

What Distinguishes Suicide Attempters From Suicide Ideators? A Meta-Analysis of Potential Factors

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Most suicide ideators do not attempt suicide. Thus, it is useful to understand what differentiates attempters from ideators. We meta-analyzed 27 studies comparing sociodemographic and clinical variables between attempters and ideators. When comparing ideators to nonsuicidal individuals, there were several large effects. For example, depression and PTSD were markedly elevated among ideators ($d = .85-.90$). In contrast, when comparing attempters to ideators, all 12 variables had negligible to moderate effects. Specifically, depression, alcohol use disorders, hopelessness, gender, race, marital status, and education all were similar in attempters and ideators ($d = -.05$ to $.31$). Anxiety disorders, PTSD, drug use disorders, and sexual abuse history were moderately elevated in attempters compared to ideators ($d = .48-.52$). Implications for theory and practice are discussed.

Key words: attempt, ideation, meta-analysis, risk assessment, risk factors, suicide. [*Clin Psychol Sci Prac*, 2016]

Suicide kills over 38,000 Americans and 3,800 Canadians every year (Hoyert & Xu, 2012; Statistics Canada, 2009). Estimates suggest there are many more suicide attempts for every suicide death (Centers for Disease Control and Prevention, 2013a). Nonlethal suicide attempts can cause

injury, disability, loss of autonomy, interpersonal difficulties, suffering, shame, and fear. Despite increasing research and prevention efforts, suicide attempt and death rates have either stayed the same or risen in North America over the past decade, suggesting that our understanding of suicide is incomplete (Centers for Disease Control and Prevention, 2013a, 2013b).

The majority of suicide research consists of cross-sectional studies highlighting the associations between suicidality and variables of interest (e.g., demographics, psychiatric disorders, personality traits). Although limited by their inability to identify causation, these studies provide a useful step toward understanding people who think about and attempt suicide. Indeed, many of the suicidality correlates identified in these studies, such as depression, hopelessness, and impulsivity, are highlighted in widely disseminated lists of suicide risk factors and warning signs (American Association for Suicidology, 2013; SAMHSA, 2013).

However, we suggest the conclusions that can be drawn from many of these studies are limited by a specific design flaw: They fail to compare suicide attempters to nonattempting ideators. Instead, either attempters or a composite group of attempters and nonattempting ideators are often compared to a nonsuicidal group with no history of suicidal thoughts or behavior. As a result, this literature has yielded much knowledge about correlates of suicidality broadly defined, but little about differences between those who attempt suicide and those who have suicidal ideation but never attempt.

This distinction is important for a number of reasons. First, there is accumulating research that some ostensibly well-documented correlates of suicide are actually correlates of suicidal ideation, but do not distinguish between

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ideators and attempters (Klonsky & May, 2014). Second, many more people *think* about suicide than ever *act* on those thoughts. A nationally representative study in the United States found that 13.5% of adults reported experiencing suicidal thoughts during their lifetimes, while only 4.6% reported making a suicide attempt (Kessler, Borges, & Walters, 1999). A large international study found that only 29% of participants reporting lifetime ideation reported a lifetime attempt (Nock et al., 2008). There is a similar divide in clinical populations. In a sample of depressed young adults, 50% reported a history of suicidal ideation, while only 16.3% reported a history of suicide attempt (Fergusson, Beautrais, & Horwood, 2003). Prospective studies demonstrate this as well. A large study of the Dutch population found that only 7.4% of individuals reporting first-onset ideation at first assessment reported having attempted when assessed the following year (ten Have et al., 2009). In short, although suicidal thoughts are a prerequisite of suicide attempts, the majority of ideators will never act on their thoughts. It is therefore crucial to understand factors that differentiate those who only consider suicide from those who make suicide attempts.

Theories of suicidality are beginning to reflect the reality that most suicide ideators do not attempt and thus, there must be separate risk factors for suicidal thinking and for suicidal action. Klonsky and May (2014, 2015) suggest that an “ideation-to-action” framework should guide all suicide research. In such a framework, all explanations or risk factors for suicide need to be clear as to whether they address the risk for (a) suicide ideation, (b) suicide attempts in those ideating, or (c) both. Current models of suicide such as the interpersonal–psychological theory of suicide (IPTS; Joiner, 2005; Joiner, Van Orden, Witte, & Rudd, 2009), the integrated motivational–volitional model (IMV; O’Connor, 2011), and the three-step theory (3ST; Klonsky & May, 2015) all fall into such a framework and offer specific, testable hypotheses about which types of variable should predict ideation as opposed to attempt. Much of the existing suicide literature, however, is not structured to examine the ideation versus action distinction.

Our knowledge base regarding the potential risk factors for suicidality overall is rich. Documented correlates include almost all psychiatric illnesses (Nock, Hwang, Sampson, & Kessler, 2010), many personality

disorders (Chioqueta & Stiles, 2004; Yen et al., 2003), substance abuse (Crumley, 1990; Sher et al., 2006), hopelessness (Cox, Enns, & Clara, 2004), neuroticism (Brezo, Paris, & Turecki, 2006), physical and sexual abuse (Brezo et al., 2008), chronic pain (Ratcliffe, Enns, Belik, & Sareen, 2008), low educational attainment (Nock et al., 2008), stressful life events (Grover et al., 2009), low social support (Evans, Hawton, & Rodham, 2004), poor problem-solving skills (Sadowski & Kelley, 1993), and nonsuicidal self-injury (Klonsky, May, & Glenn, 2013), among others. Identifying these risk factors has been essential in building a foundation of information about suicidality. However, the utility of our current knowledge is limited.

There are two fundamental problems with the large list of general risk factors for suicidality. First, the list is long and unwieldy, and it includes almost all negative events or experiences that could befall someone, making it difficult to be of practical use in assessing risk clinically or in building parsimonious theories of suicidality. Second, as mentioned above, most of the potential risk factor literature compares suicide attempters and suicide ideators to nonsuicidal individuals, but not to each other. Thus, the list lacks specificity in distinguishing which variables are associated with suicide ideation, and which are associated with suicide attempts above and beyond suicide ideation. For example, accumulating evidence suggests that much of the predictive power of Axis I disorders for suicide attempts is explained by the relationship of these disorders to suicide ideation, rather than to attempts (Nock et al., 2010). Identifying the variables critical to distinguishing these groups is a key step in developing useful screening tools that are helpful in emergency rooms and clinicians’ offices, where many clients are already expressing suicidal thoughts. Furthermore, isolating these variables is the first step in explicating the transition from suicidal thoughts to behaviors, an important task for any comprehensive model of suicidality.

Unfortunately, the vast majority of studies on suicide risk, including many of the field’s seminal studies, do not examine whether the factors they identified differentiate suicide attempters from ideators. For example, a widely cited study reported that the risk of suicide ideation and suicide attempts is greater in the presence of an anxiety disorder (Sareen et al., 2005). However, because each of these groups was contrasted with a predominantly

nonsuicidal sample rather than with each other, it is impossible to discern whether anxiety disorders confer risk for ideation, attempt, or both. Similar problems exist with much of the research on other commonly cited variables, such as depression (e.g., Robertson Blackmore et al., 2008), hopelessness (e.g., Cox et al., 2004), and social isolation (e.g., Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007).

The aim of this article is to consolidate what is known about common suicide correlates in differentiating adults who have attempted suicide and survived (attempters) from those who have only considered suicide but never attempted (ideators). The literature was systematically searched for studies that specifically compared individuals with a history of nonfatal suicide attempt to those with a history of ideation only (or that provided data enabling that comparison). Data from these studies were examined meta-analytically to identify the degree to which each factor distinguished attempters from ideators. Using these same studies, we also examined which factors differentiated suicide ideators from those who have never been suicidal, when possible.

METHOD

A Methodological Comment on the Studies Examined

Both distal (e.g., demographics, personality, trauma history) and proximal (e.g., recent life events, moods) factors contribute to suicidal thoughts and attempts. The vast majority of the existing literature is correlational and cannot speak to more proximal events. Because this meta-analysis examines differences between attempters and ideators and because it relies on the existing literature, it focuses on more distal factors and does not address proximal causes of suicidality. The latter should be an important feature of future research.

Selection of Articles

As few papers compare nonlethal attempters to nonattempts ideators, broad search terms were used to identify all possible studies, and a systematic review process was implemented to pinpoint papers with appropriate data.¹ To identify potential studies for this review, PubMed and PsycINFO databases were searched using the following terms: (a) “suicide attempt*” AND “ideat*”; (b) “attempt” AND “suicid* ideat*”; and (c) “suicide attempt*” AND “thought*”

NOT “ideat*” occurring as keywords or in the text of the title or abstract. Reference sections of relevant articles were also examined for further sources. Studies published or available online through June 4, 2014, were surveyed. A total of 1,713 articles were identified.

Articles were included on the basis of the following criteria: (a) the study includes a definition of suicide attempt that is consistent with Silverman, Berman, Sanddal, O’Carroll, and Joiner (2007; “self-inflicted, potentially injurious behavior with a nonfatal outcome for which there is evidence . . . of intent to die,” p. 273); (b) the study includes at least two distinct groups, (i) nonlethal suicide attempters and (ii) suicide ideators who have never had a suicide attempt; (c) the study either (i) directly contrasts suicide attempters and suicide ideators on the variables examined or (ii) provides enough data so that statistical comparisons can be conducted; (d) the paper focuses on adults (at least 75% of the participants were over the age of 18); (e) the work is original; and (f) the paper is published in English.

Three research assistants (RAs) screened the identified articles for those that would clearly be excluded (e.g., case reports, practice notes, letters to the editor). The primary author trained the RAs and served as a second rater for each of their initial 50 papers screened. Once reliability was established (100% agreement), the RAs screened out papers that did not meet research criteria. The primary author (AMM) then inspected the abstract and/or text of each potentially eligible article to determine whether it met inclusion criteria (see Figure 1).

Of the 1,713 articles flagged, 45 were identified that met the inclusion criteria outlined above. Many articles were excluded because they did not include original data (e.g., literature reviews, practice notes) or did not examine potential risk or protective factors (e.g., measure development, medication trials). Other common reasons for exclusion included examining either only attempters or only ideators, grouping ideation and attempt together into a single outcome (e.g., suicidal behavior), including attempters within the ideator group, measuring ideation and/or attempt continuously without providing data allowing classification into either attempter or ideator groups, or not including suicidal intent as part of the definition for suicide attempt (e.g., studies that defined self-harm broadly and did not distinguish nonsuicidal self-harm from suicide attempts).

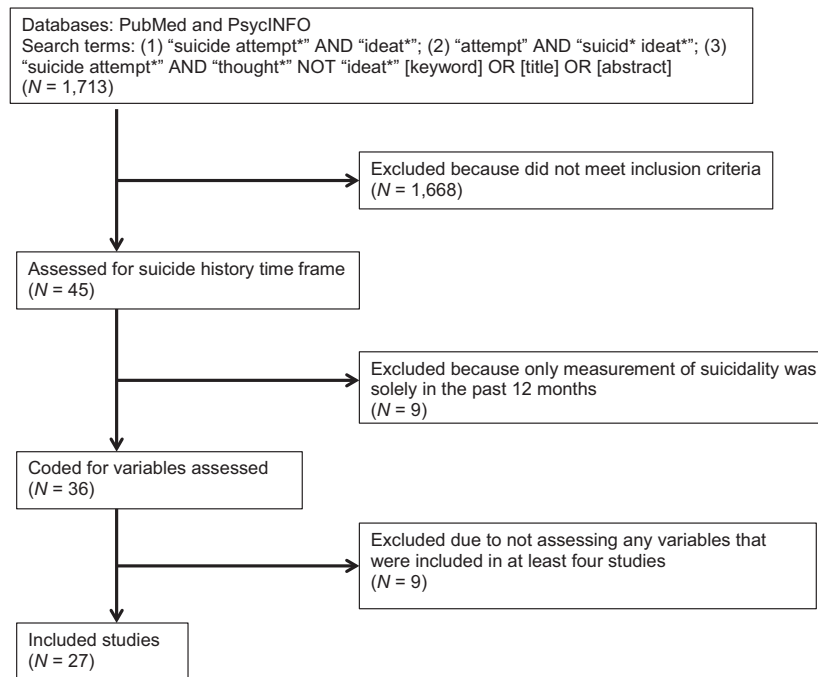


Figure 1. Search strategy and results.

A few reasons for exclusion warrant further explanation. Many articles contrasted individuals with *current* suicidal ideation (but no past attempts) against individuals with a *lifetime* history of suicide attempts. The inconsistent time frames may cause differences between ideators and attempters to be conflated with differences between those currently in crisis and those who had crises many years earlier. Therefore, studies grouping participants in such a way were not included.

Another obstacle was that many articles only presented multivariate statistics and did not include direct effects. This presents at least two problems. First, it is difficult to interpret the meaning of a partial correlation without knowing the direct, bivariate effect. Second, studies included different covariates in their models, reducing the ability to compare effect sizes across studies. As the results from these studies are informative, some are used to aid in the interpretation of the meta-analytic results, but were not included in the actual meta-analysis.

Of the 45 studies, nine only measured suicidality within the past 12 months, rather than the lifetime. These were excluded from the meta-analysis because the suicide ideation group likely included past attempters and because the nonsuicidal group could include

past ideators or attempters, which represent major confounds given the focus of the meta-analysis.

The 36 remaining articles were coded for variables assessed as well as gender, sample type, country, and dataset (e.g., National Comorbidity Study). Variables that were measured in at least four studies were included in the meta-analysis. Nine articles did not include any of these variables and were thus excluded from the meta-analysis, leaving 27 articles that were included. The 12 variables included in the meta-analysis are gender, education, race, marital status, depressive disorder, depression severity, anxiety disorder, posttraumatic stress disorder (PTSD), alcohol use disorder, drug use disorder, sexual abuse history, and hopelessness.

Statistical Analysis

For each study, effect sizes indicating the degree to which each variable distinguished attempters from ideators were extracted from the manuscript or calculated based on the data reported. Additionally, as a point of comparison, effect sizes indicating the degree to which each variable distinguished ideators from nonsuicidal individuals (e.g., those lacking a history of ideation or attempts) were also extracted or calculated, when

available. The majority of articles included tables listing *ns* or means and standard deviations, from which effect sizes were calculated. The remaining articles included tables listing odds ratios, confidence intervals, and sample sizes. All effect sizes were converted to Cohen's *d*, and for each variable a weighted average effect size was calculated.

Cohen's *d* was used as the metric for ease of interpretation. The strength of effect sizes is estimated as negligible (.00–.19), small (.20–.49), medium (.50–.79), and large (.80 and greater; Cohen, 1988). A positive effect size indicates that the more suicidal group (i.e., suicide attempters versus suicide ideators, or suicide ideators versus nonsuicidal individuals) was elevated on the variable in question.

Meta-analyses of the 12 variables were conducted with Comprehensive Meta-Analysis version 2.2. A random effects model was used for all analyses, as the studies included were notably heterogeneous in their populations and measurement techniques and a more conservative approach was warranted. This approach takes into consideration true differences among studies as well as differences among participants (Schmidt, Oh, & Hayes, 2009). Heterogeneity was assessed by examining the range of effect sizes, as well as the I^2 statistic (Higgins & Thompson, 2002), which provides an estimate of the percentage of variability due to heterogeneity rather than sampling error.

Two moderators were examined whenever the data were available. First, gender was examined as a potential continuous moderator (e.g., percent of sample that was female). Method of moments meta-regressions were used to investigate the moderating effect of gender on each finding. Second, the type of sample, clinical or community, was examined as a potential categorical moderator when there were at least two studies of each type in the analysis. Community samples were defined as studies in which participants were sampled from nonpsychiatric settings. Clinical samples were defined as studies in which participants were sampled from clinical settings (e.g., hospitals, outpatient clinics). Confidence intervals around the weighted effect sizes were examined for overlap to index whether the findings differed based on sample type.

As most studies providing data relevant to this meta-analysis did so as part of research focusing on a differ-

ent research question, there is less concern about the file drawer effect than in a traditional meta-analysis, for which results may be strongly influenced by unpublished studies with null findings. However, due to the small number of studies available for some outcomes, it was important to ensure that any one study did not disproportionately influence the weighted effect size. We accounted for this possibility by assessing whether the strength or interpretation of the effect size changed considerably with the removal of any one study.

Whenever possible, two set of results are described for each variable: (a) the extent to which the variable is elevated among suicide attempters compared to ideators, and (b) the extent to which the variable is elevated among suicide ideators compared to nonsuicidal individuals. The former represents the focus of this meta-analysis, whereas the latter presents a context to distinguish predictors of suicide attempts from predictors of suicide ideation.

RESULTS

Characteristics of the Articles Included in the Meta-Analysis

Characteristics of included articles are presented in a supplemental table available online. Sample size varied from 25 to 19,414. Of the 27 articles included in the meta-analysis, 11 were sampled from clinical populations and 16 were sampled from community populations. Twenty-one articles included nonsuicidal participants, as well as attempters and ideators. All but one study included both men and women. The studies were from 13 countries, with the highest number (11) from the United States. The majority of the studies assessed suicidality with an interview (22), four used questionnaires, and one employed chart review.

Sociodemographic Variables

Four sociodemographic variables were examined: gender, marital status, race, and education (Tables 1 and 2).

Gender. Being female was similarly common among attempters and ideators ($d = .18$). This relationship did not vary based on sample type. Gender was also similar in ideators and nonsuicidal individuals ($d = .16$). This latter relationship varied based on type of sample: Women were slightly more likely to be ideators than to be nonsuicidal in clinical samples ($d = .27$), while the

Table 1. Differences between suicide ideators and nonsuicidal individuals

Correlate	# of Studies	Pop SI ^a	Pop NonS ^b	Weighted Effect Size (<i>d</i>)	95%CI	<i>p</i> -Value	Range of Effect Sizes	%I ²
Depression severity	3	124	181	0.90	0.56 to 1.23	***	0.56 to 1.16	44%
PTSD	3	1,172	7,969	0.86	0.54 to 1.18	***	0.67 to 1.35	79%
Depressive disorder	8	2,236	3,297	0.85	0.58 to 1.11	***	0.35 to 1.28	95%
Hopelessness	3	178	141	0.55	0.05 to 1.04	*	0.00 to 0.96	63%
Anxiety disorder	4	745	6,666	0.43	0.24 to 0.60	***	0.10 to 0.59	62%
Drug use disorder	6	1,569	8,906	0.40	0.15 to 0.66	**	0.03 to 0.72	75%
Alcohol use disorder	11	3,032	31,926	0.36	0.28 to 0.45	***	0.13 to 0.58	43%
Sexual abuse	5	4,031	26,328	0.34	-0.14 to 0.83		-0.09 to 0.91	97%
Marital status	7	2,481	24,854	0.19	-0.04 to 0.42		-0.12 to 0.51	93%
Race	6	3,243	26,927	0.19	-0.02 to 0.39		-0.18 to 0.40	90%
Gender	16	4,341	40,512	0.16	0.07 to 0.25	**	-0.12 to 0.56	70%
Education	7	3,673	28,555	0.01	-0.12 to 0.14		-0.27 to 0.27	84%

Note: ^aPop SI = Number of participants with lifetime suicide ideation, but no lifetime suicide attempts.

^bPop NonS = Number of nonsuicidal participants.

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

Table 2. Differences between suicide attempters and suicide ideators

Correlate	# of Studies	Pop SA ^a	Pop SI ^b	Weighted Effect Size (<i>d</i>)	95%CI	<i>p</i> -Value	Range of Effect Sizes	%I ²
Depression severity	5	240	269	0.23	-0.11 to 0.57		-0.38 to 0.59	65%
PTSD	6	615	1,808	0.52	0.28 to 0.75	***	0.21 to 1.12	53%
Depressive disorder	11	2,617	3,754	0.24	0.16 to 0.33	***	0.00 to 0.46	31%
Hopelessness	4	222	212	-0.05	-0.36 to 0.27		-0.37 to 0.24	52%
Anxiety disorder	5	441	925	0.48	0.30 to 0.69	***	0.24 to 0.74	39%
Drug use disorder	8	714	2,071	0.49	0.35 to 0.63	***	-0.12 to 0.95	6%
Alcohol use disorder	13	2,634	3,346	0.31	0.16 to 0.46	***	0.00 to 0.64	65%
Sexual abuse	5	3,241	4,031	0.52	0.45 to 0.60	***	0.44 to 0.65	0%
Marital status	7	1,901	2,481	0.20	0.04 to 0.37	*	-0.11 to 0.52	59%
Race	6	3,143	3,243	0.01	-0.21 to 0.23		-0.75 to 0.27	86%
Gender	17	4,279	4,350	0.18	0.04 to 0.31	*	-0.45 to 0.58	78%
Education	8	1,891	1,468	0.23	0.09 to 0.37	**	0.05 to 0.67	77%

Note: ^aPop SA = Number of participants with lifetime suicide attempts.

^bPop SI = Number of participants with lifetime suicide ideation, but no lifetime suicide attempts.

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

relationship was negligible in community samples (*d* = .12).

Marital Status. Marital status was defined as single (for any reason) versus married. Being single was slightly more common among attempters compared to ideators (*d* = .20). The relationship was similar when comparing ideators to nonsuicidal individuals (*d* = .19). These relationships did not vary based on sample type, and there was no moderating effect of gender.

Race. Race was defined as either Caucasian or African American (as studies lacked sufficient sample sizes to examine other racial groups). Other racial/ethnic groups and studies that did not include Caucasians and

African Americans were excluded from these analyses. Being Caucasian did not differentiate attempters from ideators (*d* = .01). This effect remained negligible (*d* = .19) even when a study reporting an outlier effect (*d* = -.75; Fu et al., 2002) was removed. There was no moderating effect of gender or sample type.

Race was similarly weak in differentiating ideators from nonsuicidal participants (*d* = .19). There was no moderating effect of gender, and no single study exerted large influence. The relationship did vary based on sample type. Among clinical samples, there was no association between race and ideator status (*d* = -.02), while in community samples there was a small relationship between Caucasian race and ideator status (*d* = .35).

Education. Education was dichotomized as not completing high school versus completing high school or the equivalent. Having less than a high school education was slightly more common among attempters than ideators ($d = .23$), but was similar among ideators compared to nonsuicidal individuals ($d = .01$). Gender moderated this latter effect, such that low education had a stronger (although still very small) effect on ideator versus nonsuicidal status in samples with a greater proportion of men ($b = -.008$, $p < .001$). The relationships did not vary based on sample type.

Psychiatric Variables

Five diagnostic categories were examined in at least four studies and thus were included in the meta-analysis: depressive disorder, any anxiety disorder, PTSD, alcohol use disorder, and drug use disorder. Lifetime diagnoses were assessed in all but two studies (Larney et al., 2012; Rudd et al., 1996). Additionally, the severity of current depression was examined in five studies and was also included (Tables 1 and 2).

Depressive Diagnosis. This variable was operationalized as presence of a major depressive episode, major depressive disorder, and/or dysthymia. Having a depressive diagnosis was slightly more common among attempters compared to ideators ($d = .24$). However, depressive diagnoses were much more common among ideators compared to those who have never been suicidal ($d = .85$). The moderating effect of sample type could not be assessed, as there was only one study from a clinical sample. There was no moderating effect of gender.

Depression Severity. This variable was operationalized as any continuous measure of current depressive symptoms. These included the Beck Depression Inventory (Beck & Steer, 1984), the depression scale of the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), and the Calgary Depression Scale for Schizophrenia (Addington, Addington, & Schissel, 1990). Similarly to depression diagnosis, the severity of depression was only slightly higher among attempters compared to ideators ($d = .23$). However, depression severity was much higher among ideators compared to those who had never been suicidal ($d = .90$). The

moderating effect of sample type could not be assessed, as only one study was from a community sample. There was no moderating effect of gender.

Any Anxiety Disorder. This was operationalized as the presence or absence of any anxiety disorder. The specific anxiety disorders included in the composite “anxiety disorder” variable varied across studies. Having an anxiety disorder was somewhat more common among attempters compared to ideators ($d = .48$) and among ideators compared to individuals who had never been suicidal ($d = .43$). The moderating effect of sample type could not be assessed, as there was only one study from a clinical sample. There was no moderating effect of gender.

PTSD. A PTSD diagnosis was somewhat more common among attempters compared to ideators ($d = .52$). However, PTSD was much more common among ideators compared to individuals who had never been suicidal ($d = .86$). The moderating effect of sample type could not be assessed, as all studies were from community samples. There was no moderating effect of gender.

Because PTSD had a robust effect and because some studies included it in the composite “any anxiety disorder” variable (described above), we examined whether the presence of PTSD might account for the effects observed for “any anxiety disorder.” In contrasting attempters with ideators, two studies included PTSD in the composite anxiety variable, two studies did not, and one study did not report which anxiety disorders were included. No significant differences were observed between the studies with ($d = .60$) and without ($d = .45$) PTSD included. In contrasting ideators with nonsuicidal individuals, one study included PTSD and two did not. No significant differences were observed between the studies with ($d = .53$) and without ($d = .42$) PTSD included.

Drug Use Disorder. This variable included diagnoses of drug abuse or dependence. Having a drug use disorder was somewhat more common among attempters compared to ideators ($d = .49$) and ideators compared to nonsuicidal individuals ($d = .40$). The moderating effect of sample type could not be assessed, as there

was only one study from a clinical sample. There was no moderating effect of gender.

Alcohol Use Disorder. This variable included diagnoses of alcohol abuse or dependence. Alcohol use disorders were slightly more common among attempters compared to ideators ($d = .31$) and among ideators compared to nonsuicidal individuals ($d = .36$). There was no moderating effect of sample type or gender.

Other Variables

Two other variables were examined in at least four studies: sexual abuse and hopelessness (Tables 1 and 2).

Sexual Abuse. This variable included either lifetime sexual abuse or sexual abuse before age 18. A sexual abuse history was somewhat more common among attempters compared to ideators ($d = .52$), a finding that was markedly consistent across the five studies. Sexual abuse was slightly more common among ideators compared to nonsuicidal individuals ($d = .34$), though the relationship varied widely across the five studies. There were no moderating effects of sample type or gender.

Hopelessness. This variable was defined as scores on the Beck Hopelessness Scale (Beck, 1988). Attempters and ideators did not differ on hopelessness ($d = -.05$). The relationship was moderated by gender in that, in samples with a greater proportion of men, hopelessness was slightly higher among attempters compared to ideators ($b = -.009$, $p = .023$). There was no moderating effect of sample type. Hopelessness was somewhat higher among ideators compared to nonsuicidal individuals ($d = .55$).

DISCUSSION

Previous research has identified hundreds of correlates of suicidality, broadly defined. This meta-analysis was conducted to identify those variables that specifically differentiate nonlethal suicide attempters from suicide ideators who have never attempted. Findings suggest that most of the commonly identified correlates of suicidality contribute little information to distinguishing who attempts suicide from who simply thinks about suicide. Instead, these factors are best characterized as

distinguishing suicide ideators from those who have never been suicidal. Perhaps most surprisingly, whereas the oft-cited factors of depression and hopelessness indeed distinguished suicide ideators from individuals without histories of suicidality, these same variables offered little to no information about the difference between attempters and ideators. Importantly, these results come from cross-sectional studies of nonfatal suicide attempts; thus, directionality and generalizability to fatal attempts cannot be determined. Below we summarize our findings.

Large Effects

None of the 12 variables examined were substantially more common among suicide attempters compared to suicide ideators, even though 3 of the 12 were substantially higher in suicide ideators compared to those who had never been suicidal: a depressive diagnosis, the severity of depression, and PTSD. Thus, despite decades of research and hundreds of studies on suicide risk, it appears the field has not yet empirically identified strong correlates of suicide attempt above and beyond their relationship to ideation.

Small to Moderate Effects

Four variables had small to moderate effects in differentiating attempters from ideators. Anxiety disorders overall, and PTSD in particular, as well as drug use disorders and sexual abuse, were moderately more common among attempters compared to ideators. This pattern suggests the possibility that these variables may facilitate the transition from ideation to attempt, or alternatively, a suicide attempt may increase the chances that these conditions develop. These relationships could potentially be explained by comorbidity among the variables; for example, PTSD may be related both to sexual abuse and to attempts among ideators. Another explanation would be the presence of an unmeasured third variable. More research is needed to delineate what about these factors is associated with attempt over and above ideation.

Negligible to Small Effects

Other than anxiety disorders, PTSD, and drug use disorders, the other psychiatric diagnoses examined failed to meaningfully differentiate attempters from ideators.

These included depressive disorders, depression severity, and alcohol use disorders. Thus, while psychiatric disorders appear useful in identifying who has developed suicidal thoughts, they appear to have minimal utility for characterizing who has acted on their suicidal thoughts. Importantly, these findings run counter to conventional wisdom that puts psychiatric disorders at the top of lists of risk factors for suicide attempts (American Association for Suicidology, 2013; American Foundation for Suicide Prevention, 2014).

Additionally, and perhaps surprisingly, hopelessness was not higher in suicide attempters compared to ideators. Hopelessness was moderately higher among ideators compared to nonsuicidal individuals, but was not related to having acted on suicidal thoughts. This finding is in contrast to current suicide prevention guidelines (Rudd et al., 2006) and seminal theories of suicidality (Abramson, Metalsky, & Alloy, 1989; Beck, 1967) that suggest hopelessness is specifically related to suicide attempts. Notably, most of the studies included in the meta-analysis compared lifetime suicide status with current hopelessness, which may have underestimated the relationship between hopelessness and suicidality. Previous research suggests that hopelessness is only moderately stable over time and may not relate to suicide attempts beyond a time span of a few years (Klonsky, Kotov, Bakst, Rabinowitz, & Bromet, 2012). Hopelessness also is composed of state and trait aspects, which may have different relationships to suicide risk (Young et al., 1996). Future research must look at the stability of hopelessness and its temporal relationship to suicidality to better identify the specific role it plays in attempt versus ideation.

Regarding sociodemographic variables—female gender, being unmarried, and Caucasian race (as compared to African American)—none differentiated attempters from ideators. Education (i.e., having less than a high school diploma) was slightly more common among attempters than ideators, and the effect was somewhat larger for men. Overall, sociodemographic characteristics do not appear important for distinguishing suicide attempters from ideators.

Comparisons With the WHO's World Mental Health Findings

These meta-analytic results are consistent with a large, cross-cultural study on suicidal behavior, the World

Health Organization's World Mental Health (WMH) Survey (Nock, Borges, & Ono, 2012). Data from the WMH Survey are generally presented in multivariate format and subject to complex sample weighting, precluding most of it from being included in the meta-analysis. However, these reports provide a useful external comparison to the meta-analytic results and are therefore described here narratively. The WMH Survey has collected and analyzed data from a diverse group of countries and includes over 100,000 community participants. Results are consistent with this meta-analysis in that demographic factors, psychiatric diagnoses, and life history variables are much less powerful in distinguishing attempters from ideators than they are at separating those with a history of suicide ideation from those without (Nock et al., 2012). For example, mood ($d = .14$), anxiety ($d = .22$), and substance use disorders ($d = .26$) were only slightly more common in attempters than ideators, while they were much more common ($d = .57-.85$) among suicidal compared to nonsuicidal individuals (Nock et al., 2008).

Summary and Future Directions

Few of the variables routinely highlighted as important correlates of suicidality appear useful in understanding suicide attempts compared to suicidal thoughts. Female gender, Caucasian race, marital status, low educational attainment, depression, alcohol problems, and hopelessness all provide little to no information about being an attempter compared to being an ideator. Having an anxiety disorder, particularly PTSD, drug problems, or a sexual abuse history are reliably more common in attempters than ideators, but these effects are modest rather than strong. Virtually all of the variables that showed a strong relationship to ideation (e.g., depression, hopelessness) were not able to differentiate attempters from ideators.

Implications for Future Research. From our perspective, the implications of the meta-analytic findings for future research are clear, important, and fortunately easy to address. Identifying what differentiates someone who thinks about suicide from someone who acts on suicidal thoughts is vital to clinical decision-making and theory development. Although there is a robust

literature examining relationships between suicidality and a plethora of correlates, very few papers specifically contrast suicide attempters with suicide ideators—a problem that can be addressed simply through minor changes in research measurement practices. The field would benefit greatly from routinely including this comparison in examinations of standard risk factors. It is particularly warranted as there is minimal additional burden to collecting or analyzing data in a way that allows this comparison.

In addition, because emerging evidence strongly suggests the difference between considering suicide and acting on those thoughts is not simply a matter of severity of ideation, psychopathology, or one of our other previously identified risk factors, work is needed to locate novel variables that *do* robustly differentiate ideation from action. Routinely examining the role of common risk factors in attempters compared with nonattempting ideators is important; however, identifying new variables, including protective factors, essential to that transition would substantially increase the field's conceptual and clinical knowledge about causes of and risks for suicide attempts.

Thus, our findings lead to a key question: If oft-cited correlates of suicide do not indicate which ideators attempt, what does? Only about one-third of people who consider suicide make an attempt (Kessler et al., 1999); thus, something (or things) must be different for those individuals. Below we discuss some possible answers based on clues from the meta-analysis, novel theoretical models, and nascent findings from emerging literature. Given the limitations of the existing literature, this discussion will necessarily reach beyond the variables included in the meta-analysis and explore factors that current theories suggest may be worth further study.

Implications for Theory. As mentioned in the Introduction, modern theories of suicide have begun to address the difference between predicting ideation and predicting attempt. The interpersonal–psychological theory of suicide (IPT) is the first major theory of suicide to specify factors that explain the transition from suicidal thoughts to attempts (Joiner, 2005; Joiner et al., 2009). This theory posits that three domains must be present in an individual for suicide to occur.

The first two domains, thwarted belongingness and perceived burdensomeness, are thought to confer the desire for suicide (e.g., suicidal ideation). Accordingly, individuals who feel socially isolated and who also feel that they are dragging down those around them may desire to end their lives. However, a third domain, acquired capability, is needed in order for an individual to undertake potentially lethal self-harm (e.g., suicide attempt). While thinking that one is a burden and does not belong may impart the desire for suicide, Joiner hypothesizes that causing oneself potentially lethal self-harm is such a fearsome and anti-instinctual act that the ability to carry it out must be accumulated over time. It is the combination of the desire to die and the capability to inflict potentially lethal self-harm that puts an individual in the danger zone for a serious suicide attempt or death.

The IPTS suggests that this capability can be acquired in a myriad of ways. Experiencing painful and provocative life events, working in careers in which one is trained to disregard personal safety, and engaging in behaviors in which one overcomes initial physical pain in pursuit of a greater reward would all be thought to increase one's acquired capability. Additionally, psychological changes occur, shifting the response to death away from fear and avoidance and closer to appreciation and resolve. In this model of suicidality, increased capacity for inflicting and withstanding painful and scary actions is the key factor that separates those who think seriously about suicide from those who attempt or die from it.

Emerging but preliminary evidence supports the role of acquired capability in suicide attempts. A small study of depressed individuals found that suicide attempters reported more painful life events and less fearfulness as compared to suicide ideators, though these groups did not differ on physiological measures of capability (Smith, Cukrowicz, Poindexter, Hobson, & Cohen, 2010). Another indicator, physical aggression, was moderately associated with past-year attempts among past-year ideators in a large sample of American adolescents ($d = .50$) while other variables, such as hopelessness ($d = .03$) and social withdrawal ($d = .23$), did not separate the groups (Gunn, Lester, & McSwain, 2011). Nonsuicidal self-injury (NSSI) represents a particularly pernicious means to increasing capability, as it involves

repeatedly practicing causing pain and physical damage to oneself, usually in the context of overwhelming negative emotions. Individuals with a history of NSSI display higher pain tolerance and greater capability (Franklin, Hessel, & Prinstein, 2011). The association between nonsuicidal self-injury and suicide attempts is robust and consistent (Joiner, Ribeiro, & Silva, 2012; Klonsky et al., 2013).

Though none of the variables examined in the present meta-analysis were strongly associated with attempt, acquired capability might help explain the four variables that showed a modest association (i.e., PTSD, anxiety disorders, drug use disorders, sexual abuse history). All four include features associated with increased exposure to provocative and painful events, and thereby increased acquired capability. PTSD, by definition, involves experiencing and reliving a potentially life-threatening event. Anxiety disorders often include aversive physical sensations, as well as catastrophizing cognitions. For example, certain panic attack symptoms, such as feeling like one might die or go crazy, appear to have an enhanced relationship to the transition to attempt (Katz, Yaseen, Mojtabai, Cohen, & Galynker, 2011; Nock et al., 2009). Perhaps repeatedly experiencing these thoughts, in addition to the strong and aversive physical sensations that occur during a panic attack, may in fact increase one's capability to act on suicide ideation. Drug use disorders are associated with a number of painful physical symptoms (e.g., withdrawal), as well as an increased likelihood of having been involved in risky situations (e.g., impaired driving, physical altercations), and may include repeated practice with self-inflicted physical pain (e.g., shooting up, accidental overdose). Finally, a history of sexual abuse represents exposure to a particularly painful and provocative event.

It is important to note that the relationships between these variables and attempt status were modest, and none were strongly associated with attempt compared to ideation. Additionally, empirical evidence establishing the relationship between acquired capability and attempt is still limited. Clearly, further empirical study is needed to establish whether increased capability is indeed a strong predictor of the progression from suicidal thoughts to attempts and to identify which experiences most contribute to acquiring capability.

Other theories of the transition from ideation to action may offer other possible predictors of suicide attempts. The integrated motivational–volitional model (IMV; O'Connor, 2011) is an emerging theory of suicidality that emphasizes factors that influence the transition from thoughts to behavior. This theory posits that three stages contribute to suicidality: premotivational (e.g., background and contextual events), motivational (e.g., factors that trigger ideation and intention), and volitional (e.g., factors that trigger the transition from thoughts to actions). O'Connor (2011) conceptualizes the volitional stage broadly to include a range of variables, including psychological (e.g., onset of new stressors), practical (e.g., knowledge about dangerous attempt methods), social (e.g., social learning), and personality (e.g., impulsivity). He posits that all of these may be important in making the transition from thoughts to attempt. Further research is needed to determine whether these variables are indeed greater in attempters compared to ideators. The three-step theory of suicide finds that the interaction between pain and hopelessness predicts the onset of ideation, while a lack of connection predicts the worsening of ideation and dispositional, acquired, and practical contributors predict the transition to a suicide attempt (Klonsky & May, 2015).

There are other practical factors that may also be crucial in predicting attempts among ideators. For example, access to lethal means is often a target of public health interventions to prevent suicide. Compelling evidence suggests that the reduction in access to particularly lethal methods of suicide (e.g., firearms, pesticides) is related to decreases in suicide death rates (Florentine & Crane, 2010; Miller, Azrael, & Barber, 2012). During periods of suicidality, suicide ideation waxes and wanes, such that reduction in access to a lethal means may increase the chances that an individual weathers the minutes or hours of intense suicidality without acting on his or her thoughts. Additionally, because problem-solving deficits are associated with suicidal crises, many individuals may not turn to other suicide methods if their planned method is not available (Grover et al., 2009). It is possible that blocking accessibility to preferred methods of attempting suicide may prevent some ideators from acting on their thoughts.

More generally, the results of this meta-analysis further support our belief that the field should use an ideation-to-action framework to guide all suicide theory and research (Klonsky & May, 2014). This framework suggests there are separate explanations for (a) the development of suicide ideation and (b) the progression from suicide ideation to attempt. Our current list of risk factors contributes most to understanding the development of ideation, but it offers little about the progression to attempt. Joiner's interpersonal-psychological theory of suicide, O'Connor's integrated motivational-volitional theory, and Klonsky and May's three-step theory are good examples of theories that employ an ideation-to-action framework to generate new ideas and testable hypotheses about factors that may be key to distinguishing troubling thoughts from potentially deadly actions. However, these theories represent only a few perspectives. Future research should continue to use an ideation-to-action framework to advance our understanding of suicidality.

Limitations

Strengths of the present meta-analysis include the breadth of the literature examined and the number of variables reviewed. However, several limitations to this review should be noted. First, and as was noted in the Introduction, the meta-analysis focused on cross-sectional rather than prospective research designs, investigating what differentiates the group of people who have attempted from the group of people who have only ideated. A key and related question is what predicts the transition from suicidal thoughts to suicide attempts within an individual. Longitudinal studies are in the best position to address this question; however, this body of research is very small. Second, it is not possible to discern from these studies whether the variable of interest occurred before or after the onset of suicidality. Again, longitudinal studies would be able to address this question of causality, which this article cannot. Third, the meta-analysis focused specifically on nonfatal attempters and nonattempting ideators and did not consider suicide death, due to the very limited literature. Thus, these results cannot be generalized to fatal suicide attempts. Better understanding suicide decedents, many of whom die on their first attempt, and who may differ in important ways from those who

attempt suicide but do not die, is a critical area for future work. It will be important to determine whether any of the variables examined are useful in differentiating suicide decedents from suicide attempters or ideators. Fourth, this review was limited to adult samples. These variables may function differently in specific populations, such as adolescents or older adults. Fifth, some variables were available in a small number of studies, potentially limiting the precision of some of the effect size estimates.

In summary, standard correlates of suicide have limited utility in distinguishing those who attempt from those who ideate. Future research should employ an ideation-to-action framework to look beyond established suicidality risk factors and delineate the differences between those who think about suicide and those who attempt suicide and are at greatest risk for severe injury or death. It is only by untangling and explaining the nuances of suicidality that we can more effectively intervene, and by doing so reduce the pain, heartache, and lost potential that result from suicide.

NOTE

1. In obtaining data for this meta-analysis, we made the assumption that attempters also had histories of ideation, as it is difficult to enact a behavior that has not been considered. In a number of cases, studies used gateway questions that ensured all attempters also endorsed ideation (Handley et al., 2012; Kuroki & Tilley, 2012; Larney, Topp, Indig, O'Driscoll, & Greenberg, 2012; Lauer, de Man, Marquez, & Ades, 2008; Lee et al., 2007; Levinson, Haklai, Stein, Polakiewicz, & Levav, 2007; Palmer, 2004; Rudd, Joiner, & Rajab, 1996). However, we do recognize that a very small percent of attempters do not endorse past ideation (Brezo et al., 2007; Fu et al., 2002). When examined explicitly, 95–99% of attempters endorse previous ideation (Garofalo, Wolf, Wissow, Woods, & Goodman, 1999; Katz et al., 2011). We suspect that cases in which attempt but not ideation is endorsed may represent measurement error. However, even if attempting without ideating is a true phenomenon, it is rare, and the small proportion of participants who fall into this category would not substantively affect our meta-analytic results.

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- Articles included in the meta-analysis are denoted by an asterisk.
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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Table S1. Characteristics of studies included in meta-analysis