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The role of irrational thinking in suicidal behavior

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Abstract

Theories of irrational thinking in suicidal individuals are reviewed, as well as research and suggestions made for more complex models. A distinction is made between irrational thinking accompanying psychiatric disorder and that accompanying suicidal ideation and between state and trait cognitive dysfunctions. Furthermore, rather than simply summing elements of different irrational thoughts in multiple regression models, more complex combinations, typologies, profiles, and schemata/pathways are explored.

The present paper reviews the effect of irrational thinking on the decision to engage in suicidal behavior. First, I will review the general role of irrational thinking in psychiatric disorders and how the types of irrational thinking may differ in the different psychiatric disorders. After noting Beck's framework for analyzing irrational thinking in suicidal individuals, the types of irrational thinking proposed *specifically* for suicidal individuals are reviewed, including hopelessness, feelings of defeat and entrapment, perceived burdensomeness, perfectionism, thinking that one is an impostor, and shame. The final section reviews more complex models than a simple summative relationship of types of irrational thoughts, such as typologies, profiles, and schemata.

The cognitive theory of psychologically disturbed behavior, which became very popular in the 1980s, is based on the notion that our negative emotions and disturbing behaviors are not a result of the unpleasant events which we experience, but rather result from our thoughts about the events. It is not the fact that we were fired from our job or that our spouse divorced us that makes us anxious or plunges us into despair. Rather, it is what we say to ourselves after these traumatic events that leads to the anxiety and despair.

The first noteworthy system, called Rational-Emotive Therapy, was devised by Albert Ellis (1962). Antecedent events (A) lead to beliefs (B) which result in consequences (C). If the beliefs are irrational, then the consequences are severe. If the beliefs are rational, then the consequences are mild. Ellis listed 10 common irrational beliefs initially, later extending the list to 13. The irrational beliefs included such ideas as: the idea that it is a necessity for us to be loved or approved by almost every significant other in our lives, and the idea that we should be thoroughly competent in every possible respect.

The next major system was proposed by Aaron Beck (1976) and is known by various labels, most commonly Cognitive-Behavioral Therapy. The basic idea is identical, but Beck and his students classified the types of irrational beliefs more abstractly. A typical list was provided by Burns (1980, pp. 40-41):

- All or nothing thinking
- Overgeneralization
- Mental filter
- Disqualifying the positive
- Jumping to conclusions
- Magnification (catastrophizing) or minimization
- Emotional reasoning
- Should statements
- Labeling and mislabeling
- Personalization

For example, in *overgeneralization*, the person makes unjustified generalizations on the basis of one incident. A single failure leads the person to believe that he will never

succeed at anything. In *magnification*, the person exaggerates the significance of an event. The individual may think, "This is the worst thing that has ever happened to me. I can't stand it."

Irrational thinking in different psychiatric disorders

The next development was to realize that those with different psychiatric disorders had very different sets of irrational thoughts. For example, Beck, Brown, Steer, Eidelson, and Riskind (1987) found that depressed individuals had irrational thoughts centered around the themes of self-depreciation and negative attitudes toward the past and the future such as "I'm worthless," "I'm a social failure," and "No one cares whether I live or die." In contrast, people with anxiety disorders are characterized by themes of danger, physical or psychosocial, and anticipated harm in the future, such as "I am going to be injured," "What if I get sick and become an invalid," and "I'm not a healthy person."

Panic disorder clients have themes centered around catastrophic physical or mental experiences. They fear going crazy or having a heart attack or humiliation and failure. These thoughts are usually triggered by internal events (such as chest pain, dizziness, and palpitations) or external events (such as being alone in the evenings, during an argument, or when confined in a crowded place). The physical sensation is misattributed and believed to signal something medically serious (Ottaviani & Beck, 1987). The linkage is usually very specific (Chambless, Beck, Gracely, & Grisham, 2000):

Dizziness	Fainting
Chest pressure	Heart attack
Distorted vision	Blindness
Numbness	Brain tumor

In Borderline Personality Disorder, according to Butler, Brown, Beck, and Grisham (2002) the irrational beliefs include:

- Aloneness (I will always be alone)
- Dependency (I can't manage by myself; I need someone to fall back on)
- Emptiness (I don't really know what I want)
- Lack of personal control (I can't discipline myself)
- Badness (I am an evil person, and I need to be punished for it)
- Interpersonal distrust (Other people are evil and abuse me)
- Vulnerability (I'm powerless and vulnerable, and I can't protect myself)

Neuringer (1964, 1967) conducted a great deal of research into two characteristics of the thinking of suicidal people. First, he found that they are prone to dichotomous thinking. Events, relationships, and objects are evaluated either as "good" or "bad" rather than as somewhere in between these two alternatives. A corollary of this is a tendency to have bipolar attitudes toward life and death, with life seen as very negative

and death as very positive. Second, Neuringer found that suicidal individuals tend to have rigid patterns of thought which makes them poor at identifying solutions to the problems they face. Neuringer employed control groups of psychosomatic patients and medically ill rather than nonsuicidal psychiatric controls. Thus, the differences that he reported are most likely characteristic of psychiatric patients in general rather than specific to suicidal individuals.

The next step is to identify cognitive dysfunctions that are unique to suicidal individuals, regardless of their psychiatric diagnosis.

A framework for analyzing irrational thinking in suicidal individuals

Wenzel and Beck (2008) have laid out a framework for discussing cognitive processes in suicidal individuals. They adopted a diathesis-stress model incorporating dispositional vulnerability variables, combined with stress from both the cognitive processes associated with psychiatric disturbance and the cognitive processes associated with suicidal acts. They argued that the stronger the dispositional vulnerability variables and the more severe the psychiatric disturbance, then the less life stress is needed to activate the suicide-relevant cognitive processes.

For dispositional vulnerability variables, Wenzel and Beck suggested impulsivity, problem-solving deficits, an overgeneral memory style, personality traits (such as introversion and harm avoidance), and a trait-like maladaptive cognitive style, and one could add emotionality (or neuroticism) and emotion dysregulation. One possible maladaptive cognitive style suggested by Wenzel and Beck was trait hopelessness. Since hopelessness is one of the cognitive distortions that has been proposed as characteristic of suicidal individuals, Wenzel and Beck raised the possibility that maladaptive cognitive process can be both trait (dispositional) and state variables that influence suicidality.

Irrational thinking in suicidal individuals

There have been several suggestions for the irrational thoughts that characterize suicide individuals.

Hopelessness

The cognitive process most central to Beck's theory of suicide is hopelessness (Wenzel & Beck, 2008). Hopelessness was defined by Beck, Weissman, Lester, and Trexler (1974) as negative expectations for the future and, as we have seen above, Beck allowed that hopelessness can exist both at the trait level and at the state level. Furthermore, Beck suggested that trait hopelessness was not relevant to all suicides but only for those who engage in premeditated suicidal actions. The role of trait hopelessness is much less relevant for those who engage in impulsive suicidal actions. For impulsive ac-

tions, these are much more likely to be impelled by psychological states that are judged to be unbearable. However, both pathways (trait hopelessness and unbearable psychological states) result in state hopelessness and suicidal behavior.

Beck brought into his model many more cognitive processes than mere hopelessness (Wenzel & Beck, 2008). For example, Wenzel and Beck proposed a role for attentional biases in which individuals with a history of suicidal ideation, and especially attempts at suicide, have an attentional bias toward suicide-relevant stimuli. This can lead to difficulties in disengaging from these stimuli, becoming overwhelmed by them, and fixating on escape by means of suicide.

Wenzel and Beck noted that individuals in a suicidal crisis often experience racing thoughts (often accompanied by acute restlessness and agitation) and tunnel vision (that is, cognitive constriction). Wenzel and Beck labeled this state as *attentional fixation*, which includes the narrow focus of attention (constriction) and a preoccupation with suicide as a solution. This attentional fixation interacts with state hopelessness to create a downward spiral (that is both cognitive and emotional) creating a context in which suicidal behavior become more likely.

Helplessness

Lester (2001), who was involved in the initial presentation of the hopelessness scale (Beck, *et al.*, 1974), later felt that the hopelessness scale items confused two concepts—hopelessness and helplessness. Hopelessness is concerned with negative expectations about the future (and the concept of hopelessness was originally labeled *pessimism*), while helplessness is concerned with whether individuals think that there is anything that they can do to remedy the situation. One can be a pessimist, but still make efforts (successful or unsuccessful) to change outcomes. Lester argued that hopelessness combined with helplessness could be a more potent causal factor for suicidal behavior. Typical items were, “I look forward to the future with hope and enthusiasm” (hopelessness—reversed scoring) and “I don’t seem to be able to cope with crises without the help of others” (helplessness).¹ Gencoz, Vatan, Walker, and Lester (2008) found that helplessness and hopelessness scores were correlated with suicidal ideation in college students.

Defeat and entrapment

Gilbert and Allan (1998), arguing from an ethological perspective, proposed that depression results when individuals experience defeat and perceive themselves to be trapped with no escape possible. In the animal world, when members of a species fight and one is de-

feated, there are built-in mechanisms that inhibit challenging behavior in the defeated animal and cause the victorious animal to back off and end the fight. These inhibiting mechanisms are viewed as submissive behaviors. In humans, depressed individuals often perceive themselves as inferior and of low status. They frequently experience shame and have low self-esteem. However, not all individuals react extremely. Some continue to live timidly and with caution, while others are seriously demobilized.

Gilbert and Allan (1998) sought to test this hypothesis by constructing a paper-and-pencil self-report inventory to measure both defeat and entrapment. Typical items are, respectively, “I am in a situation I feel trapped in” and “I feel defeated by life.” Scores on these scales were positively associated with scores on measures of depression and hopelessness in a sample of undergraduates.

A similar model has been proposed by Williams (1997) which consists of six components (Johnson, Gooding & Tarrier, 2008): (1) the presence of stressors, (2) an appraisal of the situation with a perception of defeat, (3) cognitive biases that magnify the perception of defeat (such as cognitive constriction), (4) arrested flight, (5) a perception that there is no rescue possible, and (6) access to methods of suicide and models for suicidal behavior. If the entrapment is internal (caused by the individuals themselves) rather than external (caused by others), then the individuals may desire to escape from themselves which is often possible only through suicide (Baumeister, 1990).

There are problems with this model. Johnson, Gooding, and Tarrier (2008) have noted that it has proved difficult to define the two concepts of defeat and entrapment so that there is no overlap. Indeed, the defeat scale devised by Gilbert and Allan (1998) has “I feel powerless” on the defeat scale and “I feel powerless to change things” on the entrapment scale. Johnson, *et al.* also wondered whether the concepts are mutually exclusive. For example, Williams (1997) included the concept of hopelessness in his model, and this is very similar to perceived entrapment. Although entrapment refers to the past and present, whereas hopelessness refers to the future, the definitions of the terms and the items in the self-report inventories are not always dissimilar.

Perceived burdensomeness

Joiner (2005) has proposed a theory of suicide, known as the *interpersonal-psychological theory of suicide*. The theory focuses on three concepts. First, individuals need to belong—to a family, peers, a group, and a culture. Thwarted belongingness is a risk factor for suicide. Second, people also have a need to help others and to not be a burden to others. Perceived burdensomeness is the second risk factor for suicide. In addition to these two risk factors, in order to kill themselves, people also

¹Lester also created a haplessness scale with items such as “Many of the unhappy things in my life are partly due to bad luck.”

have to acquire the capability to enact this self-injury. They may acquire this through previous injuries, prior attempts at suicide or other experiences such as combat in war zones.

Van Orden, Witte, Gordon, Bender, and Joiner (2008) devised measures of these three variables, and a typical item on the perceived burdensomeness scale is "These days I feel like a burden on the people in my life." Scores on the burdensomeness scale were positively associated with scores on measures of depression and suicidal ideation in a sample of undergraduates (Van Orden, *et al.*, 2008). More recent versions of the theory have incorporated other personality traits, such as low self-esteem (Van Orden, *et al.*, 2010) and emotional dysregulation (Anestis, Bagge, Tull, & Joiner, 2011).

Perfectionism

There is good evidence that perfectionism is associated with the suicidal ideation and behavior. For example, Hamilton and Schweitzer (2000) found an association between suicidal ideation and scores on a measure of perfectionism in a sample of Australian undergraduates.

This association is affected by the particular definition of perfectionism. For example, in the study by Hamilton and Schweitzer mentioned above, while the overall score on the measure of perfectionism differentiated the suicidal ideators from the other students, only the subscales measuring concern about mistakes and doubts about actions differentiated the two groups. Scores on the subscales measuring parental criticism, parental expectations and personal standards did not.

Frost, Marten, Lahart and Rosenblate (1990) defined perfectionism as the setting of high standard paired with overly critical self-evaluation in pursuit of those standards. They devised a Multidimensional Perfectionism Scale that proved to have two main components: positive achievement striving and maladaptive evaluative concerns. It is the latter component that is positively associated with measures of psychopathology (DiBartolo, Li & Frost, 2008). DiBartolo, Frost, Chang, LaSota and Grills (2004) found that scores on the Brief Symptom Inventory were associated with scores on subscales measuring *activity-based self-worth* (for example, "When I have free time, I feel guilt about not doing something productive) and *success-based self-worth* (for example, If I were to fail at something, I would be devastated), but not *pure personal standards* (for example, I set higher goals than most people).

The impostor phenomenon

The impostor phenomenon refers to a situation in which people who are competent believe that they are really incompetent, and they often live in fear of being identified as frauds. A typical item in an impostor scale is, "People tend to believe that I am more com-

petent than I really am" (Harvey & Katz, 1985). Lester and Moderski (1995) found that high school students who obtained higher scores on a scale to measure this belief were more likely to report prior suicidal ideation and suicide attempts, even after controls for depression scores. Cases of famous suicides provide examples of this. For example, Lester (2012) has analyzed the diary of an academic who committed suicide who, although he was a successful scholar, lived in fear of being exposed as incompetent. He saw invitations to give talks at conferences and academic institutions as situations in which he was being set up for attack.

Shame and self-esteem

There are some psychological constructs that can be viewed as cognitions or emotions or a combination of both, for example, shame. Shame, which has been linked to suicidal behavior (Lester, 1997), has aspects of both emotion and cognition. Lester differentiated between shame and guilt in his analysis using cognition. Guilt was described as "I can't believe I did *that*," with the focus on the deed (*that*) for which an apology is sufficient. Shame was described as "I can't believe that *I* did that," with the focus on the self (*I*) for which escape from the situation in order to hide oneself is seen as a solution.

A similar situation arises for the construct of self-esteem which can have both cognitive and emotional aspects. In studying the role of these in suicidal behavior, it is important that the self-report inventories used to measure these constructs choose the words carefully so as to assess the cognitive aspects rather than the emotional aspects. For example, the word *feel* should be avoided since it is often used to mean *think*, yet it has primarily an emotional (feeling) connotation. The Rosenbaum self-esteem scale (Janis, 1954) has the item, "I feel capable of handling myself in most social situations." The word *feel* there should be replaced by the words *think that I am*.

Neimeyer (1984) conceptualized self-esteem as a cognitive construct by calling it *negative self-construing*. He hypothesized that negative self-construing might be an important accompaniment of suicidal preoccupation, but his theoretical analysis focused on the relationship between self-esteem and depression in suicidal people. At mild levels of depression, the self-schema begins to lose some of its organization as it begins to assimilate negative as well as positive information about the self. This continues until, at moderate levels of depression, inconsistent self-construing dominates the system. As the depression deepens, a stable and consistent negative self-schema emerges. The degree of negative self-construing appears to vary with the intensity of symptoms, while other traits such as polarized construing may be stable personality traits of the suicidal person.

Other possible irrational thoughts

Revere (1985) identified five fantasies that suicidal individuals often have and which may be disputed by rational thinking: (1) that suicide will be a very disruptive event for the surviving family, (2) that acceptance and glory will be theirs after their death, (3) that suicide will enable them to regain contact with a deceased loved one (reunion fantasies), and (5) that suicide is a painless way of opting out. For example, Revere suggested that the individual hoping for glory could be given, using guided imagery, the scenario of a small obituary in a newspaper that lands in the gutter where a dog urinates on it.

Several theorists have suggested that cognitive constriction (Neimeyer, 1984; Shneidman, 1996), often called tunnel vision, characterizes suicidal individuals who are looking for solutions for their problems. It is not clear whether this is specific to suicidal individuals or to depressed individuals in general. Furthermore, although the presence of constriction can be documented clinically in patients (Shneidman, 1996), there is little research on this concept, possibly because it has been difficult to devise a measure to assess constriction. Researchers have instead studied problem solving in general in suicidal individuals (e.g., Sidley, Whitaker, Calam, & Wells, 1997).

A new model for irrational thinking in suicidal individuals

So far in this essay, we have identified some types of irrational thinking that characterize those with selected psychiatric disorders, such as depressive, anxiety, and borderline personality disorders. Let us label these types of irrational thinking as A, B, C, etc. We have also identified the types of irrational thinking that characterize suicidal individuals. Let us label these types as α , β , and γ , etc. There are several possibilities.

Simple summation

It has become standard in predicting suicidal behavior to use multiple regression statistical techniques. Selected scores (x_1, x_2, \dots) from psychological tests are placed into a multiple regression, and the resulting equation is used to predict suicidal risk (SR):

$$SR = a_1x_1 + a_2x_2 + \dots$$

A simple linear summation of the weighted components predicts the suicidal risk. In this case, the risk of suicide is predicted (and perhaps caused) by a little bit of hopelessness, plus a little bit of burdensomeness, plus a little bit of perfectionism, etc.

We should note that the technique of simple multiple regression should not limit us. (a) It may be that the variables are not additive but rather multiplicative, in

which case a logarithmic transformation of the scores prior to entering them into the multiple regression is appropriate.

$$\begin{array}{ll} \text{If} & SR = (a_1x_1)(a_2x_2) \dots \\ \text{Then} & \log SR = \log a_1x_1 + \log a_2x_2 + \dots \end{array}$$

Or, (b), it may be that the effect of the variables is not linear but rather curvilinear, and so non-linear relationships are relevant. There are also many options for combining the general irrational thinking found in particular psychiatric disorders (variables A, B, and C) with those found in suicidal individuals (variables α , β , and γ). Should the two sets of scores be simply added or combined in a more complex manner?

Types

It may be that there are different types of suicidal individuals. There may be a perfectionist type of suicidal individual, a burdensome type, a hopelessness type, etc. Wenzel and Beck (2008) entertained this possibility, as discussed above, by proposing that impulsive and premeditated suicides are characterized by different cognitive dysfunctions.

Profiles

Alternatively, it may be that suicidal individuals all have some degree of the different types of irrational thinking, but to different extents. In that case, as in the Minnesota Multiphasic Personality Inventory (MMPI), we could draw a profile of suicidal individuals based on the degree to which they have each of the possible irrational thoughts. Different combinations of irrational thoughts (or different profiles) might indicate different levels of risk.

Schemata and path analysis models

Kovacs and Beck (1978) described how the separate thoughts in a person's mind become linked so that one thought almost always leads to the next thought. They illustrated this with the case of Mr. D. While interacting with his wife, the thought came to him, "I am unable to respond to my wife emotionally," followed by, "I'm alienated from my family," and "I'm responsible for my wife's depression." Another sequence was identified in which approval of others gave Mr. D. a sense of worth, and he needed the approval of others to justify his existence every day. If this approval was not received, then he thought that he was not entitled to approve of himself and so he did not have the right to exist. A therapist who has accurate and detailed knowledge of a client can diagram this sequence. Kovacs and Beck called these thought complexes *schemata*.

Lester (2009) has shown such pathways in his study of the diary of Cesare Pavese (1908–1950), an Italian novelist who committed suicide. Whenever Pavese experienced a rejection by a woman to whom he was attracted or with whom he was in love, a discussion of

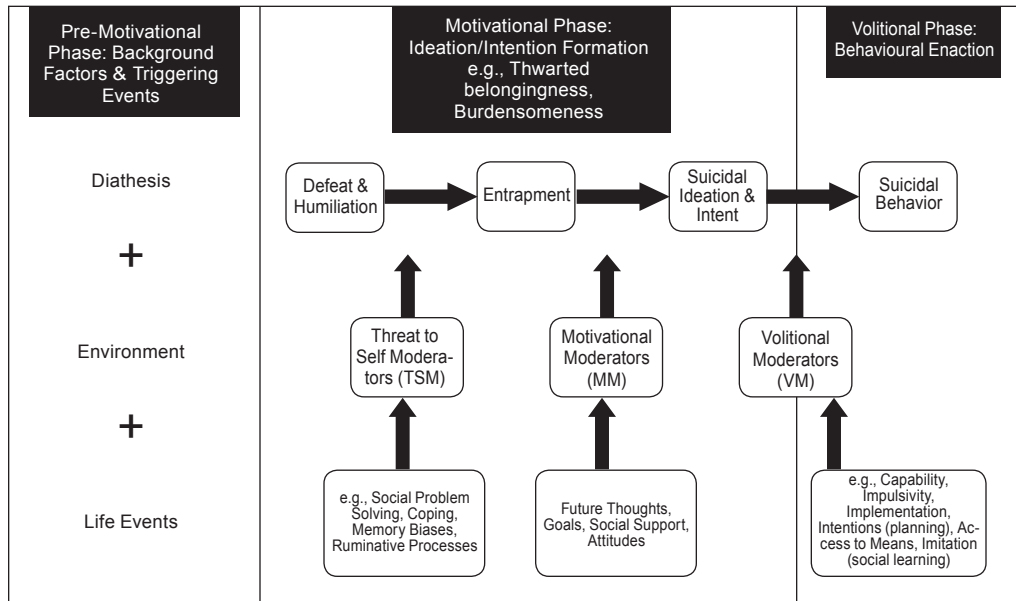


Fig. 1 Integrated motivational-volitional model of suicidal behavior (IMV).⁴

this in his diary was followed, sometimes in the next paragraph, by a denigration of his literary work.

When studying samples of individuals, path analysis (a correlational technique) is used to chart the relationships between variables and the direction of the pathways, mimicking the links in the schemata described above, but at a more abstract level. For example, O'Connor (2011) has proposed an interesting pathway for suicidal behavior (see Fig. 1) that includes several cognitive elements. Defeat and humiliation leads to entrapment, which leads directly to suicidal ideation. Rumination also increases entrapment, but via a different pathway, while burdensomeness plays a role parallel to that of entrapment leading to suicidal ideation. This set of pathways is just one of many that can be proposed. Path analysis, however, is an extension of correlation and multiple regression and, as Everitt and Dunn (1991) argued, "However convincing, respectable and reasonable a path diagram ... may appear, any causal inferences extracted are rarely more than a form of statistical fantasy."

O'Connor (2011) in his research frequently tests his suicidal subjects on two occasions so that he can explore whether variables measured at Time 1 are associated with variables measured at Time 2. But here we run into the trait-state dilemma. Some cognitive styles may be traits and others states. If, for example, hopelessness is measured at Time 1, as Lester, Beck and Mitchell (1979) did, and it is found that this predicts completed suicide at Time 2, then this finding is not surprising if the hopelessness measured at Time 1 was trait hopelessness.²

²Irrational thinking may be either a direct cause of suicidal intent and action or a mediating (or moderating) variable and, in theory, path analysis should be able to test these alternatives.

The role of variables such as rumination

There are other variables, such as rumination, which may play a different role, and Kerkhof and Spijker (2011) have provided an excellent overview of the role that rumination can play in the development of suicidal behavior. Rumination may accompany any type of irrational thinking and has been found to correlate with suicidal ideation in college students (Eshun, 2000). For example, a person with a strong level of perceived burdensomeness may become preoccupied with this perception and dwell on it most of the time, if not all the time. This rumination may exacerbate the individual's suicidal risk. This could be incorporated into our algorithm, not simply as another additive component, but rather as a multiplicative factor. For example,

$$SR = (\text{hopelessness} + \text{burdensomeness}) \times \text{rumination}$$

perhaps using z scores in such an equation. This type of complexity can easily be incorporated into multiple regression models, but there are more complex formulae that could be proposed that cannot be fitted into regression techniques.³ There is also the possibility of exploring in greater depth than hitherto analytic techniques such as latent class analysis, configuration frequency analysis, survival analysis, cluster analysis, and multi-dimensional scaling, and there may be other cognitive variables whose role is more complex than simply add-

³The formulae in a typical physics textbook illustrate the complexities possible in formulae.

⁴Reprinted from O'Connor, R. C. (2011) Towards an integrated motivational-volitional model of suicidal behaviour. In R. C. O'Connor, S. Platt, & J. Gordon (Eds.), *International handbook of suicide prevention*. Chichester, UK: Wiley-Blackwell. Pp. 181-198, with permission of the author and the publisher.

ing a component to the algorithm predicting suicidal risk.⁵

Cognitive style

The concept of cognitive style was popular in the 1960s, beginning with work such as Witkin's research on field-dependence, that is the extent to which an individual can (or cannot) focus on an object without being distracted by surrounding stimuli (Witkin, Moore, Goodenough, & Cox, 1977). Although not much research has been conducted on cognitive style and suicidal behavior, Levenson and Neuringer (1974) found that those who completed suicide were more field-dependent than non-suicidal psychiatric controls.

Although there is disagreement over what a cognitive style is (and to what extent it differs from cognitive abilities), there have been many proposals for cognitive style since then, including convergent versus divergent thinking, left-brain/right-brain cognition, and even typologies based on the Jungian dimensions of extraversion-introversion and intuition-sensing.

Belief in an internal versus an external locus of control (Rotter, 1966), that is, whether an individual attributes outcomes in their lives to their own actions (an internal locus), the actions of others or luck, fate, and chance (an external locus), is another possible cognitive style. Although research on the association between scores on locus of control measures and suicidal ideation and behavior has produced inconsistent results (see Lester, 2000), further research on this and other cognitive styles may be fruitful for understanding how trait aspects of cognition impact suicidal ideation and behavior (e.g., Gosalvez, Chabrol & Moron, 1984).

State versus trait cognition

As we have seen above, Wenzel and Beck (2008) noted that both state and trait hopelessness may play a role in the risk of suicidal ideation and behavior. State measures are related to cognitive style since they tap long-term patterns of thinking and behavior. For the measurement of emotions, researchers have developed both state and trait measures. For example, there are both state and trait measures of anxiety (Spielberger, Gorsuch, & Lushene, 1970). Research into the development of both state and trait measures of cognition may be useful for future research into suicidal behavior.

Do cognitive protective factors play a role?

It has become popular to propose protective factors for suicide, for example, optimism or hope (Rasmussen & Wingate, 2011). Scales exist to measure these types of variables, and scores on them do correlate negatively with suicidal ideation and behavior. However, there are

⁵Suicide is a rare event, and the use of these statistical techniques requires a large sample size which may not always be possible to obtain, especially for those dying by suicide (diaries from these individuals are rare) and those attempting suicide with very high intent.

also scales which measure pessimism and hopelessness, and scores on those scales correlate positively with suicidal ideation and behavior. In most cases, therefore, protective factors, including cognitive protective factors, are simply low scores on scales measuring a cognitive risk factor, and risk factors are simply low scores on scales measuring protective factors.

Scale construction often tries to minimize response sets, and in order to minimize acquiescence response sets, many scales have half of the items phrased in the opposite way from the construct and reversed scored. For example, the Beck Hopelessness Scale (Beck, *et al.*, 1974) has 11 hopeless items (e.g., "The future seems vague and uncertain to me") and nine hopeful items (e.g., "I look forward to the future with hope and enthusiasm"), almost equal numbers. Thus, to take a hope scale and label it as a protective factor (e.g., Davidson, Wingate, Rasmussen & Shish, 2009) does not appear to advance our understanding of suicidal behavior. One could simply reverse score the items on the Beck Hopelessness Scale or score the two sets of items in the Beck Hopelessness Scale separately.

A similar problem arises with studies of optimism as a protective factor for suicide (e.g., Rasmussen & Wingate, 2011). Some scales contain both optimism and pessimism items (e.g., Abdel-Khalek & Lester, 2006), and one can score the two sets of items separately and call them risk and protective factors or combine the scores on all items into one scale. Much more theoretical consideration and empirical research needs to be carried out in order to explore whether the separate concepts of risk and protective cognitive factors are useful.

The one exception here is the Reasons for Living Scale devised by Linehan, Goodstein, Nielsen, and Chiles (1983) which is a self-report inventory that taps cognitive variables related to "Reasons for staying alive when you are thinking of killing yourself," as they titled their article. The scale has subscales that assess survival and coping beliefs (e.g., "I care enough about myself to live"), responsibility to family (e.g., "I would not want my family to feel guilty afterwards"), child-related concerns (e.g., "The effect on my children could be harmful"), fear of suicide (e.g., "I could not decide where, when and how to do it"), fear of social disapproval (e.g., "Other people would think I am weak and selfish"), and moral objections (e.g., "My religious beliefs forbid it"). Although some thought has been given to possible reasons for dying (e.g., Jobes, 2006), psychometrically reliable and valid scales to assess these have not yet been developed. Thus, the Reasons for Living Scale remains a rare measure of the most viable protective cognitive factor at the present time.

The problem of specificity

One problem with analyzing cognitive dysfunction in suicidal individuals is common to all cognitive theo-

ries of mental disturbance. Is the deficit a general deficit or a specific deficit? For example, in studies of cognitive dysfunction in schizophrenics, Gold and Harvey (1993) argued that schizophrenics have a general cognitive deficit, while others propose specific deficits, such as sensory gating or attention deficits (Carter, Bizzell, Kim, Bellion, Carpenter, Dichter, *et al.*, 2010).

The question arises, then, whether suicidal individuals have a general cognitive deficit or a specific one? If a researcher argues that the deficit is specific, then it is incumbent upon that researcher to show that suicidal individuals have the specific cognitive deficit proposed and not any other, a point made by Braginsky, Braginsky, and Ring (1969) in their discussion of deficits in schizophrenics. For example, if Joiner were to claim that his theory of suicide (Joiner, 2005) explains all suicidal behavior, then he has to show that all suicidal individuals have perceived burdensomeness and do *not* have the other possible cognitive deficits, such as hopelessness and perfectionism.

One way to study this would be to give a battery of inventories of irrational thoughts to a sample of individuals and explore, using both factor analyses and cluster analyses, to what extent the different types of cognitive dysfunctions correlate with one another and whether distinct types of individuals can be derived based on their scores on these inventories.

Levels of suicidality

The role of the cognitive factors discussed above and the way in which they interact may, of course, differ for different levels of suicidal involvement. Most research is carried out on suicidal ideation (often in non-clinical populations, but sometimes in clinical populations), on those who have engaged in non-fatal suicidal actions in the past or very recently, and, to a much lesser extent, on those who died by suicide. Since those who died by suicide cannot be given psychological tests, most research on cognitive dysfunctions has focused on what they write in suicide notes (Joiner, Pettit, Walker, Voelz, Cruz, Rudd, *et al.*, 2002) and diaries (Lester, 2004). If those who attempt suicide are the focus of study, they must be classified by the degree of suicidal intent if it is wished to extrapolate the findings from the study to those engaged in fatal suicidal behavior (Lester, *et al.*, 1979). It may be that the particular cognitive dysfunctions involved and the way in which they interact differ for those with suicidal ideation, suicide attempters and those who died by suicide, and the cognitive dysfunctions may differ for those with suicidal behavior in the past as compared to those with current suicidal behavior.

Discussion

The present essay has sought to identify the irrational thinking that characterizes suicidal individuals

above and beyond the irrational thinking that characterizes any psychiatric disorder that they may have. The essay has also presented ways in which the components of irrational thinking might be combined in ways other than in a simple additive manner constrained by multiple regression techniques.

Of course, the suicidal process in individuals is affected by many other factors, including personality traits, emotional factors, lifetime experiences, and neurophysiological states. There are also other cognitive factors involved, including memory and attention. This essay has not assigned these factors to irrelevance but rather focused on how one component of the suicidal process (the thoughts of the suicidal individual) might be explored in more depth and complexity than hitherto. Eventually, the processes discussed in this essay must be incorporated into a more multifaceted theory of the suicidal mind.

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