HHS Public Access

Author manuscript

Suicide Life Threat Behav. Author manuscript; available in PMC 2016 September 14.

Published in final edited form as:

Suicide Life Threat Behav. 2010 June ; 40(3): 266–275. doi:10.1521/suli.2010.40.3.266.

Capable of Suicide: A Functional Model of the Acquired Capability Component of the Interpersonal-Psychological Theory of Suicide

Phillip N. Smith and **Kelly C. Cukrowicz**

Texas Tech University

Abstract

The current review aims to present a functional model of the acquired capability for suicide; a component of Joiner's (2005) Interpersonal-Psychological Theory of Suicide. This review is aimed at integrating the points discussed by Joiner into a unified and specific conceptualization of acquired capability. Additionally, we offer some points of elaboration; such as the interaction between specific diatheses with life events, the role of short-term bolstering of the capability for suicide, and how contextual factors moderate the experience of painful and provocative life events; thereby leading to fearlessness and pain insensitivity to the actions and ideas involved in suicide.

Keywords

Interpersonal-Psychological Theory; Suicide; Suicide Attempts; Self-Harm

In 2005, suicide was the 11th leading cause of death in the United States with 31,610 deaths by suicide (Center for Disease Control [CDC], 2008). Despite this statistic indicating that suicide occurs at an alarming rate, it should also be acknowledged that suicide is a relatively rare occurrence. While over 31,000 people died by suicide in 2005, over 1,878,000 people died by the top 10 leading causes of death (over 59 times the amount who died by suicide; CDC, 2008). It is this relative rarity that many theoretical conceptualizations of suicide cannot explain effectively (see Joiner, 2005 for a review of previous models of suicide). In light of this and other problems, Joiner (2005) has developed the Interpersonal-Psychological Theory of Suicide; a comprehensive theory of suicide that attempts to address limitations of previous models by integrating theoretically meaningful and empirically supported aspects of other models. The purpose of the present paper is to describe more comprehensively a functional model of one aspect of this theory: the acquired capability for suicide.

In pursuit of this goal, it is important to maintain consistency and clarity in the use of terminology. A lack of consistency between the use of terms such as suicide, self-harm, and suicide ideation can create problems when comparing the results of studies and can lead to confusion when discussing theories of suicide. As such, we will be adhering to the

All correspondence regarding this manuscript should be sent to Kelly C. Cukrowicz, Ph.D. at the Department of Psychology, Texas Tech University, Lubbock, TX 79409-2051, USA. (Kelly.Cukrowicz@ttu.edu, Phone: 806-742-3711 ext. 267, Fax: 806-742-0818).

definitions of suicide, suicide attempts, self-harm, and suicide ideation as discussed by Silverman, Berman, Sanddal, O'Carroll, and Joiner (2007). While the Interpersonal-Psychological Theory of Suicide aims to understand and explain the occurrence of serious suicide attempts and suicide, each of these related behaviors will have implications for and can be understood within the context of the model of acquired capability.

The Interpersonal-Psychological Theory of Suicide

The Interpersonal-Psychological Theory of Suicide (Joiner, 2005) suggests that suicide can be understood in the context of three dimensions: (1) thwarted belongingness, (2) perceived ineffectiveness and resultant burdensomeness on others, and (3) an acquired capability for suicide. Individuals are at greatest risk for making a serious or lethal suicide attempt when each of these conditions is met. Compared to previous theories of suicide that describe psychological risk factor(s) (e.g., hopelessness, emotional suffering; Beck, Brown, & Steer, 1998; Shneidman, 1998), the Interpersonal-Psychological Theory of Suicide explains why some people die by suicide and why many who experience these psychological risk factors do not (Joiner, 2005). Specifically, Joiner (2005) suggests that the acquired capability for suicide acts as a limiting factor in determining who of those individuals that experience a serious desire for death by suicide (as influenced by a combination of thwarted belongingness and perceived burdensomeness) will and will not die by suicide. It is this component of the Interpersonal-Psychological Theory of Suicide that the current review aims to describe in more functional detail with some elaboration. However, a brief discussion of the other two components is warranted.

The Interpersonal-Psychological Theory of Suicide suggests that two interpersonal factors are primary in eliciting serious suicide ideation and the desire for death (Joiner, 2005). First, one must feel interpersonally disconnected or *thwarted belongingness* (Joiner, 2005). Such interpersonal disconnection can be the result of a true lack of social support network or from distorted beliefs regarding the presence of a social support group (Stellrecht et al., 2006). The second interpersonal component is *perceived burdensomeness*. The Interpersonal-Psychological Theory of Suicide suggests that when one begins to perceive oneself as ineffective or incompetent in life, the individual may also begin to feel like a burden on others. Such a process is highlighted in statements like, "My family would be better off without me" (Van Orden, Witte, Gordon, Bender, & Joiner, 2008). The Interpersonal Psychological Theory suggests that while each may instill a degree of the desire for suicide, it is the combination of these factors that instills within someone the greatest desire to die by suicide.

Currently, there is a growing literature base supporting the role of thwarted belongingness and perceived burdensomeness in the development of suicide ideation and the desire for death (Joiner, 2005; Joiner, Hollar, & Van Orden, 2006; Joiner, Pettit, Walker, Voelz, & Cruz, 2002; Van Orden, Lynam, Hollar, & Joiner, 2006; Van Orden et al., 2008). However, the Interpersonal-Psychological Theory suggests that the combined experience of perceived burdensomeness and thwarted belongingness is necessary, but not sufficient, to result in suicide (Joiner, 2005). In addition to these key interpersonal factors, one must also have acquired the capability for suicide in order to die by suicide.

The Acquired Capability for Suicide

As the statistics referenced earlier suggest, suicide is a difficult thing to do. The act of suicide contradicts millions of years of evolutionary programming for self-preservation (Ohman & Mineka, 2001). Therefore, when considering the development of the capability for suicide, it is important to note that this capability *typically* involves a long and difficult process that develops over time (Joiner, 2005). As Joiner (2005) has described it, acquired capability is a condition involving a heightened degree of fearlessness and pain insensitivity such that the actions and ideas involved in suicide are no longer alarming. More specifically, one who is capable of suicide no longer reacts to life threatening or painful situations with a significant self-preservation orientation. Joiner (2005) suggest that this condition results from repeated exposure to painful and provocative life events, which, over time, habituate an individual to the fear and pain involved in suicide. Furthermore, Joiner (2005) suggests that there is a threshold at which one's level of fear and pain insensitivity manifests itself into the capability for suicide. According to the Interpersonal-Psychological Theory, this process is viewed as static in that it is believed to increase incrementally as painful and provocative events are experienced. However, as we will discuss later, an alternative conceptualization views acquired capability as being subject to greater moment to moment variability.

It is also important to note that the desire for death by suicide and the capability for suicide are independent. Therefore, it is understood that many people may be capable of suicide, but this capability is only relevant insofar as they experience a desire for death. Alternatively, Joiner (2005) suggests that the majority of those who desire death are not capable of suicide. This explains why many who experience the desire for death never attempt suicide.

Acquiring the Capability for Suicide

We propose a diathesis-stress model in our clinical conceptualization of the acquired capability for suicide. In regards to the clinical application of this model, it is presumed that an individual can experience one or more specific diatheses. Such a model allows us to not only account for vulnerability factors associated with acquired capability (e.g., genetics, biological factors), but also to understand the complexity with which such influences exert their force (see Figure 1 for a depiction of our functional model of acquired capability). While there are likely countless potential points of vulnerability, there are those that may be especially relevant to the development of the capability for suicide; specifically, low levels of serotonin, a more rapid habituation process, and additional influences resulting from genetics and a family history of suicide. These vulnerability factors are viewed as related, but offering unique contributions to the vulnerability to the capability of suicide. Additionally, we propose that an individual is at greater risk for developing the capability for suicide when a greater number of the specific diatheses are experienced and, by extension, will require fewer or less severe diathesis-expressing events.

The first point of vulnerability stems from research suggesting that suicide attempters, particularly violent attempters, experience reduced serotonergic activity (Arango, Underwood, Gubbi, & Mann, 1995; Joiner, Brown, & Wingate, 2005). Low levels of serotonin have been associated with personality variables such as aggression and impulsivity

(Joiner et al., 2005). Impulsivity is a risk factor for the capability for suicide based, in part, on the fact that impulsive people are less likely to heed warning signs against self-harm (i.e., fear and pain signals). Additionally, low levels of serotonin increase the likelihood that the events likely to express the diatheses for acquired capability will occur.

The second potential biological vulnerability for development of the capability for suicide involves the rate at which individuals habituate at the neurobiological level. Research has demonstrated that individuals with a history of a suicide attempt, particularly violent attempts, and those who later died by suicide exhibit faster rates of basic physiological habituation during a tone stimuli noise task (Edman, Asberg, Levander, & Schalling, 1986; Wolfersdorf, Straub, Barg, Keller, & Kaschka, 1999). Such a quicker acting habituation processes may be problematic as even minor diathesis-expressing life experiences (e.g., playing contact sports or nonlife threatening accidental injury) may greatly facilitate the habituation to fear and pain. Furthermore, a quicker neurobiological habituation process will be even more problematic in the context of reduced levels of serotonin and associated impulsivity and aggression. This potential for interaction is important as reduced levels of serotonin and habituation rates have been shown to be uncorrelated (Edman et al., 1986), suggesting that they are reflective of separate diatheses.

Another point of vulnerability involves additional genetic and environmental contributions related to a family history of suicide and related problems (Brent et al., 2002; Runeson & Asberg, 2003). In addition to suicide specifically, genetics influence other factors related to the capability for suicide; such as mood disorders, substance abuse/dependence, and emotional stability (Bierut et al., 2002; Skodol et al. 2002; Sullivan, Neale, Kendler, 2000). Such heritable factors may increase ones vulnerability to developing the capability for suicide by both causing fear and pain and by creating circumstances likely to involve fear and pain (e.g., a self-injecting drug user not only experiences pain and provocation during the act of drug use, but is also likely exposed to pain and provocation as a consequence of drug use).

Genetics are also important in determining one’s baseline levels of pain perception and fear arousal. In the extreme, individuals suffering from Congenital Insensitivity to Pain with Anhidrosis (CIPA) experience no sensitivity to pain. CIPA is rare condition resulting from a genetic mutation wherein afferent pathways responsible for pain sensation do not develop (Indo et al., 1996). Alternatively, traditional conceptualizations of psychopathy have included the notion of “fearless dominance” wherein individuals exhibit reduced fear reactions (see Benning, Patrick, & Iacono, 2005 for an example using the affectively modulated startle paradigm). Furthermore, this trait of fearless dominance was found to have a prominent genetic component (Blonigen, Hicks, Krueger, Patrick, & Iacono, 2005). While these are extreme examples, they highlight the importance of genetics in experience of pain perception and fear arousal.

Unfortunately, the assessment of biological vulnerabilities to developing the capability for suicide is currently unavailable. However, Witte, Smith, and Joiner (2008) have proposed use of the digit ratio span as a biological vulnerability to developing the capability for suicide. The digit ratio is a marker of prenatal testosterone exposure, which itself is a

predictor of impulsivity and risky behaviors similar to low serotonin levels, and a relatively easy indicator to measure. Regardless of some of the current difficulties in assessing biological vulnerabilities, the current model allows for conceptualization of information regarding childhood impulsivity, pain and fear reactions, and increasingly reduced reactivity to stressors into a meaningful context.

Expressing the Vulnerability through Life Events

For those who experience the potential to develop the capability for suicide, the experience of physically painful and psychologically provocative life events are of paramount importance (Van Orden et al., 2008). These experiences interact with the previously mentioned diatheses to create this capability by reducing the typical alarm reaction or reflex one has in response to fear inducing/life threatening and physically painful stimuli. More specifically, life events containing psychologically provocative or fear inducing and physically painful properties work to desensitize someone to the ideas and actions involved in suicide via two separate, but related processes of habituation (i.e., habituation to the fear of suicide and habituation to the pain involved in suicide). It is also important to note that in order for one to make a serious, lethal suicide attempt he or she must be sufficiently habituated to *both* the fear and pain involved in suicide. Additionally, while these processes are here viewed to operate separately in that they will increase at different rates in response to different properties of events, we view them as interactive as events that cause pain are also likely to cause some degree of fear and vice versa.

While research has not typically explored the role of life events with the degree of specificity suggested (i.e., events with painful and provocative elements) several studies have demonstrated a relationship between general negative life events (as measured by self-report inventories such as the Life Experiences Survey) and suicide attempts (Joiner et al., 2005; Joiner & Rudd, 2000). Additionally, Forman, Berk, Henriques, Brown, and Beck (2004) found that multiple attempters reported having experienced more extensive histories of childhood emotional abuse, family mental illness and/or substance abuse, and a family history of suicide attempts. The finding that suicide has been associated with more chronic and severe psychopathology is also consistent with this understanding (Rudd, Joiner, & Rajab, 1996; Forman et al., 2004). Specifically, depression, substance use, personality disturbances, and psychosis, in addition to being negative in and of themselves, are often associated with adverse life conditions.

In the only study to assess life events with the degree of specificity described here, Van Order et al. (2008) demonstrated, via self-report measures, that the experience of painful and provocative life events was related to the acquired capability for suicide. Furthermore, they found that the interaction between the acquired capability for suicide and perceived burdensomeness was significantly predictive of clinician rated suicide risk. Additionally, in one of our, as of yet, unpublished data sets of 46 adult suicide ideators and attempters experiencing Major Depression, painful and provocative life events predicted attempter status using logistic regression after controlling for age, gender, depression, and suicide ideation (i.e., Beck Depression Inventory-II and Beck Scale for Suicide Ideation scores). However, the Life Experiences Survey, a general measure of negative life events did not.

While this is, of course, very preliminary support, it does begin to suggest that focal assessment of life events that are comprised of both psychologically provocative or fear inducing and physically painful events may be of specific and functional importance.

An additional area for assessment related to the development of acquired capability involves how one's initial fear and pain reactions diminish over time and may be replaced with excitement and calming effects. Specifically, both the physical habituation to pain and the psychological habituation to fear have the potential to involve opponent process operations (Joiner, 2005; Stellrecht et al., 2006). Opponent-process theory states that through over-repeated enactment, the primary effect will become reduced while the opponent effect will be enhanced (Solomon, 1980). In regard to the development of the capability for suicide, an individual may experience intense anxiety and fear, the primary process, at the mere thought of attempting suicide. However, over repeated thoughts and actions, this anxiety will reduce and the opponent process, calm or relief, would likely increase.

The specific life events that will serve to facilitate the capability for suicide along these two habituation paths will vary widely between people. Therefore, rather than enumerating the events that might facilitate acquired capability, it is more functionally useful to consider and assess an individual in terms of the degree to which events evoke fear and pain and how repetition of those events may differentially elicit such reactions over time. It is important to note that individual events will facilitate the capability for suicide differentially between people and along both processes of habituation simultaneously; though at different rates. As such, the conceptualization of these factors into the present model must consider developmental trajectories and reports of experiences and reactions at different developmental stages.

While virtually any experience has the potential to foster acquired capability, there is one distinction that is essential. The most effective and efficient path to the acquired capability for suicide is practice (Joiner, 2005). Therefore, life experiences can be dichotomized based on whether they are directly or indirectly related (i.e., analogous) to suicide. Experiences that are directly analogous to suicide are more effective in facilitating acquired capability. Such experiences include self-harm, mental rehearsal, "dry runs," and suicide attempts. This is consistent with data suggesting that multiple suicide attempt status is the strongest predictor of suicide (Joiner et al., 2005).

Indirect experiences are comparatively less effective in facilitating capability and, therefore, presumably require either greater frequency or intensity to achieve the capability for suicide. Such experiences include childhood sexual abuse, accidental injury, participation in aggressive sports, shooting firearms, and others (in Figure 1). Clearly, these behaviors involve variations in the degree to which they will evoke fear and/or pain. It is presumed that the more directly analogous the experience is to suicide and the more fear and pain caused by the event, the greater the likelihood that the capability for suicide will be facilitated.

We argue that life experiences containing painful and provocative elements occurring in conjunction with the specific diatheses described earlier will result in fearlessness of suicide and tolerance to the physical pain involved in suicide. Accordingly, the Fear of Suicide

subscale of the Reasons for Living Inventory has been shown to distinguish individuals who reported serious suicide ideation versus those who had engaged in some form of suicidal behavior both in non-clinical and depressed participant samples (Linehan, Goodstein, Nielsen, & Chiles, 1983; Malone, Oquendo, Haas, Ellis, & Mann, 2000). Additionally, suicidal participants have been found to tolerate more frequent, longer, and intense pain administrations and appraised those administrations as being less painful compared to accident victims, non-suicidal psychiatric patients, and healthy controls (Orbach, Mikulincer, King, Cohen, & Stein, 1997; Orbach, Stein, Palgi, Asherov, Har-Even, & Elizur, 1996). This was particularly true for those who reported having used more violent means, greater suicidal intent, and more attempts.

Ultimately, we aim to use the preceding discussion regarding the nature and elements of life events that serve to facilitate the development of acquired capability as a basis for clinical case conceptualization and assessment. As such, it is important to consider how one's exposure to painful and provocative life events, as well as their effect will vary as a function of the individual and other contextual factors. More specifically, social and cultural factors such as poverty, social support, access to health care/mental health resources, and professional exposure to pain and provocation (e.g., dentistry or military service) will moderate the degree to which one's diathesis is met with stressors. Additionally, the protective influence of such moderating factors is also important to consider. For example, one's culture or religion may possess proscriptive pressures against suicide. Within the Catholic tradition, adherents are taught that to die by suicide is to solidify one's place in hell for eternity; a fearsome prospect to be sure. While many factors may be considered moderators to the development of acquired capability, the current model outlines how such factors might be conceptualized in regard to the development of acquired capability and suicide risk.

We have discussed how nonlethal suicide attempts and non-suicidal self-harm help facilitate the acquired capability for suicide. While Joiner's (2005) model aims to predict serious and lethal suicide attempts, we can also conceptualize non-lethal suicide related behaviors within the present model. Specifically, relative variations in the degree to which one experiences reduction in fear and pain perception will have implications for the types of self-harm behaviors of which one is capable. While indirect, infrequent, or generally non-severe life experiences may not instill the capability for a serious and lethal suicide attempt, they may create the ability to tolerate more indirectly related experiences or engage in less severe self-harm and other more directly analogous actions; which will facilitate the trajectory towards the capability for suicide.

The preceding section aims to describe the process by which an individual develops the capability for suicide in a manner that can inform clinical assessment and case conceptualization (Joiner, 2005). Thus far, we have described the developmental trajectory of the acquired capability for suicide as an over-time process. According to the Interpersonal-Psychological Theory, this process is viewed as static in that it is believed to increase incrementally as painful and provocative events are experienced, but is not subject to daily or moment to moment variability. However, as the final act of suicide will likely still

involve a degree of difficulty we must discuss how acquired capability is enhanced or bolstered during an actual attempt.

Demonstrating and Reinforcing the Capability of Suicide in the Moment

Joiner (2005) has suggested that the ambivalence and the desire to be rescued reported by many who attempt suicide is a function of residual fear and pain. More specifically, an individual in crisis who desires death by suicide who has not quite crossed the threshold of capability for suicide will experience ambivalence, the desire to be saved, or may make an nonlethal attempt (Joiner, 2005). Alternatively, in order to make a serious, lethal attempt such an individual will require a boost in their capability for suicide in the moment (i.e., short-term capability).

This short-term bolstering of the capability for suicide (i.e., during an actual suicide attempt) can be reached by a number of routes. For example, an individual who has decided to take their life by jumping from a bridge may have developed a degree of long term capability through the process described above. However, when this person initiates an attempt, they may still experience enough fear to protect them from jumping. Therefore, the individual may need to walk to the spot from which he or she has decided to jump several times; getting increasingly closer to the edge. Progressively, this individual will become capable of closer approximations to jumping (e.g., looking over the edge, placing their feet over the edge). With each of these steps they would be gaining increased fearlessness to make the final jump. In essence, while this individual will have developed the long-term capability to initiate the attempt, he or she will need to bolster his or her level of acute or short-term capability for suicide during the attempt.

Other actions or experiences that serve to reduce the perceptions of fear and sensations of pain involved in suicide in the short-term include substance intoxication, dissociative states, psychotic episodes, and manic episodes (Brown, Beck, Steer, & Grisham, 2000; Kessler, Borges, & Walters, 1999; Zoroglu et al., 2003). For example, an individual who wishes to die by suicide using a firearm may still harbor a degree of fear significant enough to inhibit a suicide attempt. To reduce their fear during the attempt they may begin to drink alcohol. Functionally, such actions serve to assist the person in building this short-term capability for suicide during the moments of the actual attempt, ultimately resulting in a highly serious and potentially lethal suicide attempt.

An important issue to consider related to our proposed acute or short-term capability for suicide is how it relates to the long-term capability. Joiner (2005) describes the acquired capability for suicide as a static process that involves the crossing of some idiosyncratic threshold after which the individual is perpetually capable of suicide. However, we suggest that an individual can develop the capability for suicide in the moment via intoxication, psychosis, etc. However, the individual may return to a state of incapability for suicide due to higher levels of fear and pain perception when sober or stabilized on antipsychotic medications. It should be noted that actions taken while in a state of capability for suicide will facilitate the capability for suicide, but the level at which one reaches when stabilized or sober may not cross the thresholds of capability for suicide. In essence, while the capability

for suicide does, on average, involve an increasing upward trend that is a function of exposure to painful and provocative life events, it also involves a degree of moment to moment variability. As mentioned, this variability is influenced by a number of conditional factors (e.g., intoxication) that are temporary states.

Summary

The current review provides a functional description the acquired capability component of Joiner's (2005) Interpersonal-Psychological Theory of Suicide. This review is aimed at integrating the points discussed by Joiner into a unified conceptualization of acquired capability that is practically useful in case conceptualization and assessment. Additionally, we have attempted to offer some points of elaboration. Specifically, we have expanded on how specific diatheses interact with painful and provocative life events to habituate the individual to the fear and pain involved in suicide. Furthermore, we discussed how cultural and contextual factors moderate the experience of painful and provocative life events. Lastly, we have proposed that in addition to the long-term development of the capability for suicide, it is important to consider how fear and pain perceptions can be reduced in the short-term, acute crisis.

Method Choice

In addition to determining the severity and lethality of a self-harm action as we have discussed, we also suggest that variations in the degree to which one has developed a sense of fearlessness of suicide compared to pain insensitivity will also affect the method of suicide selected. Specifically, while methods of suicide are often divided based on lethality, they can also be further grouped based on the level of fear and pain they would be expected to elicit. For example, firearms are highly lethal. One could also argue that they elicit high levels of fear. This is compared to pill overdose, which has both a relatively lower level of lethality and, arguably, lower fear induction. Despite these differences, both firearms and pills are likely to involve less physical pain than wrist cutting, burning, and other methods. What this may suggest is that when choosing a suicide method, the degree to which an individual maintains a sense of fear and lower tolerance for pain may influence the specific methods chosen.

Research investigating pain perceptions of suicidal individuals has shown that participants using more painful methods (e.g., wrist cutting, self strangulation versus medication or poison ingestion) were found to experience higher thresholds and greater tolerance for pain (Orbach et al., 1996; Orbach et al., 1997). This moderation of method choice by the degree of fearlessness and pain tolerance may help explain sex differences in suicide rates (Joiner, 2005). Traditionally, men are socialized to express less fear compared to women. As a result of this socialization, men might also experience greater fearlessness of suicide and, therefore, choose more fear inducing methods (e.g., firearms). Alternatively, women may maintain comparatively higher levels of fear, which may influence more women to choose less psychologically provocative methods (e.g., pill overdose).

In support of this proposition, women rated the Fear of Suicide scale of the Reasons for Living Inventory as more important in the protection against suicide compared to men in a non-clinical sample (Linehan et al., 1983). Additionally, in the same data set of 46 depressed suicide ideators and attempters ages 18 and older mentioned previously, we found that men reported significantly greater levels of self-reported levels of acquired capability compared to women (gender distribution between attempter and ideators groups was roughly equal). However, there was no effect of sex on attempter status. While these data are limited, are consistent with our proposal that there are sex specific variations in fearless of suicide, which might have practical implications for important aspects of suicide, such method choice and lethality of attempt.

References

Arango V, Underwood MD, Gubbi AV, Mann JJ. Localized alterations in pre- and postsynaptic serotonin binding sites in the ventrolateral prefrontal cortex of suicide victims. Brain Research. 1995; 688:121–133. [PubMed: 8542298]

Beck AT, Brown G, Steer RA. Prediction of eventual suicide in psychiatric inpatients by clinical ratings of hopelessness. Journal of Consulting and Clinical Psychology. 1989; 57:309–310. [PubMed: 2708621]

Benning SD, Patrick CJ, Iacono WG. Psychopathy, startle blink modulation, and Electrodermal reactivity in twin men. Psychophysiology. 2005; 42:753–762. [PubMed: 16364071]

Bierut LJ, Saccone NL, Rice JP, Goate A, Foroud T, Edenberg H, et al. Defining alcohol-related phenotypes in humans: The collaborative study on the genetics of alcoholism. Alcohol Research & Health. 2002; 26:208–213. [PubMed: 12875049]

Blonigen DM, Hicks BM, Krueger RF, Patrick CJ, Iacono WG. Continuity and change in psychopathic traits as measured via normal-range personality: A longitudinal-biometric study. Journal of Abnormal Psychology. 2005; 115:85–95. [PubMed: 16492099]

Brent DA, Oquendo M, Birmaher B, Greenhill L, Kolko D, Stanley B, et al. Familial pathways to early-onset suicide attempts: Risk for suicidal behavior in offspring of mood-disordered suicide attempters. Archives of General Psychiatry. 2002; 59:801–807. [PubMed: 12215079]

Brown GK, Beck AT, Steer RA, Grisham JR. Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. Journal of Consulting and Clinical Psychology. 2000; 68:371–377. [PubMed: 10883553]

Center for Disease Control and Prevention. [Retrieved June 1, 2008] WISQARS (Web-based Injury Statistics Query and Reporting System). 2005. from http://www.cdc.gov/ncipc/wisqars/default.html

Edman G, Asberg M, Levander S, Schalling D. Skin conductance habituation and cerebrospinal fluid 5-hydroxyindoleacetic acid in suicidal patients. Archives of General Psychiatry. 1986; 43:586–592. [PubMed: 2423049]

Forman EM, Berk MS, Henriques GR, Brown GK, Beck AT. History of multiple suicide attempts as a behavioral marker of severe pathology. American Journal of Psychiatry. 2004; 161:437–443. [PubMed: 14992968]

Indo Y, Tsuruta M, Hayashida Y, Kari MA, Ohta K, Kawano T, et al. Mutations in the TrkA/NGF receptor gene in patients with congenital insensitivity to pain with anhidrosis. Nature Genetics. 1996; 13:485–488. [PubMed: 8696348]

Joiner, T. Why People Die by Suicide. Cambridge, MA, US: Harvard University Press; 2005.

Joiner TE, Brown JS, Wingate LR. The psychology and neurobiology of suicidal behavior. Annual Review of Psychology. 2005; 56:287–314.

Joiner TE, Conwell Y, Fitzpatrick KK, Witte TK, Schmidt NB, Berlim MT, et al. Four studies on how past and current suicidality relate even when “everything but the kitchen sink” is covaried. Journal of Abnormal Psychology. 2005; 114:291–303. [PubMed: 15869359]

Joiner TE, Hollar D, Van Orden K. On buckeyes, gators, super bowl Sunday, and the miracle on ice: "Pulling together" is associated with lower suicides. Journal of Social and Clinical Psychology. 2006; 25:179–195.

Joiner TE, Pettit JW, Walker RL, Voelz ZR, Cruz J. Perceived burdensomeness and suicidality: Two studies on the suicide notes of those attempting and those completing suicide. Journal of Social and Clinical Psychology. 2002; 21:531–545.

Joiner TE, Rudd MD. Intensity and duration of suicidal crises vary as a function of previous suicide attempts and negative life events. Journal of Consulting and Clinical Psychology. 2000; 68:909–916. [PubMed: 11068977]

Kessler RC, Borges G, Walters EE. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. Archives of General Psychiatry. 1999; 56:617–626. [PubMed: 10401507]

Linehan MM, Goodstein JL, Nielson SL, Chiles JA. Reasons for staying alive when you are thinking of killing yourself: The Reasons for Living Inventory. Journal of Consulting and Clinical Psychology. 1983; 51:276–286. [PubMed: 6841772]

Malone KM, Oquendo MA, Haas SP, Ellis S, Li SL, Mann JJ. Protective factors against suicidal acts in major depression: Reasons for living. American Journal of Psychiatry. 2000; 157:1084–1088. [PubMed: 10873915]

Orbach I, Mikulincer M, King R, Cohen D, Stein D. Thresholds and tolerance of physical pain in suicidal and nonsuicidal adolescents. Journal of Consulting and Clinical Psychology. 1997; 65:646–652. [PubMed: 9256566]

Orbach I, Stein D, Palgi Y, Asherov J, Har-Even D, Elizur A. Perception of physical pain in accident and suicide attempt patients: Self-preservation vs. self-destruction. Journal of Psychiatric Research. 1996; 30:307–320. [PubMed: 8905539]

Ohman A, Mineka S. Fears, phobia, and preparedness: Toward an evolved module of fear and fear learning. Psychological Review. 2001; 108:483–522. [PubMed: 11488376]

Rudd MD, Joiner TE, Rajab MH. Relationships among suicide ideators, attempters, and multiple attempters in a young-adult sample. Journal of Abnormal Psychology. 1996; 105:541–550. [PubMed: 8952187]

Runeson B, Asberg M. Family history of suicide among suicide victims. American Journal Psychiatry. 2003; 160:1525–1526.

Shneidman ES. Perspective on suicidology: Further reflections on suicide and psychache. Suicide and Life-Threatening Behavior. 1998; 28:245–250. [PubMed: 9807770]

Silverman MM, Berman AL, Sanddal ND, O'Carroll PW, Joiner TE. Rebuilding the tower of Babel: A revised nomenclature for the study of suicide and suicide behaviors. Part 2: Suicide-related ideations, communications, and behaviors. Suicide and Life-Threatening Behavior. 2007; 37:264–277. [PubMed: 17579539]

Skodol AE, Seiver LJ, Livesley WJ. The borderline diagnosis II: Biology, genetics, and clinical course. Biological Psychiatry. 2002; 51:951–963. [PubMed: 12062878]

Solomon RL. The opponent-process theory of acquired motivation: The costs of pleasure and the benefits of pain. American Psychologist. 1980; 35:691–712. [PubMed: 7416563]

Stellrecht NE, Gordon KH, Van Orden K, Witte TK, Wingate LR, Cukrowicz KC, et al. Clinical applications of the interpersonal-psychological theory of attempted and completed suicide. Journal of Clinical Psychology. 2006; 62:211–222. [PubMed: 16342289]

Sullivan PF, Neale MC, Kendler KS. Genetic epidemiology of major depression: Review and meta-analysis. Journal of Psychiatry. 2000; 157:1552–1562.

Van Orden KA, Lynam ME, Hollar D, Joiner TE. Perceived burdensomeness as an indicator of suicidal symptoms. Cognitive Therapy and Research. 2006; 30:457–467.

Van Orderm KA, Witte TK, Gordon KH, Bender TW, Joiner TE. Suicide desire and the capability for suicide: Tests of the interpersonal-psychological theory of suicidal behavior among adults. Journal of Consulting & Clinical Psychology. 2008; 76:72–83. [PubMed: 18229985]

Witte, TK.; Smith, A.; Joiner, TJ. Affective lability and prenatal testosterone exposure: Risk factors for the capability for suicide. In: Cukrowicz, KC., Chair, editor. An Overview and Examination of the

Interpersonal-Psychological Theory of Suicide; Symposium conducted at the annual convention of the Association for Behavioral and Cognitive Therapies; Orlando, FL. 2008 Nov.

Wolfersdorf M, Straub R, Barg T, Keller F, Kaschka W. Depressed inpatients, electrodermal reactivity, and suicide: A study about psychophysiology of suicidal behavior. Archives of Suicide Research. 1999; 5:1–10.

Zoroglu SS, Sar V, Tutkun H, Savas HA, Ozturk M, Alyanak B, et al. Suicide attempt and self-mutilation among Turkish high school students in relation with abuse, neglect and dissociation. Psychiatry and Clinical Neurosciences. 2003; 57:119–126. [PubMed: 12519464]

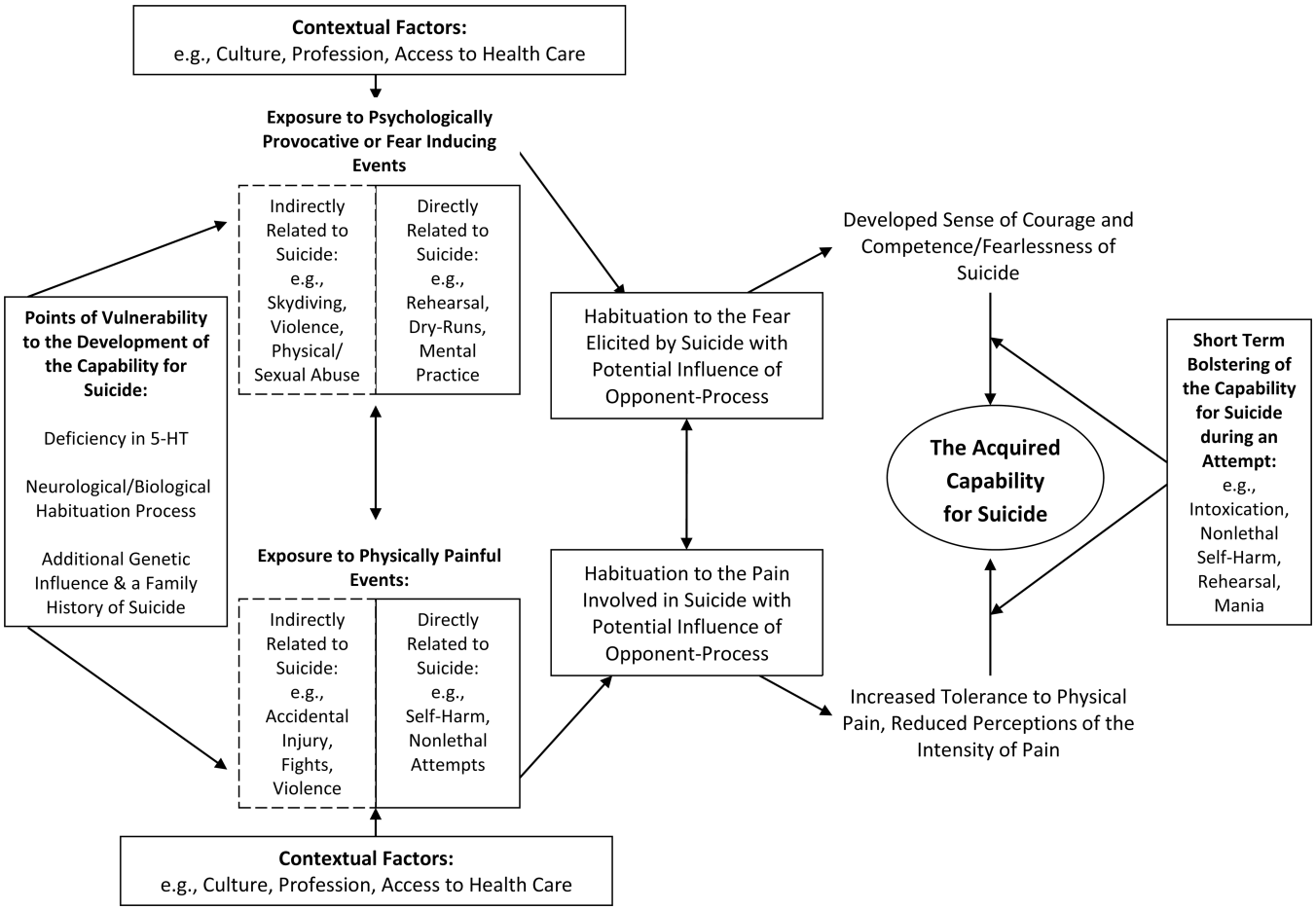

Figure 1.
The Acquired Capability for Suicide