiatric outpatients. *The American Journal of Psychiatry*, *147*(2), 190-195.
- Beck, A. T., Kovacs, M., & Weissman, A. (1975). Hopelessness and suicidal behavior: An overview. *Journal of the American Medical Association*, *234*(11), 1146-1149.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). Beck depression inventory-II. *San Antonio*.
- Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10-year prospective study of patients hospitalized with suicidal ideation. *The American Journal of Psychiatry*, *142*(5), 559-563.
- Beck, A. T., Weissman, A., Lester, D. & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, *42*, 861-865.
- Bonanno, R. A., & Hymel, S. (2010). Beyond hurt feelings: Investigating why some victims of bullying are at greater risk for suicidal ideation. *Merrill-Palmer Quarterly*, *56*(3), 420-440.
- Brinkman-Sull, D. C., Overholser, J. C., & Silverman, E. (2000). Risk of future suicide attempts in adolescent psychiatric inpatients at 18-month follow-up. *Suicide and Life-Threatening Behavior*, *30*(4), 327-340.

- Brown, G. K., Beck, A. T., Steer, R. A., & Grisham, J. R. (2000). Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *Journal of Consulting and Clinical Psychology, 68*(3), 371-377.
- Buitron, V., Hill, R. M., & Pettit, J. W. (2017). Mindfulness moderates the association between perceived burdensomeness and suicide ideation in adults with elevated depressive symptoms. *Suicide and Life-Threatening Behavior*. Epub ahead of print.
- Chapell, M., Casey, D., De la Cruz, C., & Ferrell, J. (2004). Bullying in college by students and teachers. *Adolescence, 39*(153), 53-64.
- Chioqueta, A. P., & Stiles, T. C. (2003). Suicide risk in outpatients with specific mood and anxiety disorders. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 24*(3), 105-112.
- Christensen, H., Batterham, P. J., Mackinnon, A. J., Donker, T., & Soubelet, A. (2014). Predictors of the risk factors for suicide identified by the interpersonal-psychological theory of suicidal behaviour. *Psychiatry Research, 219*(2), 290-297.
- Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology, 112*(4), 558-577.
- Cole, D. A., Maxwell, M. A., Dukewich, T. L., & Yosick, R. (2010). Targeted peer victimization and the construction of positive and negative self-cognitions: Connections to depressive symptoms in children. *Journal of Clinical Child & Adolescent Psychology, 39*(3), 421-435.
- Copeland, W. E., Wolke, D., Angold, A., & Costello, E. J. (2013). Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. *JAMA Psychiatry, 70*(4), 419-426.
- Czyz, E. K., Berona, J., & King, C. A. (2015). A Prospective Examination of the Interpersonal-Psychological Theory of Suicidal Behavior Among Psychiatric Adolescent Inpatients. *Suicide and life-threatening behavior, 45*(2), 243-259.
- Devine, K. A., Storch, E. A., Geffken, G. R., Freddo, M., Humphrey, J. L., & Silverstein, J. H. (2008). Prospective study of peer victimization and social-psychological adjustment in children with endocrine disorders. *Journal of Child Health Care, 12*(1), 76-86.
- Doane, A. N., Kelley, M. L., Chiang, E. S., & Padilla, M. A. (2013). Development of the Cyberbullying Experiences Survey. *Emerging Adulthood, 1*(3), 207-218.
- Dussault, M., & Frenette, É. (2014). Loneliness and bullying in the workplace. *American Journal of Applied Psychology, 2*(4), 94-98.
- Einarsen, S., Hoel, H., & Notelaers, G. (2009). Measuring exposure to bullying and harassment at work: Validity, factor structure and psychometric properties of the Negative Acts Questionnaire-Revised. *Work & Stress, 23*(1), 24-44.
- Einarsen, S., & Nielsen, M. B. (2014). Workplace bullying as an antecedent of mental health problems: A five-year prospective and representative study. *International Archives of Occupational and Environmental Health, 88*(2), 131-142.

- Geoffroy, M. C., Boivin, M., Arseneault, L., Turecki, G., Vitaro, F., Brendgen, M.,...Côté, S. M. (2016). Associations between peer victimization and suicidal ideation and suicide attempt during adolescence: results from a prospective population-based birth cohort. *Journal of the American Academy of Child & Adolescent Psychiatry, 55*(2), 99-105.
- Goldston, D. B., Daniel, S. S., Reboussin, B. A., Reboussin, D. M., Frazier, P. H., & Harris, A. E. (2001). Cognitive risk factors and suicide attempts among formerly hospitalized adolescents: A prospective naturalistic study. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*(1), 91-99.
- Groholt, B., Ekeberg, O., & Haldorsen, T. (2006). Adolescent suicide attempters: What predicts future suicidal acts? *Suicide and Life-Threatening Behavior, 36*(6), 638-650.
- Hallensleben, N., Spangenberg, L., Kapusta, N. D., Forkmann, T., & Glaesmer, H. (2016). The German version of the Interpersonal Needs Questionnaire (INQ)–Dimensionality, psychometric properties and population-based norms. *Journal of Affective Disorders, 195*, 191-198.
- Hamilton, J. L., Connolly, S. L., Liu, R. T., Stange, J. P., Abramson, L. Y., & Alloy, L. B. (2015). It gets better: Future orientation buffers the development of hopelessness and depressive symptoms following emotional victimization during early adolescence. *Journal of Abnormal Child Psychology, 43*, 465-474.
- Heilbron, N., & Prinstein, M. J. (2010). Adolescent peer victimization, peer status, suicidal ideation, and nonsuicidal self-injury: Examining concurrent and longitudinal associations. *Merrill-Palmer Quarterly, 56*(3), 388-419.
- Hill, R. M., Rey, Y., Marin, C. E., Sharp, C., Green, K. L., & Pettit, J. W. (2015). Evaluating the Interpersonal Needs Questionnaire: comparison of the reliability, factor structure, and predictive validity across five versions. *Suicide and Life-Threatening Behavior, 45*(3), 302-314.
- Hogh, A., Marie, E. H., & Burr, H. (2005). A 5-year follow-up study of aggression at work and psychological health. *International Journal of Behavioral Medicine, 12*(4), 256-65.
- Huth-Bocks, A. C., Kerr, D. C. R., Ivey, A. Z., Kramer, A. C., & King, C. A. (2007). Assessment of psychiatrically hospitalized suicidal adolescents: Self-report instruments as predictors of suicidal thoughts and behavior. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*(3), 387-395.
- Joiner, T. (2005). *Why people die by suicide*. Harvard University Press.
- Joiner, T. E., van Orden, K. A., Witte, T. K., Selby, E. A., Ribeiro, J. D., Lewis, R., & Rudd, M. D. (2009). Main predictions of the interpersonal–psychological theory of suicidal behavior: Empirical tests in two samples of young adults. *Journal of Abnormal Psychology, 118*(3), 634-646.
- Kaltiala-Heino, R., Rimpelä, M., Rantanen, P., & Rimpelä, A. (2000). Bullying at school: An indicator of adolescents at risk for mental disorders. *Journal of Adolescence, 23*, 661-674.
- Kaminski, J. W., & Fang, X. (2009). Victimization by peers and adolescent suicide in three US samples. *Journal of Pediatrics, 155*(5), 683–688.

- Kaufman, P., Chen, X., Choy, S. P., Ruddy, S. A., Miller, A. K., & Chandler, K. A. (1999). *Indicators of school crime and safety (NCES 1999-057/NCJ-178906)*. Washington, DC: Departments of Education and Justice.
- Keane, E. M., Dick, R. W., Bechtold, D. W., & Manson, S. M. (1996). Predictive and concurrent validity of the Suicidal Ideation Questionnaire among American Indian adolescents. *Journal of Abnormal Child Psychology*, *24*(6), 735-747.
- Kim, Y. S., Koh, Y. J., & Leventhal, B. (2005). School bullying and suicidal risk in Korean middle school students. *Pediatrics*, *115*, 357-363.
- Kim, Y.S., Koh, Y. J., Leventhal, B., & Boyce, W. T. (2009). Bullying increased suicide risk: Prospective study of Korean adolescents. *Archives of Suicide Research*, *13*(1), 15-30.
- King, C. A., Klaus, N., Kramer, A., Venkataraman, S., Quinlan, P., & Gillespie, B. (2009). The Youth-Nominated Support Team–Version II for suicidal adolescents: A randomized controlled intervention trial. *Journal of Consulting and Clinical Psychology*, *77*(5), 880-893.
- Kleiman, E. M., Law, K. C., & Anestis, M. D. (2014). Do theories of suicide play well together? Integrating components of the hopelessness and interpersonal psychological theories of suicide. *Comprehensive Psychiatry*, *55*(3), 431-438.
- Kleiman, E. M., Liu, R. T., & Riskind, J. H. (2014). Integrating the interpersonal psychological theory of suicide into the depression/suicidal ideation relationship: A short-term prospective study. *Behavior Therapy*, *45*(2), 212-221.
- Kochenderfer-Ladd, B., & Wardrop, J. L. (2001). Chronicity and instability of children's peer victimization experiences as predictors of loneliness and social satisfaction trajectories. *Child Development*, *72*(1), 134-151.
- Ladd, G. W., & Kochenderfer-Ladd, B. (2002). Identifying victims of peer aggression from early to middle childhood: Analysis of cross-informant data for concordance, estimation of relational adjustment, prevalence of victimization, and characteristics of identified victims. *Psychological Assessment*, *14*(1), 74-96.
- Leach, L. S., Poyser, C., & Butterworth, P. (2017). Workplace bullying and the association with suicidal ideation/thoughts and behaviour: A systematic review. *Occupational and Environmental Medicine*, *74*, 72-29.
- Lee, R. M., & Robbins, S. B. (1995). Measuring belongingness: The Social Connectedness and the Social Assurance scales. *Journal of Counseling Psychology*, *42*(2), 232-241.
- Lewinsohn, P., Rohde, P., & Seeley, J. (1994). Adolescent suicidal ideation and attempts: Prevalence, risk factors, and clinical implications. *Journal of Clinical Psychology*, *3*, 25-46.
- Leymann, H. (1990). Mobbing and psychological terror at workplaces. *Violence and Victims*, *5*, 119-126.
- Ma, J., Batterham, P. J., Calear, A. L., & Han, J. (2016). A systematic review of the predictions of the Interpersonal–Psychological Theory of Suicidal Behavior. *Clinical Psychology Review*, *46*, 34-45.

- Mann, J. J., Waternaux, C., Haas, G. L., & Malone, K. M. (1999). Toward a clinical model of suicidal behavior in psychiatric patients. *American Journal of Psychiatry*, *156*(2), 181-189.
- Marcoen, A., Goossens, L., & Caes, P. (1987). Loneliness in pre- through late adolescence: Exploring the contributions of a multidimensional approach. *Journal of Youth and Adolescence*, *16*(6), 561-577.
- Mazza, J. J., & Reynolds, W. M. (1998). A longitudinal investigation of depression, hopelessness, social support, and major and minor events and their relations to suicidal ideation in adolescents. *Suicide and Life-Threatening Behavior*, *28*(4), 358-374.
- Miller, A. B., Esposito-Smythers, C., & Leichtweis, R. N. (2015). A short-term, prospective test of the interpersonal–psychological theory of suicidal ideation in an adolescent clinical sample. *Suicide and Life-Threatening Behavior*, *46*(3), 337-351.
- Miller, H., & Rayner, C. (2012). The form and function of “bullying” behaviors in a strong occupational culture: Bullying in a U.K. police service. *Group & Organization Management*, *37*(3), 347-375.
- Mustanski, B., & Liu, R. T. (2013). A longitudinal study of predictors of suicide attempts among lesbian, gay, bisexual, and transgender youth. *Archives of Sexual Behavior*, *42*(3), 437-448.
- Miller, H., & Rayner, C. (2012). The form and function of “bullying” behaviors in a strong occupational culture: Bullying in a U.K. police service. *Group and Organization Management*, *37*(3), 347-375.
- Nansel, T.R., Overpeck, M., Pilla, R.S., Ruan, W., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *Journal of the American Medical Association*, *285*(16), 2094-2100.
- Nielsen, M. B., Einarsen, S., Notelaers, G., & Nielsen, G. H. (2016). Does exposure to bullying behaviors at the workplace contribute to later suicidal ideation? A three-wave longitudinal study. *Scandinavian Journal of Work, Environment and Health*, *42*(3), 246-250.
- Nock, M. K., Borges, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A.,...De Graaf, R. (2008). Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *The British Journal of Psychiatry*, *192*(2), 98-105.
- Nock, M. K., & Kessler, R. C. (2006). Prevalence of and risk factors for suicide attempts versus suicide gestures: analysis of the National Comorbidity Survey. *Journal of Abnormal Psychology*, *115*(3), 616-623.
- Nrugham, L., Larsson, B., & Sund, A. M. (2008). Specific depressive symptoms and disorders as associates and predictors of suicidal acts across adolescence. *Journal of Affective Disorders*, *111*, 83-93.
- Ortega, A., Høgh, A., Pejtersen, J. H., & Olsen, O. (2009). Prevalence of workplace bullying and risk groups: A representative population study. *International Archives of Occupational and Environmental Health*, *82*(3), 417-426.

- Ostrov, J. M., & Godleski, S. A. (2013). Relational aggression, victimization, and adjustment during middle childhood. *Development and Psychopathology, 25*, 801-815.
- Preacher, K. J. (2015). Advances in mediation analysis: A survey and synthesis of new developments. *Annual Review of Psychology, 66*, 825-852.
- Prinstein, M. J., Cheah, C. S. L., & Guyer, A. E. (2005). Peer victimization, cue interpretation, and internalizing symptoms: Preliminary concurrent and longitudinal findings for children and adolescents. *Journal of Clinical Child and Adolescent Psychology, 34*(1), 11-24.
- Reinecke, M. A., DuBois, D. L., & Schultz, T. M. (2001). Social problem solving, mood, and suicidality among inpatient adolescents. *Cognitive Therapy and Research, 25*(6), 743-756.
- Reynolds, W. M. (1988). *Suicidal Ideation Questionnaire: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Reynolds, W. M., & Mazza, J. J. (1999). Assessment of suicidal ideation in inner-city children and young adolescents: Reliability and validity of the Suicide Ideation Questionnaire-Jr. *School Psychology Review, 28*, 17-30.
- Rigby, K., & Slee, P. (1999). Suicidal ideation among adolescent school children, involvement in bully-victim problems, and perceived social support. *Suicide and Life-Threatening Behaviors, 29*(2), 119-130.
- Romeo, L., Balducci, C., Quintarelli, E., Riolfi, A., Pelizza, L., Serpelloni, A.,... Perbellini, L. (2013). MMPI-2 personality profiles and suicidal ideation and behavior in victims of bullying at work: a follow-up study. *Violence and Victims, 28*(6), 1000-1014.
- Roxborough, H. M., Hewitt, P. L., Kaldas, J., Flett, G. L., Caelian, C. M., Sherry, S., & Sherry, D. L. (2012). Perfectionistic self-presentation, socially prescribed perfectionism, and suicide in youth: A test of the perfectionism social disconnection model. *Suicide and Life-Threatening Behavior, 42*(2), 217-233.
- Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment, 42*(3), 290-294.
- Schneider, B., Philipp, M., & Müller, M. J. (2001). Psychopathological predictors of suicide in patients with major depression during a 5-year follow-up. *European Psychiatry, 16*(5), 283-288.
- Smith, P. K., Singer, M., Hoel, H., & Cooper, C. L. (2003). Victimization in the school and the workplace: Are there any links? *British Journal of Psychology, 94*(2), 175-188.
- Spence, S. H., De Young, A., Toon, C., & Bond, S. (2009). Longitudinal examination of the associations between emotional dysregulation, coping responses to peer provocation, and victimisation in children. *Australian Journal of Psychology, 61*(3), 145-155.
- Spirito, A., Valeri, S., Boergers, J., & Donaldson, D. (2003). Predictors of continued suicidal behavior in adolescents following a suicide attempt. *Journal of Clinical Child and Adolescent Psychology, 32*(2), 284-289.

- Steer, R. A., Kumar, G., & Beck, A. T. (1993). Self-reported suicidal ideation in adolescent psychiatric inpatients. *Journal of Consulting and Clinical Psychology, 61*(6), 1096-1099.
- Stewart, S. M., Kennard, B. D., Lee, P. W. H., Mayes, T., Hughes, C., & Emslie, G. (2005). Hopelessness and suicidal ideation among adolescents in two cultures. *Journal of Child Psychology and Psychiatry, 46*(4), 364-372.
- Thompson, E. A., & Eggert, L. L. (1999). Using the suicide risk screen to identify suicidal adolescents among potential high school dropouts. *Journal of the American Academy of Child & Adolescent Psychiatry, 38*(12), 1506-1514.
- Tran, C. V., Cole, D. A., & Weiss, B. (2012). Testing reciprocal longitudinal relations between peer victimization and depressive symptoms in young adolescents. *Journal of Clinical Child & Adolescent Psychology, 41*(3), 353-360.
- van Orden, K. A., Cukrowicz, K. C., Witte, T. K., & Joiner, T. E. (2012). Thwarted belongingness and perceived burdensomeness: Construct validity and psychometric properties of the Interpersonal Needs Questionnaire. *Psychological Assessment, 24*, 197-215.
- van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner, T. E. (2008). Suicidal desire and the capability for suicide: tests of the interpersonal-psychological theory of suicidal behavior among adults. *Journal of Consulting and Clinical Psychology, 76*(1), 72-83.
- Wilkinson, P., Kelvin, R., Roberts, C., Dubicka, B., & Goodyer, I. (2011). Clinical and psychosocial predictors of suicide attempts and nonsuicidal self-injury in the Adolescent Depression Antidepressants and Psychotherapy Trial (ADAPT). *American Journal of Psychiatry, 168*, 495-501.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*(1), 30-41.