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Life Experiences and the Acquired Capability for Suicide in Incarcerated Men

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Abstract

Suicide is a leading cause of death in US prisons. Prisoners may be at risk for suicide due to their greater likelihood of experiencing events that promote the acquired capability for suicide. The current study examined the associations of 10 domains of life experiences with the acquired capability for suicide in 399 male prisoners. All life experience domains were associated with acquired capability with certain domains evidencing relatively stronger relations. Results support that aggression, thrill seeking, suicidal thoughts and behaviors, and accidental injury may be particularly important to the development of the acquired capability for suicide in prisoners.

Keywords

Interpersonal Theory for Suicide; Acquired Capability for Suicide; Painful and Provocative Life Experiences; Prisoners; Suicide

Suicide is a leading cause of death in US prisons (Noonan & Grinder, 2014). Prisoners are exposed to a number of risk factors for suicide both prior to and during incarceration (Baillargeon et al., 2009; Blaauw, Arensman, Kraaij, Winkel, & Bout, 2002; Blaauw, Kerkhof, & Hayes, 2005; Dye, 2010). However, suicide risk assessment is difficult because the majority of those who think about suicide or experience risk factors for suicide do not develop plans for, attempt, or die by suicide (Nock et al., 2008). The interpersonal theory of suicide (IPTs) attempts to overcome the difficulties inherent to assessing for risk of such a low base-rate event by postulating why it is that so many who wish for death by suicide do *not* die by suicide.

The IPTs states that the desire and the capability for suicide are distinct and that both are necessary for an individual to die by suicide (Joiner, 2005; Van Orden et al., 2010). Suicide is rare, the theory argues, because far fewer people are capable of dying by suicide than desire death by suicide. The *acquired capability for suicide* (ACS) is a condition of fearlessness about death and the ability to tolerate the physical pain involved in suicide (Ribeiro et al., 2014; Smith & Cukrowicz, 2010; Van Orden et al., 2010). Fear and pain are

evolutionarily programmed survival systems that, when activated, promote avoidance of the stimulus prompting their activation (Ohman & Mineka, 2001). Suicidal behavior, as a threat to survival, activates these systems; thus, deterring an individual from suicide. Consequently, death by suicide is an exceedingly difficult feat. Prisoners may have greater ACS than others due to greater likelihood of experiencing events that promote its development (Smith, Wolford-Clevenger, Mandracchia, & Jahn, 2013).

The ACS is believed to result from repeated exposure to life experiences involving physical pain and/or psychological provocation (Van Orden et al., 2010). Exposure to pain and provocation facilitate habituation and may involve opponent process. Specifically, as an individual is repeatedly exposed to pain and provocation the initial processes, pain and fear, are overtaken by the opponent processes of relief and calm, which are enhanced (Solomon & Corbit, 1974). If sufficient habituation occurs, presumably, the fear and pain survival mechanisms will no longer deter an individual who desires death from attempting or dying by suicide.

The IPTS posits that the development of the ACS is most strongly facilitated by life experiences that closely approximate suicide (Joiner, 2005; Joiner et al., 2009). Accordingly, a history of suicide attempts and non-suicidal self-injury are the strongest predictors of death by suicide (Brown, Beck, Steer, & Grisham, 2000; Joiner et al., 2005; Klonsky, May, & Glenn, 2013; Nock et al., 2008). Individuals who endorse a history of suicide attempts, particularly multiple suicide attempts, also report greater fearlessness of death and/or pain tolerance compared to non-attempters (Bryan, Morrow, Anestis, & Joiner, 2010; Smith, Cukrowicz, Poindexter, Hobson, & Cohen, 2010; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). Further, suicide attempters exhibit greater pain tolerance than non-attempters when assessed using behavioral tasks (Orbach, Mikulincer, King, Cohen, & Stein, 1997; Orbach, Palgi, et al., 1996; Orbach, Stein, et al., 1996). Although suicide attempt history is important for understanding the ACS, over half of those who die by suicide do so in the absence of any history of suicidal behavior (Nock et al., 2008). As such, it is important to determine how experiences less analogous to suicide contribute to the development of the ACS.

Studies have shown that more frequent past exposure to aggregated painful and provocative life experiences, such as self-injecting drug use, sky diving, contact sports, and others are associated with the ACS (Bender, Gordon, Bresin, & Joiner, 2011; Smith et al., 2010; Smith, Wolford-Clevenger, et al., 2013; Van Orden et al., 2008). Research on groups selected for common exposure to certain types of painful and provocative life experiences, such as active duty military (combat), body dysmorphic patients (surgeries), self-injecting drug users (injections and related consequences), and veterinarians (euthanizing animals) indicates that certain populations may be at greater risk for suicide due to their presumed risk for the ACS (Bryan, Cukrowicz, West, & Morrow, 2010; Witte, Correia, & Angarano, 2013; Witte, Didie, Menard, & Phillips, 2012). Similar to these groups, prisoners are more likely than others to be exposed to painful and provocative life events either prior to or during incarceration, such as substance abuse, violence, and assault (Fazel & Baillargeon, 2011; Fazel, Cartwright, Norman-Nott, & Hawton, 2008; O'Donnell & Edgar, 1999; Sarchiapone, Carli, Di Giannantonio, & Roy, 2009). As a result, prisoners may experience greater ACS. Missing

from these data, though, are studies of specific life experiences' association with the ACS. Understanding what specific experiences or features of experiences most effectively promote development of the ACS will help refine the construct, better understand its development, improve the measurement of the construct, and facilitate its clinical application in US prisons.

The current study examined the relations of 10 specific domains of life experiences that contain painful and provocative elements with self-reported ACS in a sample of incarcerated men. Although this sample was one of convenience, suicide is a leading cause of death in US prisons and male prison inmates are exposed to a myriad of potentially painful and provocative life experiences both before and during incarceration (Fazel & Baillargeon, 2011). The current study was exploratory in nature and, as such, we hypothesized only that greater exposure to painful and provocative life experiences would be associated with greater self-reported ACS. We made no hypotheses regarding differences in the relative strength of relationships across different types of life experiences.

Method

Participants

A total of 399 male prison inmates incarcerated within the Mississippi Department of Corrections participated in the current study. Participants were recruited from two separate facilities: one state prison ($n = 375$) and one regional prison ($n = 24$). Participants were, on average, 35.22 years of age ($SD = 11.07$). The majority, 220 (55.1%), were African American, but 144 (36.1%) were Caucasian, 5 (1.3%) were Native American, 4 (1.0%) were Hispanic/Latino, 9 (2.3%) were other, and 16 (4.0%) had no information on race/ethnicity. Participants reported an average current sentence of 9.11 years ($SD = 9.33$) with time served ranging from less than one month to 31 years ($M = 4$ years; $SD = 5.29$). Lifetime time served ranged from between less than one month to 35 years ($M = 7.43$ years; $SD = 7.19$). Participants recruited from the state and regional facilities were not different in their racial composition, length of sentence, and time already served on current or lifetime sentences between participants. Individuals housed in the regional facility were older ($M = 39.33$ years, $SD = 8.484$), on average, compared to those in the state facility ($M = 34.61$ years, $SD = 10.958$; $t = 2.572$, $p = .040$). Also, 306 (76.6%) reported never having attempted suicide, 19 (4.8%) reported having attempted suicide once, 21 (5.3%) reported having attempted suicide two to three times, six (1.5%) reported having attempted suicide four to 20 times, and five (1.3%) reported having attempted suicide more than 20 times.

Procedures & Materials

All study procedures were approved by the university and Department of Corrections Institutional Review Boards. Written informed consent was obtained from all participants. Participants were sampled using a convenience strategy in order to refrain from adversely impacting normal prison operations. Participants completed self-report questionnaires in groups. Measures were presented in a counter-balanced sequence. Participants did not receive no compensation for completing the study.

A demographic form developed for the present study was used to collect information on age, race, offense, and current and past sentences including time served.

The Acquired Capability for Suicide Scale (ACSS) is a 20-item measure (Van Orden et al., 2008) that assesses fearlessness and subjective pain tolerance. Respondents indicate on a 5-point Likert scale the degree to which each statement describes them (1=*not at all like me*, 5=*very much like me*). Multiple versions of the ACSS have appeared in the literature, including a 7-item version. Each version has evidenced some degree of reliability and validity (Bryan, Cukrowicz, et al., 2010; Ribeiro et al., 2014; Smith et al., 2010; Van Orden et al., 2008). Additionally, Smith, Wolford-Clevenger, et al. (2013) found that the ACSS was, in a separate study of the current sample of incarcerated men, comprised of three interpretable factors: General Fearlessness and Pain Tolerance, Death Specific Fearlessness, and Spectator Enjoyment of Violence. Further still, other researchers have developed additional items, scales, and alternative models of the ACS and its components (Klonsky & May, 2015; Wachtel, Siegmman, et al., 2014; Wachtel, Vocks, et al., 2014). We examined three versions of the ACSS: the original 20-item ACSS, the 7-item Fearlessness about Death scale, and the three-factor scale identified by Smith, Wolford-Clevenger, et al. (2013). The internal consistencies of these scales were all at least acceptable with one exception, the Fearlessness about Death scale (Table 1). We retained the Fearlessness about Death scale despite the poor internal consistency for comparison purposes and because this scale has received the most psychometric support in the existing literature (Ribeiro et al., 2014).

Domains of painful and provocative life events were generated from 74 of the items that served as the original item pool for the Painful and Provocative Life Events Scale (PPES; Bender et al., 2011; Van Orden et al., 2008). The PPES was designed to assess life experiences believed to facilitate the development of the ACS. The items ask respondents to indicate how frequently (*never, once, two-three times, four-20 times, more than 20 times; scored 0–5*) over the course of their lives each experience occurred. Our purpose was not to measure a unified latent construct of painful and provocative life experiences (Teismann et al., 2015). Rather, we aimed to separate the items to arrive at indices of the frequency of specific domains of life experiences. Additionally, we did not aim to examine the psychometric properties of the PPES or validate prior factor analytic studies of the measure.

Identification of Life Experiences

In order to identify specific domains of painful and provocative life experiences we used a two-step procedure. First, three raters (two doctoral students in psychology, one Ph.D. clinical psychologist) independently coded the 74 painful and provocative life events into specific domains. Items were dropped from subsequent analyses if there were fewer than three items comprising a domain or the raters could not agree on the domain represented by the item. The resulting items and their associated life event domains were then subjected to a confirmatory factor analysis (CFA) to determine if they cohered well enough for further analyses. Composite scores were then generated by calculating the mean of the raw items for each domain.

The coding of items resulted in 10 specific life event domains with each domain comprised of between three and nine items. These 10 life events domains were Aggression, Animal

Abuse, Military Combat Experience, Disordered Eating, Drug and Alcohol Misuse, Excessive Exercise, Familiarity with Guns, Physical Assault/Sexual Abuse, Suicidal Thoughts and Behaviors, Thrill Seeking, and Accidental Injury. During this process, we discarded seven items due to an insufficient number of items comprising a domain, and eight other items due to no consensus among the raters, leaving a total of 59 items. The CFA indicated that the 10-factor model on which all items were constrained to load onto a single domain factor resulted in acceptable fit (RMSEA = .046, 95%CI .043-.048; CFI = .903). Internal consistency coefficients of the resulting life event domain scales were at least acceptable (Table 1).

Data Analysis

To examine the individual relations among life experience domains and the ACS scales, bivariate correlations were computed. Five multiple linear regression analyses were used to examine the unique relations of the ACS scales and the life experience domains controlling for the other experience domains. Within each of these regressions, the 10 life experience domains were the predictors and the ACS scales the criterion. Initial attempts to run full simultaneous regression models resulted in problems indicating multicollinearity issues (i.e., sign switching). Therefore, we used a stepwise approach when computing the regression models.

Results

Descriptive statistics and bivariate correlations among the ACSS scales and the 10 life experience domains can be found in Table 1. The 20-item ACSS was significantly associated with each of the life experience domains with the strongest relation between the ACSS and Aggression. The 7-item FAD was significantly associated with only the Aggression, Assault/Abuse, and Thrill Seeking domains with generally small effects. The General Fearlessness and Pain Tolerance scale was significantly associated with each of the life experience domains with the strongest relations with Suicidal Thoughts and Behaviors, Accidental Injury, Thrill Seeking, and Excessive Exercise. The Death Specific Scale was significantly associated with Aggression, Assault/Abuse, Alcohol and Drug Misuse, Accidental Injury, Thrill Seeking, Animal Abuse, Disordered Eating, and Excessive Exercise with most relations evidencing a small effect size. The Spectator Enjoyment of Violence scale was significantly associated with each of the life experience domains with the exception of the Assault/Abuse and the strongest relations with Aggression, Excessive Exercise, and Animal Abuse.

The multivariate regression models predicting each the variants of the ACSS from the life experiences domains were significant (20-Item ACSS: $R^2 = .157$, $F(2,335) = 31.112$, $p < .001$; Fearlessness about Death scale: $R^2 = .018$, $F(1,332) = 6.095$, $p = .014$; General Fearlessness and Pain Tolerance: $R^2 = .10$, $F(3,334) = 12.301$, $p < .001$; Death Specific Fearlessness: $R^2 = .053$, $F(2,322) = 9.209$, $p < .001$; Spectator Enjoyment of Violence: $R^2 = .162$, $F(3,328) = 31.736$, $p < .001$). Individual regression parameters that remained within each of the models can be found in Table 2. The 20-item ACSS was uniquely associated with Aggression and Thrill Seeking. Fearlessness about Death was uniquely associated with

Thrill Seeking, General Fearlessness and Pain Tolerance was uniquely associated with Aggression, Suicidal Thoughts & Behaviors, and Accidental Injury. The Death Specific Fearlessness scale was associated with Assault/Abuse and Disordered Eating. Spectator Enjoyment of Violence was uniquely associated with Aggression and Excessive Exercise.

Discussion

The current study is the first, to our knowledge, to examine the relations of specific domains of life experiences with the ACS. The current study also is one of the few to examine the IPTS in prisoners. Consistent with our hypothesis, all of the life experience domains containing painful and provocative elements were significantly correlated with one or more versions of the ACSS. When examined in multivariate models, the life experience domains of Aggression, Thrill Seeking, Suicidal Thoughts and Behaviors, Accidental Injury, Physical Assault/Sexual Abuse, Disordered Eating, and Excessive Exercise were uniquely associated with one or more versions of the ACSS. The version of the ACSS that evidenced the weakest bivariate relations and poorest performing regression models were the 7-item Fearlessness about Death and the Death Specific Fearlessness scales.

The current findings are generally consistent with prior studies supporting the role of more frequent exposure to painful and provocative life experiences in the development of the ACS. That all of the life experience domains were associated with the ACS supports the position of the IPTS that life experiences that involve fear and/or pain may contribute to the development of the ACS (Joiner, 2005). However, many of the relations were small to moderate in effect size, which suggests that no individual event or type of event contributes substantially to an individual's ACS. Additionally, such small effects may have reflect that a large portion of the ACS may be genetic determined (Smith et al., 2012).

Though we made no a priori predictions about the relative relations of life experience types and the ACS, the relatively stronger bivariate and unique multivariate relations with Suicidal Thoughts and Behaviors also supports the notion that experiences that more closely mimic suicide promote the development of the ACS (Van Orden et al., 2010). The relatively stronger, consistent relations among the ACSS versions and Aggression is also consistent with recent research that has pointed to a more pivotal role of active (e.g., aggressive) life experiences in the development of suicidal intent, which the IPTS suggests requires the ACS, compared to more passive experiences (Jordan & Samuelson, 2015).

The relations of the ACS with Thrill Seeking and Accidental Injury may point to certain personality traits that may place individuals at risk for exposure to painful and provocative events. Sensation seeking and impulsivity are associated with more frequent exposure to pain and provocation and greater ACS (Bender et al., 2011; Witte, Gordon, Smith, & Van Orden, 2012). Traits such as sensation seeking and impulsivity, being more common in men, might partially explain why men experience greater ACS and die by suicide at greater rates compared to women (Granato, Smith, & Selwyn, 2015; Witte, Gordon, et al., 2012). Alternatively, such personality traits may either overlap with or represent facets of the ACS in certain populations.

Physical assault and sexual abuse were consistently associated with the multiple versions of the ACSS. Such experiences are also associated with self-harm, suicide attempts, and suicide (Andover, Zlotnick, & Miller, 2007; Blaauw et al., 2002; Blaauw, Winkel, & Kerkhof, 2001; Talbot, Duberstein, Cox, Denning, & Conwell, 2004). The current findings are consistent with the description of life experiences involving pain and provocation as influencing the ACS, as physical assault and sexual abuse likely involve both. As such, the habituation and opponent process described by the theory may explain this relation. Additionally, individuals, particularly boys and men, exposed to physical and sexual abuse are more prone to engaging in violent aggression as adults (Malinosky-Rummell & Hansen, 1993). As such, exposure to childhood physical and sexual abuse might promote the ACS by increasing one's tendency towards aggression. This explanation is supported by data indicating that the relations of physical abuse and suicide attempts are mediated by aggression (Swogger, You, Cashman-Brown, & Conner, 2011).

There was a divergent pattern of relations among the multiple versions of the ACSS. Although the IPTS did not specify in its original articulation whether the fearlessness was specific to death or more general, later writings have proposed that it is fearlessness about death and suicide that is important to the ACS (Ribeiro et al., 2014). However, only the 20-item ACSS and the General Fearlessness and Pain Tolerance scales were associated with Suicidal Thoughts and Behaviors. This finding may have been due, in part, to the poorer psychometric properties of the Fearlessness about Death scale in the current sample. Alternatively, recent research suggests that the ACS may operate differently among those with and without a history of suicide ideation and/or attempts (Smith, Stanley, Joiner, Sachs-Ericsson, & Van Orden, in press). Perhaps there is something unique about male prisoners or the prison context (e.g., hyper masculine norms) that alters how the ACS might relate to suicidal thoughts and behaviors (Granato et al., 2015).

It is also important to note that the ACS is a multidimensional construct and each measure may be tapping a different facet, or even correlate, of the ACS. For instance, the Spectator Enjoyment of Violence scale better represents attitudes that likely promote the development of the ACS rather than a facet of the construct (Smith, Wolford-Clevenger, et al., 2013). Recent theories that espouse a similar ideation-to-action orientation as the IPTS have also discussed additional dimensions or ways of thinking about the capability for suicide (Klonsky & May, 2015; O'Connor, 2011). Additional research is required to clarify the nature of the ACS and what aspects are most important for suicide risk.

Results of the current study need to be considered in light of several limitations. The cross-sectional design employed limits our ability to determine if, as the theory posits, exposure to painful and provocative life experiences lead to the development of the ACS. Alternatively, the current findings may have resulted from one or more trait-level variables that concurrently and independently influenced participants' capability and their likelihood of encountering such experiences (e.g., psychopathic personality traits; Smith, Selwyn, Wolford-Clevenger, & Mandracchia, 2013). The Fearlessness about Death scale suffered from poor internal consistency. We decided to report the results pertaining to this version of the ACSS in the current study for comparison purposes, but we caution against drawing firm conclusions regarding these results pending replication. Although step-wise regression was

selected for the analysis due to multicollinearity problems and the exploratory nature of the current study, it is possible we capitalized on chance and these results may not replicate. The focus on male prison inmates may limit our ability to generalize findings to other populations (e.g., female prisoners, jail inmates, offenders in the community). Such limited generalizability may apply both to the factor structure of the PPES-O and the relations of life experience types with the ACS. Relatedly, the current study was exploratory in nature. We made no a priori hypotheses about relative relationships of the ACS with life experience types. Additional research is needed to substantiate and expand upon the current findings.

The current study examined the relative associations of ten types of painful and provocative experiences with the ACS. All of the life experience domains were associated with one or more measures of the ACS. Though any experience that contains elements of pain and provocation may facilitate development of the ACS, this relation appears to vary by the type of experience. Aggression, thrill seeking, suicidal thoughts and behaviors, and accidental injury may be particularly important to the development of the acquired capability for suicide in prisoners. It would be advantageous for future studies to determine what experiences and under what conditions the ACS is most likely to result.

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Table 1

Bivariate Correlations Among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 ACSS	1	.767**	.661**	.649**	.537**	.323**	.236**	.184**	.141**	.172**	.287**	.223**	.201**	.196**	.297**	.225**
2 FAD		1	.357**	.743**	.131*	.130*	.094	.058	.045	.099	.102	.074	.121*	.071	.148**	.101
3 General Fear/Pain			1	.437**	.300**	.212**	.152**	.114*	.107*	.182**	.234**	.156**	.168**	.223**	.247**	.250**
4 Death Specific				1	.242**	.155**	.145**	.011	.156**	.162**	.135*	.058	.180**	.087	.165**	.143**
5 Spectator Violence					1	.359**	.249**	.188**	.158**	.172**	.272**	.171**	.100	.107*	.222	.168**
6 Aggression						1	.539**	.419**	.396**	.312**	.442**	.291**	.405**	.356**	.341**	.344**
7 Animal Abuse							1	.432**	.373**	.177**	.342**	.267**	.351**	.506**	.311**	.378**
8 Military Combat Experience								1	.178**	.072	.241**	.171**	.263**	.384**	.393**	.405**
9 Disordered Eating									1	.474**	.467**	.279**	.289**	.366**	.333**	.391**
10 Drug & Alcohol Misuse										1	.253**	.410**	.126*	.198**	.406**	.373**
11 Excessive Exercise											1	.376**	.327**	.284**	.426**	.362**
12 Familiarity with Guns												1	.116*	.114*	.488**	.310**
13 Assault/Abuse													1	.421**	.289**	.380**
14 Suicidal Thoughts & Behaviors															.354**	.474**
15 Thrill Seeking															1	.473**
16 Accidental Injury																1
Mean	44.55	15.53	2.10	1.95	2.36	2.02	.79	.60	1.16	1.46	1.80	2.57	.61	.53	1.30	.70
Standard Deviation	13.28	5.95	1.12	1.14	1.27	1.07	.88	.97	.81	1.18	1.15	1.27	.77	.68	.69	.51
Alpha	.74	.56	.70	.73	.72	.72	.86	.91	.75	.70	.75	.78	.75	.83	.63	.76

Note:

* denotes $p < .05$,

**

$p < .01$; ACSS=20-Item Acquired Capability for Suicide Scale, FAD=Fearlessness about Death Scale, General Fear/Pain=General Fearlessness and Pain Tolerance Scale, Death Specific=Death Specific Fearlessness Scale, Spectator Violence=Spectator Enjoyment of Violence Scale.

Results of the Multiple Linear Regression Predicting the Acquired Capability for Suicide

Table 2

Experience Domain	20-Item ACS		7-Item Fearlessness about Death		General Fearlessness and Pain Tolerance		Death Specific Fearlessness		Spectator Enjoyment of Violence	
	β	t (p -value)	β	t (p -value)	β	t (p -value)	β	t (p -value)	β	t (p -value)
Aggression	.247	6.785 (<.001)	-	-	.134	2.036 (.021)	-	-	.321	5.618 (<.001)
Animal Abuse	-	-	-	-	-	-	-	-	-	-
Military	-	-	-	-	-	-	-	-	-	-
Combat	-	-	-	-	-	-	-	-	-	-
Experience	-	-	-	-	-	-	-	-	-	-
Disordered Eating	-	-	-	-	-	-	.145	2.600 (.010)	-	-
Drug & Alcohol Misuse	-	-	-	-	-	-	-	-	-	-
Excessive Exercise	-	-	-	-	-	-	-	-	.136	2.388 (.018)
Familiarity with Guns	-	-	-	-	-	-	-	-	-	-
Assault/Abuse	-	-	-	-	-	-	.142	2.558 (.011)	-	-
Suicidal Thoughts & Behaviors	-	-	-	-	.123	2.314 (.043)	-	-	-	-
Thrill Seeking	.204	3.789 (<.001)	.134	2.469 (.014)	-	-	-	-	-	-
Accidental Injury	-	-	-	-	.149	2.497 (.013)	-	-	-	-

Note: Excluded parameters indicate predictors that were dropped out of the step-wise regression model; ACS=20-Item Acquired Capability for Suicide Scale.