

## ANNALS OF THE NEW YORK ACADEMY OF SCIENCES

Issue: *Childhood Onset Developmental Disorders***Understanding the suicidal moment in adolescence**Regina Miranda<sup>1,2</sup> and David Shaffer<sup>2</sup><sup>1</sup>City University of New York at Hunter College and The Graduate Center, New York, New York. <sup>2</sup>Division of Child and Adolescent Psychiatry, Columbia University and the New York State Psychiatric Institute, New York, New York

Address for correspondence: Regina Miranda, Division of Child and Adolescent Psychiatry, Columbia University, 1051 Riverside Drive, Unit 78, New York, NY 10032. MirandaR@nyspi.columbia.edu

**Suicide attempts are more common in adolescence than in any other time in life, despite the low prevalence of actual suicide deaths among adolescents. Studies of adolescent suicide risk tend to focus on factors such as psychiatric diagnosis—particularly depression—and history of previous suicide attempts in predicting risk of future suicidal behavior. However, given that a large number of adolescent suicides are first-time attempts, understanding the circumstances that precede suicide attempts—including the nature of suicidal ideation and of the cognitive and emotional responses that precede ideation—is a critical part of preventing a potentially lethal attempt. We review the psychological precipitants that may inform how suicidal thoughts are transferred into action and examine the risk conferred by having a history of previous suicide attempts and ideation.**

**Keywords:** suicide attempts; suicidal ideation; adolescence

More suicide attempts are made during adolescence than at any other time in life. Indeed, the 12-month prevalence of suicide attempts among 9th–12th grade students in the United States is about 7.8%, compared to a prevalence of 0.5% among adults, and girls have higher rates of attempts than boys.<sup>1,2</sup> Although the prevalence of actual suicide deaths among teenagers is quite low at only 0.006%, suicide remains the third leading cause of death for youth between ages 13 and 19 and the second leading cause of death among 10- to 24-year-olds.<sup>3,4</sup> Further, boys between ages 13 and 19 are more likely to die by suicide than girls, with an estimated rate of 9.4 per 100,000, versus a rate of 2.7 per 100,000 among girls.<sup>3</sup> Most research on predictors of suicide has been conducted with adults, and these studies tend to focus on major depression, previous suicide attempts, suicidal ideation, and cognitive variables, such as hopelessness as risk factors.<sup>5–11</sup> Research with adolescents, however, tends to be cross-sectional, with a focus on clinical samples of teenagers who have attempted suicide. Given that a large proportion of adolescent suicides are first-time attempts,<sup>12,13</sup> this focus on already-attempted suicide potentially misses identification of factors that influence the transition from suicidal ideation to a first-time attempt, and thus misses a large propor-

tion of adolescents at risk for suicide. Moreover, examinations of adolescents who have attempted suicide would benefit from better consideration of the events, cognitions, and emotions that occur in the 24 hours leading up to a suicide attempt and that precipitate those attempts, as well as with features of the attempts that might be indicative of future risk and thus serve as a focus of clinical assessments. Understanding the psychological and contextual factors that lead young people to think about and attempt suicide and the process that leads from ideation to an attempt and from attempt to reattempt will guide assessment of suicide risk and enable clinicians to better target interventions. In the present review, we examine some of the psychological processes that lead from suicidal ideation to attempts in adolescents, discuss the ways in which having a history of previous suicidal ideation and attempts may confer risk for future suicidal behavior, and suggest areas of future research to better understand the suicidal moment in adolescence.

**How suicidal thoughts become suicide attempts**

Population-based studies of adults and adolescents suggest that transitions from suicidal ideation to attempts occur within a year of onset of suicidal

ideation.<sup>14,15</sup> Among adolescent inpatients with or without a suicide attempt history, suicidal ideation may decrease in the 6 months after discharge and increase between 9 and 18 months after discharge, and increases in suicidal ideation are associated with greater risk for a suicide attempt.<sup>16</sup> However, there is limited understanding of how adolescents transition from suicidal thoughts to action. Research with adults interviewed after a suicide attempt suggests that as little as 10 min may transpire between the onset of a suicidal ideation episode and the decision to make a suicide attempt.<sup>17</sup> However, we are not aware of any comparable research with adolescents.

A number of studies of adolescent community and clinical samples have found suicidal ideation to prospectively predict suicide attempts,<sup>18,19</sup> even after adjusting for depression.<sup>20</sup> However, the measures of ideation used in these studies range from a binary response to a single question<sup>18</sup> or a rating on a Likert scale<sup>20,21</sup> to a total score on a response inventory.<sup>16</sup> Other cross-sectional studies of clinical samples tend to examine ideation in the context of a suicide attempt or assess current ideation among adolescents who recently attempted suicide.<sup>22,23</sup> Studies of suicidal ideation have also traditionally examined the extent to which ideation includes planning, along with different methods to ordinalize the seriousness of suicidal intent, including wish to die.<sup>24</sup> One problem with the proliferation of different measures of suicidal ideation is that they rarely assess the finer points of ideation and are thus limited in how informative they are about which specific characteristics of ideation merit focus in clinical assessments. The rarity of suicide deaths and the almost complete absence of studies on quantitative aspects of ideation (e.g., duration and frequency) and on the stability of contingencies (e.g., stressful events, moods, cognitions) that provoke suicidal ideation limit our knowledge about the value of such subcategorization in predicting future suicide attempts and suicide deaths. In one study of 97 adolescents who reported recent (past 3–6 months) suicidal ideation—but no previous suicide attempt history—in a high school screening, Miranda *et al.* examined whether the characteristics that these adolescents reported as part of an interview about their most recent suicidal ideation would predict whether they made a suicide attempt during a 4- to

6-year follow-up period. Having a certain or uncertain wish to die (versus no wish to die), along with a duration of suicidal ideation of over 24 h (versus less than 30 min) was associated with making the transition from suicidal ideation to an attempt during the follow-up period. Moreover, adolescents who reported that their ideation lasted for more than 1 h made the transition to an attempt earlier (within approximately 1 year) of their baseline interviews, compared to adolescents who reported, at baseline, that their ideation lasted less than 1 h (who made the transition, on average, about 3 years later).<sup>25</sup> Unfortunately, as with other research, this study was limited by the potential recall bias involved in assessing suicidal ideation months, rather than days, after it occurred.

The problem of recall bias might be remedied by developing methods of obtaining detailed inquiries of adolescents who currently endorse suicidal ideation and by obtaining detailed information from adolescents who have made recent suicide attempts about the events, emotions, and cognitions that preceded their attempts. For instance, Bagge *et al.* interviewed adults within 7 days of their suicide attempts using a modified time line follow-back interview that involved hour-by-hour analysis of the events leading up to their attempts (see below), but this research did not involve fine-grained examination of the cognitive and emotional responses to those events.<sup>26</sup> Such inquiries might be combined with the tracking of change in suicidal thoughts over time using ecological momentary (real-time) assessments.<sup>27</sup> The absence of detailed information on quantitative aspects of ideation and its contingencies hinders the development of measures to assess ideation and the implementation of appropriate interventions to reduce suicide risk.

### **Psychological precipitants of suicidal ideation and attempts**

Limited research has focused on understanding the events, cognitions, and emotions that precede the onset of suicidal thoughts and behavior. Research with adults has suggested a number of psychological predictors of suicidal behavior, such as the experience of negative life events, and the cognitive, emotional, and behavioral responses to such events.<sup>28–31</sup> Psychological autopsy research suggests that individuals who die by suicide more often experience negative life events, particularly in the week before

their suicides, compared to individuals who do not die by suicide.<sup>32</sup> One previous study involving 254 adolescents, ages 13–19, from Norway suggests that among both girls and boys, the events most often preceding suicide attempts involve relational conflicts (about 50% of total), but such research has not examined emotional and cognitive responses to these events.<sup>33</sup> Bagge *et al.*'s study involving a case crossover design and a time line follow-back interview procedure with 110 adults who presented to an emergency department following suicide attempts also suggested that interpersonal negative life events significantly increased the odds of a suicide attempt occurring on the day of the events, versus a control day, but this was only the case for suicide attempts that involved less than 3 h of planning (i.e., impulsive attempts) and not for attempts that involved 3 or more hours of planning.<sup>26</sup> Future research using prospective designs should examine whether the duration of suicidal ideation changes the nature of the triggers that ultimately lead to suicidal behavior. In addition, a question that arises from this work is whether it is the experience of a stressful event itself, versus the cognitive and emotional responses to those events, that determines whether an individual will go on to attempt suicide. Thus, future research should also examine differences in the nature of life events—and in the responses to those events—experienced by adolescents who think about and attempt suicide, compared to adolescents who do not consider or attempt suicide.

Studies conducted within the past 20 years suggest that maladaptive cognitive responses to stress, such as rumination, may prolong the negative emotional states that accompany stressful events<sup>34</sup> and are also associated with hopelessness,<sup>35</sup> an established cognitive predictor of suicide;<sup>9</sup> with major depression;<sup>36</sup> and with increased risk for suicidal ideation and attempts.<sup>35,37,38</sup> Cross-sectional research with adults suggests that cognitive responses, such as rumination, partially account for the relation between the effects of negative life events, depressive symptoms, and suicidal ideation.<sup>39</sup> Recent longitudinal research suggests that rumination explains the prospective relation between stressful life events and symptoms of depression in adults and the relation between stressful events and anxiety in both early adolescents and adults.<sup>40</sup>

Additional research has examined how emotion-related factors combine with cognitive variables to affect suicide risk. For instance, in a cross-sectional

study of 87 adolescents, Dour *et al.* found that emotional reactivity was associated with having a history of a recent suicide attempt, but only among individuals with poor problem-solving skills. This interaction was specific to suicide attempts, as it did not predict history of other risky behaviors, including nonsuicidal self-injury.<sup>41</sup> A recent study with a young-adult sample found that perceived inability to generate emotion-regulation strategies was associated with higher suicidal ideation at a 2- to 3-year follow-up point, and this relationship was partially accounted for by higher levels of rumination and hopelessness.<sup>42</sup> These studies suggest that the inability to adequately manage emotional responses to stress may increase vulnerability to suicidal ideation and attempts to the degree that it also involves (or leads to) maladaptive cognitive responses. However, no research of which we are aware has engaged in detailed examination of the cognitive, emotional, and behavioral responses to stress that are part of the suicidal moment—that is, that precipitate suicidal thoughts and behavior among teenagers and that predict future suicide attempts in this population. Such research is a critical first step in understanding the context of adolescent suicidal behavior and in identifying appropriate targets for treatment.

Laboratory-based studies using reaction-time measures of suicide-related cognitions and behaviors may show promise in offering indirect methods of assessing suicide risk among individuals who may not readily disclose their suicidal ideation.<sup>43–46</sup> For example, performance on an implicit association test (IAT)—a task that measures how automatically individuals associate suicide- or death-related semantic stimuli with themselves—has been found to distinguish adults with a suicide attempt history from suicide ideators and nonsuicidal controls. Further, it predicts future suicide attempts over time frames ranging from 3 to 6 months.<sup>43,44</sup> Performance on a similar self-injury-related IAT has been found to distinguish adolescents with a history of suicide attempts from suicide ideators and controls.<sup>45</sup> In a related vein, adults with a suicide attempt history have been found to show attentional bias toward suicide-related words on a modified Stroop task, and this bias predicted suicide attempts over a 6-month follow-up period, beyond mood disorder, multiple attempt history, and both clinician and patient prediction of whether the individual would make a future attempt.<sup>46</sup>

Contemporary cognitive models of suicide might help to explain such findings. A number of theories propose the existence of suicide-related schemas that bias the way people process information and lower the threshold for triggering suicidal episodes.<sup>47,48</sup> Rudd's fluid vulnerability theory suggests that the more associations are strengthened in memory between suicidal thoughts, behaviors, and associated circumstances, the more the threshold is lowered for triggering future suicidal episodes. These associations may be strengthened by previous suicidal ideation and attempts.<sup>47</sup> Similarly, Wenzel and Beck suggest that the activation of suicide schemas ultimately leads individuals to become fixated on suicide as a solution to their problems. Unable to disengage from their suicidal ideation, individuals make suicide attempts once they are no longer able to tolerate the distress that arises from their suicidal episode.<sup>48</sup> The biased attention to suicide-related stimuli that differentiates individuals who attempt suicide from ideators and controls, and that predicts a future attempt, may reflect a more easily activated suicide-related schema. Further research is needed to determine whether performance on these cognitive tasks reflects an underlying schema, or whether it is simply the product of an acute suicidal episode.

Other laboratory-based research has examined measures of behavioral impulsivity that distinguish individuals with and without suicide-attempt histories.<sup>49,50</sup> Using a test of immediate and delayed memory as a measure of behavioral impulsivity, Dougherty *et al.* found that adults with a history of multiple suicide attempts made more commission errors on these tests than individuals with a history of a single attempt, who, in turn, made more errors than a control group.<sup>49</sup> A study of 56 hospitalized 13- to 17-year-old boys and girls who engaged in nonsuicidal self-injury, with or without suicide attempts, suggested that those with suicide attempts were distinguished by higher levels of impulsivity on a measure involving immediate versus delayed rewards but not on a measure of impulsivity involving the ability to inhibit responses.<sup>50</sup> No research has yet examined whether performance on measures of impulsivity correlates with the cognitive, emotional, and behavioral responses that precipitate suicidal thoughts and behavior, nor have long-term follow-up studies of their predictive validity

been conducted. This should be a focus of future research.

### **Suicide attempt history as a predictor of repetition**

Thus far, we have discussed factors that may lead from suicidal ideation to attempts. We now turn to a brief discussion of suicide attempt repetition, given that previous research has focused on past suicide attempts as predictors of future suicidal behavior and suicide deaths. A past history of a suicide attempt has been identified as a predictor of future suicide attempts in adolescents and of suicide deaths in adults.<sup>9,20,51–55</sup> It is estimated that up to 36–42% of teenagers who attempt suicide will go on to make a subsequent attempt within 2 years of their initial attempt.<sup>56,57</sup>

Cross-sectional studies comparing adolescents with a history of multiple suicide attempts to those with a history of a single attempt or suicidal ideation have found that adolescents who make multiple suicide attempts more often meet criteria for a psychiatric diagnosis, including comorbid diagnoses,<sup>58</sup> show difficulties in regulating their emotions and report more hopelessness<sup>59</sup> compared to adolescents without a multiple attempt history. In addition, a number of recent longitudinal studies suggest that a history of more than one previous suicide attempt increases risk of future suicide attempts more than a history of only one previous attempt.<sup>51,58</sup> For instance, Miranda *et al.* found that while a history of one previous lifetime suicide attempt did not increase risk of a future attempt over a 4- to 6-year follow-up period (relative to a history of recent suicidal ideation), having a history of more than one previous attempt more than doubled the odds of making a future suicide attempt, even adjusting for the presence of either a mood, anxiety, or substance-related diagnosis.<sup>58</sup> Similarly, Goldston *et al.*'s study of 180 adolescent psychiatric inpatients who were followed up over 5 years after discharge found a higher risk of suicide attempts during follow-up among adolescents who had multiple prehospitalization suicide attempts, compared to those who had one previous attempt or no previous attempt. Further, single attempters were no more at risk for future attempts than were patients with no previous suicide attempt history.<sup>51</sup> Thus, there appears to be a particular risk for future suicide attempts conferred

by having a history of more than one previous suicide attempt.

Recent psychological theories of suicide suggest that previous suicide attempts increase vulnerability to future suicidal behavior, including suicide deaths, because they serve as a form of practice and habituate individuals to the experience of self-harm. Joiner's interpersonal-psychological theory of suicide suggests that one way in which individuals may acquire the ability to engage in lethal self-harm is through repetition. According to this model, having a history of multiple previous suicide attempts enables individuals to habituate to the pain and fear surrounding self-harm.<sup>60</sup> Similarly, Rudd's fluid vulnerability theory proposes that having a history of multiple suicide attempts strengthens the connections between suicide-related cognitions, emotions, and behaviors in memory and lowers the threshold necessary to trigger a future suicidal episode.<sup>47</sup> Previous research with adults provides some support for these ideas. For instance, one study of 326 young-adult patients found a weaker association between history of negative life events and intensity of a suicidal episode among individuals with a history of multiple suicide attempts, compared to individuals with a history of a single attempt or no previous attempts, suggesting that the presence of a stressful life event may not be as necessary to trigger a suicidal episode among these individuals.<sup>61</sup> Similar studies have not, to our knowledge, been conducted with adolescents.

Another way of ascertaining how previous suicide attempts may confer risk for future attempts and for suicide deaths is by focusing on specific features of the attempt itself. Studies of suicide attempts and suicide deaths have largely focused on the nature of the method used, including the degree of care and calculation invested in ensuring the uninterrupted completion of the method, and on measuring suicidal intent.<sup>62-66</sup> It is especially important to examine prognostic elements of attempts among adolescents, given that suicidal behavior differs in adolescence compared to adulthood. For instance, compared to adult suicide attempts, adolescent suicide attempts have been found to be more impulsive and lower in lethality and in perceived certainty that the method used would lead to death.<sup>67</sup> Several longitudinal studies of adult suicide attempters have identified features of a suicide attempt, such as medical seriousness, stated wish to die, being alone during the

attempt, and degree of advance planning as predictive of future suicidal behavior.<sup>68-70</sup> However, longitudinal studies of adolescent suicide attempts have been restricted to the study of individuals, including psychiatric symptoms or diagnosis,<sup>51,71,72</sup> history of multiple suicide attempts,<sup>52,58</sup> and cognitive factors, such as hopelessness,<sup>71,73</sup> and have not typically examined prognostic elements of the suicide attempt itself. One study compared clinicians' ratings of the lethality of a baseline suicide attempt and a total score on a measure of suicidal intent in a clinical sample of adolescent suicide attempters who made a repeat attempt over a 6-month follow-up period, versus a group that did not make an attempt, and found no group differences on these measures.<sup>74</sup> Another study of 35 formerly hospitalized adolescents who attempted suicide multiple times over a 15-year follow-up period found that neither suicidal intent (as measured by a 4-point rating of wish to die) nor lethality of a previous suicide attempt predicted a future attempt after adjusting for psychiatric diagnosis.<sup>75</sup> However, a study of 54 adolescents from a community sample who endorsed a suicide attempt history and who were asked to describe their most recent attempt at baseline found that planning an attempt for more than 1 h, attempting suicide in isolation (i.e., when no one else was present or nearby), and a certain wish to die resulted in over five times higher odds of reporting a later suicide attempt within a 4- to 6-year follow-up period, even after adjusting for sex, ethnicity, the presence of a mood, anxiety, or substance-use diagnosis, and for the number of previous suicide attempts, as reported at baseline.<sup>76</sup>

Finally, some studies with adults suggest that change in the severity of an attempt is associated with risk of suicide. A psychological autopsy study of 1397 suicide deaths in Finland between 1987 and 1988 found that 82% of women with a previous suicide attempt who eventually completed suicide by hanging had previously made a suicide attempt using a less lethal method (i.e., drug overdose).<sup>77</sup> Increase in the severity of a suicide attempt, as measured by a total score on a scale measuring suicidal intent, has previously been found to increase risk for subsequent suicide among self-poisoning adults.<sup>78</sup> However, Miranda *et al.*'s follow-up study of a community sample of (primarily female) adolescents who endorsed a previous suicide attempt found that those who made a repeat attempt

during a 4- to 6-year follow-up period tended to use the same method of attempt as in their previous attempt, suggesting that among teenagers who make multiple attempts, suicide attempts may not necessarily increase in severity with repetition.<sup>76</sup> These findings support the idea that the characteristics of suicide attempts in adolescence may differ from those of adulthood. It is possible that, unlike adult attempts, adolescent attempts do not necessarily increase in severity with repetition. This possibility requires further investigation.

### Concluding comments

Previous research on adolescent suicide has focused on examining psychiatric diagnoses, such as depression, along with a history of suicidal ideation or attempts, to identify who may be at risk for engaging in future suicidal behavior. Studies of ideation have been limited by a reliance on either single-item measures of ideation or total scores on response inventories, without understanding whether these measures capture the features of ideation as the adolescent actually experiences it. Understanding not only the nature of the suicidal thoughts preceding an attempt, but also the context surrounding the ideation that precedes a suicide attempt, are crucial first steps in designing assessments and interventions with at-risk youth. Knowing the critical points for intervention along the sequence of events that precipitate suicidal ideation will assist in tailoring assessments and interventions for adolescents who have thought about but not attempted suicide, along with adolescents who have recently attempted suicide, to prevent future attempts.

### Conflicts of interest

The authors declare no conflicts of interest.

### References

- Centers for Disease Control and Prevention. 2011. Youth Risk Behavior Surveillance—United States. *MMWR* 2012; 61(No. SS-#): 11–12.
- Substance Abuse and Mental Health Services Administration. 2010. Results from the 2009 National Survey on Drug Use and Health: Mental Health Findings (Center for Behavioral Health Statistics and Quality, NSDUH Series H-39, HHS Publication No. SMA 10-4609). Rockville, MD.
- Centers for Disease Control and Prevention, National Centers for Injury Prevention and Control, Web-based Injury Statistics Query and Reporting System (WISQARS). 2010. Suicide injury deaths and rates per 100,000, United States. Cited May 27, 2013. [www.cdc.gov/injury/wisqars/fatal\\_injury\\_reports.html](http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html).
- Centers for Disease Control and Prevention, National Centers for Injury Prevention and Control, Web-based Injury Statistics Query and Reporting System (WISQARS). 2010. Leading causes of death, United States. Cited May 27, 2013. [www.cdc.gov/injury/wisqars/leading\\_causes\\_death.html](http://www.cdc.gov/injury/wisqars/leading_causes_death.html).
- Beautrais, A.L. 2002. A case control study of suicide and attempted suicide in older adults. *Suicide Life Threat. Behav.* **32**: 1–9.
- Beck, A.T., G.K. Brown, R.A. Steer, *et al.* 1999. Suicide ideation at its worst point: a predictor of eventual suicide in psychiatric outpatients. *Suicide Life Threat. Behav.* **29**: 1–9.
- Suominen, K., E. Isometsä, J. Suokas, *et al.* 2004. Completed suicide after a suicide attempt: a 37-year follow-up study. *Am. J. Psychiatry* **161**: 562–563.
- Beck, A.T., R.A. Steer, M. Kovacs & B. Garrison. 1985. Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *Am. J. Psychiatry* **142**: 559–563.
- Brown, G.K., A.T. Beck, R.A. Steer & J.R. Grisham. 2000. Risk factors for suicide in psychiatric outpatients: a 20-year prospective study. *J. Consult. Clin. Psychol.* **68**: 371–377.
- Fawcett, J., W.A. Scheftner, L. Fogg, *et al.* 1990. Time-related predictors of suicide in major affective disorder. *Am. J. Psychiatry* **147**: 1189–1194.
- Rao, U., M.M. Weissman, J.A. Martin & R.W. Hammond. 1993. Childhood depression and risk of suicide: a preliminary report of a longitudinal study. *J. Am. Acad. Child. Adolesc. Psychiatry* **32**: 21–27.
- Brent, D.A., M. Baugher, J. Bridge, *et al.* 1999. Age- and sex-related risk factors for adolescent suicide. *J. Am. Acad. Child. Adolesc. Psychiatry* **38**: 1497–1505.
- Shaffer, D., M.S. Gould, P. Fisher, *et al.* 1996. Psychiatric diagnosis in child and adolescent suicide. *Arch. Gen. Psychiatry* **53**: 339–348.
- Kessler, R.C., G. Borges & E.E. Walters. 1999. Prevalence and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Arch. Gen. Psychiatry* **56**: 617–626.
- Nock, M.K., J. Greif Green, I. Hwang, *et al.* 2013. Prevalence, correlates, and treatment of lifetime suicidal behavior among adolescents. *JAMA Psychiatry* **70**: 300–310.
- Prinstein, M.J., M.K. Nock, V. Simon, *et al.* 2008. Longitudinal trajectories and predictors of adolescent suicidal ideation and attempts following inpatient hospitalization. *J. Consult. Clin. Psychol.* **76**: 92–103.
- Deisenhammer, E.A., C.M. Ing, R. Strauss, *et al.* 2009. The duration of the suicidal process: how much time is left for intervention between consideration and accomplishment of a suicide attempt? *J. Clin. Psychiatry* **70**: 19–24.
- Reinherz, H.Z., J.L. Tanner, S.R. Berger, *et al.* 2006. Adolescent suicidal ideation as predictive of psychopathology, suicidal behavior, and compromised functioning at age 30. *Am. J. Psychiatry* **163**: 1226–1232.
- Wichstrøm, L. 2009. Predictors of non-suicidal self-injury versus attempted suicide: similar or different? *Arch. Suicide Res.* **13**: 105–122.
- Lewinsohn, P.M., P. Rohde & J.R. Seeley. 1994. Psychosocial risk factors for future adolescent suicide attempts. *J. Consult. Clin. Psychol.* **62**: 297–305.

21. Lewinsohn, P.M., P. Rohde & J.R. Seeley. 1996. Adolescent suicidal ideation and attempts: prevalence, risk factors, and clinical implications. *Clin. Psychol. Sci. Pract.* **3**: 25–46.
22. Negron, R., J. Piacentini, F. Graae, *et al.* 1997. Microanalysis of adolescent suicide attempters and ideators during the acute suicidal episode. *J. Am. Acad. Child Adolesc. Psychiatry* **36**: 1512–1519.
23. Roberts, R.E., C.R. Roberts & Y.R. Chen. 1998. Suicidal thinking among adolescents with a history of attempted suicide. *J. Am. Acad. Child Adolesc. Psychiatry* **37**: 1294–1300.
24. Joiner, T.E., M.D. Rudd & M.H. Rajab. 1997. The Modified Scale for Suicidal Ideation: factors of suicidality and their relation to clinical and diagnostic variables. *J. Abnorm. Psychol.* **106**: 260–265.
25. Miranda, R., A. Ortin, M. Scott & D. Shaffer. *Characteristics of Suicidal Ideation that Predict the Transition to Future Suicide Attempts in Adolescents*. Manuscript under review.
26. Bagge, C.L., C.R. Glenn & H.-J. Lee. 2013. Quantifying the impact of recent negative life events on suicide attempts. *J. Abnorm. Psychol.* **122**: 359–368.
27. Nock, M.K., M.J. Prinstein & S.K. Sterba. 2009. Revealing the form and function of self-injurious thoughts and behaviors: a real-time ecological assessment study among adolescents and young adults. *J. Abnorm. Psychol.* **118**: 816–827.
28. Foster, T. 2011. Adverse life events proximal to adult suicide: a synthesis of findings from psychological autopsy studies. *Arch. Suicide Res.* **15**: 1–15.
29. Paykel, E.S., B.A. Prusoff & J.K. Myers. 1975. Suicide attempts and recent life events. A controlled comparison. *Arch. Gen. Psychiatry* **32**: 327–333.
30. Wang, Y., J. Sareen, T.O. Afifi, *et al.* 2012. Recent stressful life events and suicide attempt. *Psychiatr. Ann.* **42**: 101–108.
31. Yen, S., M.E. Pagano, M.T. Shea, *et al.* 2005. Recent life events preceding suicide attempts in a personality disorder sample: findings from the collaborative longitudinal personality disorders study. *J. Consult. Clin. Psychol.* **73**: 99–105.
32. Cooper, J., L. Appleby & T. Amos. 2002. Life events preceding suicide by young people. *Soc. Psychiatry Psychiatr. Epidemiol.* **37**: 271–275.
33. Dieserud, G., R.M. Gerhardsen, H. Van den Weghe & K. Corbett. 2010. Adolescent suicide attempts in Bærum, Norway, 1984–2006: trends, triggers, and underlying reasons. *Crisis* **3**: 255–264.
34. Nolen-Hoeksema, S., L.E. Parker & J. Larson. 1994. Ruminative coping with depressed mood following loss. *J. Pers. Soc. Psychol.* **67**: 92–104.
35. Smith, J.M., L.B. Alloy & L.Y. Abramson. 2006. Cognitive vulnerability to depression, rumination, hopelessness, and suicidal ideation: multiple pathways to self-injurious thinking. *Suicide Life Threat. Behav.* **36**: 443–454.
36. Nolen-Hoeksema, S. 2000. The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *J. Abnorm. Psychol.* **109**: 504–511.
37. Miranda, R. & S. Nolen-Hoeksema. 2007. Brooding and reflection: rumination predicts suicidal ideation at 1-year follow-up in a community sample. *Behav. Res. Ther.* **45**: 3088–3095.
38. Surrence, K., R. Miranda, B.M. Marroquín & S. Chan. 2009. Brooding and reflective rumination among suicide attempters: cognitive vulnerability to suicidal ideation. *Behav. Res. Ther.* **47**: 803–808.
39. Chan, S., R. Miranda & K. Surrence. 2009. Subtypes of rumination in the relationship between negative life events and suicidal ideation. *Arch. Suicide Res.* **13**: 123–135.
40. Michl, L.C., K.A. McLaughlin, K. Shepherd & S. Nolen-Hoeksema. 2013. Rumination as a mechanism linking stressful life events to symptoms of depression and anxiety: longitudinal evidence in early adolescents and adults. *J. Abnorm. Psychol.* **122**: 339–352.
41. Dour, H.J., C.B. Cha & M.K. Nock. 2011. Evidence for an emotion-cognition interaction in the statistical prediction of suicide attempts. *Behav. Res. Ther.* **49**: 294–298.
42. Miranda, R., A. Tsypes, M. Gallagher & K. Rajappa. 2013. Rumination and hopelessness as mediators of the relation between perceived emotion dysregulation and suicidal ideation. *Cogn. Ther. Res.* **37**: 786–795.
43. Nock, M.K., J.M. Park, C.T. Finn, *et al.* 2010. Measuring the “suicidal mind.” implicit cognition predicts suicidal behavior. *Psychol. Sci.* **21**: 511–517.
44. Randall, J.R., B.H. Rowe, K.A. Dong, *et al.* 2013. Assessment of self-harm risk using implicit thoughts. *Psychol. Assess* **25**: 714–721.
45. Nock, M.K. & M.R. Banaji. 2007. Prediction of suicide ideation and attempts among adolescents using a brief performance-based test. *J. Consult. Clin. Psychol.* **75**: 707–715.
46. Cha, C.B., S. Najmi, J.M. Park, *et al.* 2010. Attentional bias toward suicide-related stimuli predicts suicidal behavior. *J. Abnorm. Psychol.* **119**: 616–622.
47. Rudd, M.D. 2006. “Fluid vulnerability theory: a cognitive approach to understanding the process of acute and chronic suicide risk.” In *Cognition and Suicide: Theory, Research, and Therapy*. T.E. Ellis, Ed.: 355–368. Washington, DC: American Psychological Association.
48. Wenzel, A. & A.T. Beck. 2008. A cognitive model of suicidal behavior: theory and treatment. *Appl. Prev. Psychol.* **12**: 189–201.
49. Dougherty, D.M., C.W. Mathias, D.M. Marsh, *et al.* 2004. Laboratory measured behavioral impulsivity relates to suicide attempt history. *Suicide Life Threat. Behav.* **34**: 374–385.
50. Dougherty, D.M., C.W. Mathias, D.M. Marsh-Richard, *et al.* 2009. Impulsivity and clinical symptoms among adolescents with non-suicidal self-injury with or without attempted suicide. *Psychiatry Res.* **169**: 22–27.
51. Goldston, D.B., S.S. Daniel, D.M. Reboussin, *et al.* 1999. Suicide attempts among formerly hospitalized adolescents: a prospective naturalistic study of risk during the first 5 years after discharge. *J. Am. Acad. Child Adolesc. Psychiatry* **38**: 660–671.
52. Hultén, A., G.-X. Jiang, D. Wasserman, *et al.* 2001. Repetition of attempted suicide among teenagers in Europe: frequency, timing and risk factors. *Eur. Child Adolesc. Psychiatry* **10**: 161–169.
53. Pfeffer, C.R., G.L. Klerman, S.W. Hurt, *et al.* 1993. Suicidal children grow up: rates and psychosocial risk factors for suicide attempts during follow-up. *J. Am. Acad. Child Adolesc. Psychiatry* **32**: 106–113.

54. Wichstrøm, L. 2000. Predictors of adolescent suicide attempts: a nationally representative longitudinal study of Norwegian adolescents. *J. Am. Acad. Child Adolesc. Psychiatry* **39**: 603–610.
55. Harris, E.C. & B. Barraclough. 1997. Suicide as an outcome for mental disorders: a meta-analysis. *Br. J. Psychiatry* **170**: 205–228.
56. Bridge, J.A., T.R. Goldstein & D.A. Brent. 2006. Adolescent suicide and suicidal behavior. *J. Child Psychol. Psychiatry* **47**: 372–394.
57. Lewinsohn, P.M., P. Rohde, J.R. Seeley & C.L. Baldwin. 2001. Gender differences in suicide attempts from adolescence to young adulthood. *J. Am. Acad. Child Adolesc. Psychiatry* **40**: 427–434.
58. Miranda, R., M. Scott, R. Hicks, *et al.* 2008. Suicide attempt characteristics, diagnoses, and future attempts: comparing multiple attempters to single attempters and ideators. *J. Am. Acad. Child Adolesc. Psychiatry* **47**: 32–40.
59. Esposito, C., A. Spirito, J. Boergers & D. Donaldson. 2003. Affective, behavioral, and cognitive functioning in adolescents with multiple suicide attempts. *Suicide Life Threat. Behav.* **33**: 389–399.
60. Joiner, T.E. 2005. *Why People Die by Suicide*. 46–93, 203–222. Cambridge, MA: Harvard University Press.
61. Joiner, T.E. & M.D. Rudd. 2000. Intensity and duration of suicidal crisis vary as a function of previous suicide attempts and negative life events. *J. Consult. Clin. Psychol.* **68**: 909–916.
62. Marttunen, M.J., H.M. Aro, M.M. Henriksson & J.K. Lonnqvist. 1994. Psychosocial stressors more common in adolescent suicides with alcohol abuse compared with depressive adolescent suicides. *J. Am. Acad. Child Adolesc. Psychiatry* **33**: 490–497.
63. Runeson, B., D. Tidemalm, M. Dahlin, *et al.* 2010. Method of attempted suicide as predictor of subsequent successful suicide: national long term cohort study. *BMJ* **341**: c3222.
64. Grøholt, B., Ø. Ekeberg & T. Haldorsen. 2000. Adolescents hospitalized with deliberate self-harm: the significance of an intention to die. *Eur. Child Adolesc. Psychiatry* **9**: 244–254.
65. Harriss, L. & K. Hawton. 2005. Suicidal intent in deliberate self-harm and the risk of suicide: the predictive power of the Suicide Intent Scale. *J. Affect Disord.* **86**: 225–233.
66. Suominen, K., E. Isometsa, M. Henriksson, *et al.* 1997. Hopelessness, impulsiveness and intent among suicide attempters with major depression, alcohol dependence, or both. *Acta Psychiatr. Scand.* **96**: 142–149.
67. Parellada, M., P. Saiz, D. Moreno, *et al.* 2008. Is attempted suicide different in adolescents and adults? *Psychiatry Res.* **157**: 131–137.
68. Beck, A.T. & R.A. Steer. 1989. Clinical predictors of eventual suicide: a 5- to 10-year prospective study of suicide attempters. *J. Affect. Disord.* **17**: 203–209.
69. Harriss, L., K. Hawton & D. Zahl. 2005. Value of measuring suicidal intent in the assessment of people attending hospital following self-poisoning or self-injury. *Br. J. Psychiatry* **186**: 60–66.
70. Hjelmeland, H., T.C. Stiles, U. Bille-Brahe, *et al.* 1998. Para-suicide: the value of suicidal intent and various motives as predictors of future suicidal behaviour. *Arch. Suicide Res.* **4**: 209–225.
71. Grøholt, B., Ø. Ekeberg & T. Haldorsen. 2006. Adolescent suicide attempters: what predicts future suicidal acts? *Suicide Life Threat. Behav.* **36**: 638–650.
72. Spirito, A., S. Valeri, J. Boergers & D. Donaldson. 2003. Predictors of continued suicidal behavior in adolescents following a suicide attempt. *J. Clin. Child Adolesc. Psychol.* **32**: 284–289.
73. Goldston, D.B., S.S. Daniel, B.A. Reboussin, *et al.* 2001. Cognitive risk factors and suicide attempts among formerly hospitalized adolescents: a prospective naturalistic study. *J. Am. Acad. Child Adolesc. Psychiatry* **40**: 91–99.
74. Brent, D.A., D.J. Kolko, M.E. Wartella, *et al.* 1993. Adolescent psychiatric inpatients' risk of suicide attempt at 6-month follow-up. *J. Am. Acad. Child Adolesc. Psychiatry* **32**: 95–105.
75. Sapyta, J., D.B. Goldston, A. Erkanli, *et al.* 2012. Evaluating the predictive validity of suicidal intent and medical lethality in youth. *J. Consult. Clin. Psychol.* **80**: 222–231.
76. Miranda, R., E. De Jaegere, K. Restifo & D. Shaffer. Longitudinal follow-up study of adolescents who report a suicide attempt: aspects of suicidal behavior that predict a future attempt. *Depress Anxiety*. In press.
77. Isometsa, E.T. & J.K. Lonnqvist. 1998. Suicide attempts preceding completed suicide. *Br. J. Psychiatry* **173**: 531–535.
78. Carter, G., D.M. Reith, I.M. Whyte & M. McPherson. 2005. Repeated self-poisoning: increasing severity of self-harm as a predictor of subsequent suicide. *Br. J. Psychiatry* **186**: 253–257.