ACQUIRED CAPABILITY FOR SUICIDE AMONG INDIVIDUALS WITH AMERICAN INDIAN/ALASKA NATIVE BACKGROUNDS WITHIN THE MILITARY

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*Abstract: The present study observes a military sample across race to better understand suicide risk among American Indian/Alaska Native (AI/AN) individuals utilizing the Interpersonal Theory of Suicide. In a sample of 3,387 Army recruiters, multivariate analysis of variance was used to compare the means across race on acquired capability and pain tolerance. AI/AN individuals demonstrated higher levels of acquired capability for suicide (*p = .056*) and pain tolerance (*p = .028*). These findings indicate that acquired capability and pain tolerance are key elements involved in suicide risk among AI/AN individuals within the military.*

Although the literature on suicide is growing constantly, the problem of suicide is still an alarming one. Rates are increasing yearly on a national and global level (Centers for Disease Control and Prevention [CDC], 2016; World Health Organization [WHO], 2014). According to the WHO (2014), the number of people lost to suicide globally over the course of a year is above 800,000. These numbers illustrate the threat of suicide for the general population; however, there are also groups of individuals at particularly increased risk. Two groups emphasized in the present study are military service members and American Indian/Alaska Native (AI/AN) populations.

Increased Risk among Military Service Members and AI/AN Populations

The most recent suicide data from the Department of Defense (National Center for Telehealth and Technology & Defense Centers of Excellence for Psychological Health and TBI [T2 & DCoE], 2014) show that, for 2011, 2012, and 2013, the rates of suicide per 100,000 individuals in military active services, Reserves, and National Guard consistently ranged between 18.1 and 28.9. Data collected by the CDC (2016) illustrate that the national average rate

for those same years was lower than these figures from the military, ranging from 12.32 to 12.55 deaths per 100,000 individuals. In fact, this trend could be seen as early as 2008, when suicide epidemiological rates reported for the military (15.8 deaths per 100,000 individuals; T2 & DCoE, 2009) surpassed those reported for civilians (11.6 deaths per 100,000 individuals; CDC, 2016) and continued to rise after that time (Kang & Bullman, 2009; T2 & DCoE, 2010, 2013, 2014).

In addition to this comparison of military to civilian suicide rates, another concerning pattern has emerged when comparing suicide death rates and combat death rates in the military. The literature has shown that, from 2005 to the earlier half of 2012, the rates of suicide among soldiers in the Army remained elevated at 22 deaths per 100,000 soldiers, while the rates of death in combat decreased below that number (Hoge & Castro, 2012). These trends resulted in military suicide garnering national media attention from outlets such as Time and The Washington Post (Friedman, 2013; Londoño, 2013).

Despite the most recent numbers showing a decrease in overall military suicide rates from 2012 to 2013 across all active-duty military personnel—although rates still remain high, at 18.7 deaths per 100,000 service members (T2 & DCoE, 2014)—these same reports show that rates have increased for all National Guard and reserve members for that same time period, at 28.9 and 23.4 deaths per 100,000 service members, respectively. All of these rates illustrate that suicide in the military remains a concern, considering that the most recent national average is 13.41 deaths per 100,000 people (CDC, 2016).

AI/ANs represent another group that suffers from alarming suicide rates. According to the CDC (2016), in 2014 the second leading cause of fatalities among AI/ANs ages 15 to 44 years was suicide. The suicide rate among AI/ANs within this same age group was 17.59 deaths per 100,000, greater than the national average of deaths by suicide within this age range in 2014 (14.44 per 100,000) and greater than the suicide rate for any other racial/ethnic group within the same age range in 2014. Previous studies also have shown that AI/ANs exhibited higher rates than the U.S. general population in suicidal ideation, having a plan for suicide, and attempting suicide (Hyde, 2011). While the most recent data from the CDC (2016) demonstrate a slight decrease among AI/ANs in death rate per 100,000 individuals—from 11.69 in 2013 to 10.82 in 2014—AI/ANs still represent the minority racial/ethnic group with the highest rate of death by suicide per 100,000 individuals. It is critical for research to continue addressing the issue of suicide among AI/ANs in order to maintain this decrease.

Theoretical Foundations for the Present Study

The Interpersonal Theory of Suicide and Relevance to Military and AI/AN Populations

One approach for furthering our understanding of suicide in these two groups is the interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010). The theory posits that individuals are at highest risk for suicide when three elements are present: thwarted belongingness (i.e., lack of meaningful interpersonal connections), perceived burdensomeness (i.e., an individual's belief that loved ones or society would be better off if he/she no longer lived), and acquired capability for suicide (i.e., a diminished fear of death and increased pain tolerance). The first two comprise the desire for suicide, and the latter is a separate but related element, the presence of which is not inherently problematic but becomes dangerous when combined with the first two. The theory proposes that acquired capability develops over time, as a consequence of painful and provocative experiences (Van Orden et al., 2010).

The interpersonal theory of suicide has been employed previously as a framework for observing suicide risk in military samples (Bryan, Clemans, & Hernandez, 2012; Bryan, Morrow, Anestis, & Joiner, 2010). Bryan and colleagues (2010) found that military service members demonstrated higher levels of acquired capability for suicide relative to a clinical non-military sample, and that the interaction between acquired capability and perceived burdensomeness predicted history of suicidal behavior. A more recent study (Bryan et al., 2012) found that perceived burdensomeness, acquired capability, and the interaction between the two were all positively associated with suicidality among service members. These studies partially support the theory as an appropriate approach for studying suicide risk within the military, and they illustrate that military personnel exhibit higher levels of acquired capability for suicide than civilians and that such elevations play an important role in conferring risk for suicidal behavior within military populations.

One key distinction about military populations regarding risk for suicide as determined using the interpersonal theory is that individuals in the military have access to and familiarity with using firearms, a highly lethal means. As described by Van Orden and colleagues (2010), this access and familiarity with firearms can be problematic because repeated and ongoing exposure to such highly lethal means can serve as a painful/provocative event, which in turn may facilitate elevated levels of acquired capability for suicide. Therefore, it is critical for researchers to expand our knowledge about acquired capability for suicide among military populations.

The interpersonal theory also was utilized previously for studying suicide risk in AI/AN samples. O'Keefe and colleagues (2014) found that, in a sample of AI/AN individuals representing various tribes, thwarted belongingness did not predict suicidality above and beyond other known covariates, while perceived burdensomeness did, along with the two-way interaction between both perceived burdensomeness and thwarted belongingness. This study was the first to investigate suicide risk among AI/AN individuals utilizing the interpersonal theory variables and generated evidence to support continued use of this framework.

Pain Research in Military and AI/AN Populations

In a study investigating the psychometrics of the Acquired Capability for Suicide Scale (ACSS), Ribeiro and colleagues (2014) found that the construct of acquired capability includes both physical pain tolerance and fearlessness about death. Thus, it is important to reference the abundant pain literature focused on these two groups, because each may be unique in terms of pain tolerance (e.g., Barkwell, 2005; Beecher, 1946; Buchwald, Beals, & Manson, 2000; Dar, Ariely, & Frenk, 1995; Kramer, Harker, & Wong, 2002; Muñoz & Luckmann, 2005; Nademin et al., 2008; Palit et al., 2013).

Various studies in pain and military research have demonstrated that military service members tend to demonstrate unique responses to pain. One study provided evidence suggesting that wounded combatants exhibit a lower need for pain medication than civilians suffering from comparable wounds (Beecher, 1946). Dar, Ariely, and Frenk (1995) also illustrated that veterans who experienced more severe combat wounds display higher levels of pain threshold and tolerance compared to soldiers who experienced light combat wounds. More recent research has also suggested that military suicide decedents are more likely to have exhibited higher levels of physical pain tolerance, as well as tolerance for death- and pain-related experiences such as physical injury or viewing dead bodies (Nademin et al., 2008).

The AI/AN pain literature has demonstrated that AI/AN individuals are less likely to seek pharmacological treatment for severe pain symptoms, but more likely instead to seek their own traditional treatments (Buchwald et al., 2000), which tend to encourage tolerating more pain as a means of making the body stronger and protecting it (Barkwell, 2005). Additionally, pain research observing AI/AN samples suggests that AI/AN individuals may tend to tolerate pain until it becomes physically disabling instead of seeking pain relief (Muñoz & Luckmann, 2005), that AI/AN individuals may have a dampened response to pain relative to non-Hispanic White individuals (Palit et al., 2013), and that even the verbal descriptions of pain by AI/AN

individuals may differ from those of other racial/ethnic groups. For example, AI/ANs' descriptions may be characterized by a lack of importance given to details describing pain and by the infrequency with which pain is even acknowledged in many AI/AN cultures—as evidenced, for example, by consistent verbal self-report of mild pain symptoms in severe cases of inflammatory arthritis among AI/ANs observed by Kramer, Harker, and Wong (2002).

The Present Study

Several studies support the use of the interpersonal theory in the context of military and AI/AN suicide. However, the present study seeks to emphasize further the role of acquired capability, and the pain tolerance element of acquired capability, in conferring risk for these two populations. Furthermore, the present study specifically seeks to investigate the role of acquired capability in differentiating AI/ANs from individuals of other racial/ethnic groups within a sample of Army recruiters. As suggested by the drastically varying rates of suicide across branches of the military previously discussed (T2 & DCoE, 2010, 2013, 2014), it is critical to study subgroups within the military individually, and Army recruiters are a considerably understudied group. Additionally, it is important to understand the functions of a mechanism involved in suicidal behavior, such as acquired capability, among this select group in order to develop effective methods to manage suicide risk when it is present despite the rigorous screening experienced by Army recruiters (U.S. Government Accountability Office, 2010).

In the present study, it is proposed that AI/AN individuals will demonstrate significantly higher levels of acquired capability for suicide than other racial/ethnic groups, and that AI/AN individuals also will score higher on the individual pain tolerance item used in the survey. Finding that AI/AN individuals in the military score differently on items of acquired capability and pain than do members of other racial/ethnic groups would illustrate the importance of pain tolerance in conferring suicide risk for this group, support the use of the interpersonal theory in future AI/AN and military suicide research, and potentially inform future AI/AN suicide research.

METHODS

Participants

The present sample consisted of 3,387 Army recruiters who were beginning recruitment school in Fort Jackson, South Carolina. Participants ranged in age from 20 to 57 years (M = 29.91, SD = 5.11), with 4 individuals (0.1%) declining to indicate their ages. Of the 3,387 participants in the sample, 3,097 (91.4%) were male, 273 (8.1%) were female, and 17 (0.5%) declined to indicate sex. The racial/ethnic composition of the sample was 65.4% (n = 2215) non-Hispanic White, 14.8% (n = 501) African American, 13.3% (n = 451) Hispanic/Latino, 2.7% (n = 91) Asian, 1.6% (n = 53) Native Hawaiian/Pacific Islander, 1.1% (n = 37) AI/AN, and 1.2% (n = 39) other or declined to indicate race/ethnicity.

Measures

Participants responded to demographic items (including an item indicating race/ethnicity) and an abbreviated, four-item version of the empirically supported Acquired Capability for Suicide Scale (ACSS; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). This version was utilized due to the very specific sample of Army recruiters, time constraints, and the need to maintain a battery brief enough for participants to complete feasibly. These items were administered to participants during their orientation program at Fort Jackson, as part of a larger orientation survey. All individuals were administered the same items.

The race/ethnicity item was used as a predictor variable in the present analyses. The item prompted participants to indicate their race/ethnicity and was categorically rated from 0 to 6, with the seven possible options being AI/AN, Asian, African American, Hispanic/Latino, Hawaiian/Pacific Islander, non-Hispanic White, and other/decline to respond.

The ACSS (Van Orden et al., 2008) is a 20-item self-report measure. It is a Likert-type scale ranging from 0 (*not at all like me*) to 4 (*very much like me*). Ribeiro and colleagues (2014) demonstrated that the items on the scale measure two facets of acquired capability: fearlessness about death and pain tolerance. Due to the battery length constraints detailed above, the only item for pain tolerance was included, with three items that cover fearlessness about death. This abbreviated version of the ACSS has been utilized in previous research (Ribeiro et al., 2015), and the literature has demonstrated that both the full and abbreviated versions of the ACSS (e.g., Bender, Gordon, Bresin, & Joiner, 2011; Van Orden et al., 2008) have strong construct validity and internal consistency. In the present study, the abbreviated ACSS demonstrated adequate

reliability (α = .77). Item 1 was, “Things that scare most people do not scare me.” Item 2, the only pain tolerance item from the ACSS, was, “I can tolerate more pain than most people.” Item 3 was, “People describe me as fearless.” Item 4 was, “I am not afraid to die.”

RESULTS

Multivariate analysis of variance (MANOVA) was conducted to compare means across the seven groups for race/ethnicity on a calculated canonical outcome variable comprised of scores on the 4 individual ACSS items. MANOVA was used in order to analyze differences at the item level and to increase the power of analyses. The multivariate omnibus test indicated significant differences on the canonical variable (Pillai’s Trace = .023; F = 3.283; $p < .001$; $\eta^2 p$ = .006). Contrasts were run to compare means on the canonical variable and at the individual item level. The two highest means on the total four-item ACSS score were those of the AI/AN group and the non-Hispanic White group (See Table 1). The multivariate results were marginally higher for the AI/AN group (Pillai’s Trace = .003; F = 2.31; p = .056; $\eta^2 p$ = .003) than for the non-Hispanic White group, providing support for our hypothesis that the AI/AN group would have higher levels of acquired capability than any other racial/ethnic group as assessed by these four items. Regarding the pain tolerance item, the highest mean was that of the AI/AN group, and the next highest was that of the non-Hispanic White group (See Table 1). The MANOVA contrast demonstrated that the AI/AN group scored statistically higher than did the non-Hispanic White group (F = 4.807; p = .028; $\eta^2 p$ = .001).

Table 1
Mean Values for ACSS Item 2 and ACSS Total by Ethnicity

	Race/Ethnicity	Mean	Standard Deviation
ACSS Item 2	**American Indian/Alaska Native**	**3.05***	.85
	Asian	2.46	1.07
	African American	2.41	1.06
	Hispanic/Latino	2.58	.98
	Native Hawaiian/Pacific Islander	2.47	.85
	Non-Hispanic White	**2.70***	.96
	Other/Did not Disclose	2.37	1.00

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Table 1, Continued
Mean Values for ACSS Item 2 and ACSS Total by Ethnicity

	Race/Ethnicity	Mean	Standard Deviation
ACSS Total	**American Indian/ Alaska Native**	**10.51****	3.28
	Asian	8.64	3.39
	African American	8.87	3.27
	Hispanic/Latino	9.38	3.32
	Native Hawaiian/Pacific Islander	9.25	2.91
	Non-Hispanic White	**9.76****	3.19
	Other/Did not Disclose	8.71	3.15

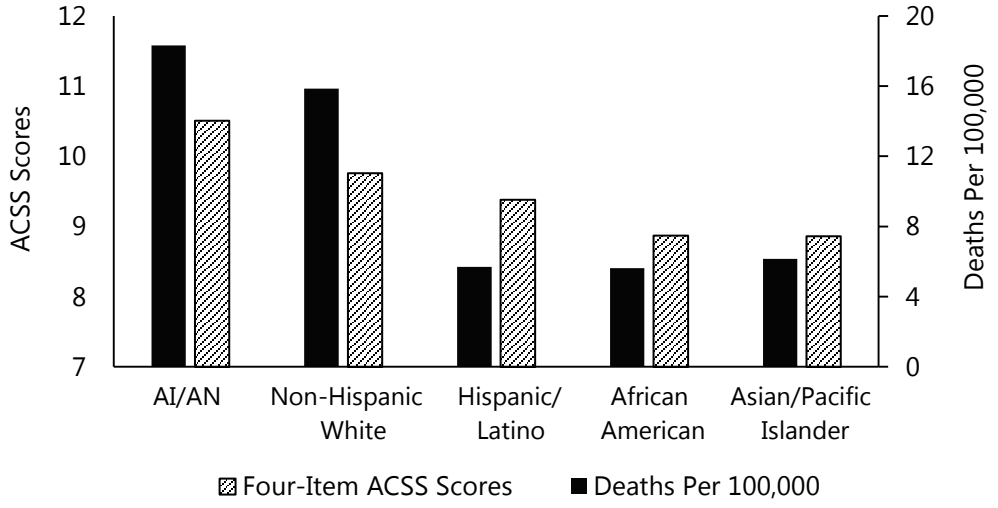
* Marginally significant discrepancy (p = .056); ** Significant discrepancy (p = .028)

DISCUSSION

Building upon the extant literature on acquired capability and pain tolerance among both military and AI/AN populations, the present study sought to provide evidence demonstrating whether AI/AN individuals in the military exhibit significantly elevated levels of pain tolerance and acquired capability, and potentially to provide further support for the use of the interpersonal theory of suicide in military and AI/AN suicide research, while also informing future AI/AN research regarding the meaningful role of pain tolerance and acquired capability in AI/AN suicide risk. To the authors' knowledge, there are no empirical studies testing for AI/AN differences on acquired capability.

Using MANOVA, the present study compared total ACSS scores and pain tolerance scores across seven racial/ethnic groups (AI/AN, Asian, African American, Hispanic, non-Hispanic White, Hawaiian/Pacific Islander, and other/did not disclose). Findings indicated that AI/ANs demonstrated the highest levels of acquired capability and pain tolerance, and that, for both total abbreviated ACSS score and the pain tolerance item, the AI/AN group scored significantly higher than the next racial/ethnic group. Given these significant elevations, it is noteworthy that the pattern of differences in mean scores on the abbreviated ACSS by racial/ethnic groups resembles that of suicide rates by racial/ethnic group in 2013 (see Figure 1), indicating that acquired capability levels may be of great value in understanding cultural differences in suicide rates.

Figure 1
National Suicide Rates (2013) Compared to
4-item ACSS Scores in the Present Study by Ethnicity



Although the present study only allowed for a 4-item short-form measure of acquired capability, while much of the published research to date on the interpersonal theory of suicide utilizes a 7-item fearlessness about death version (Ribeiro et al., 2014) or the original 20-item version, this change did not impact the internal consistency of the items (Cronbach's $\alpha = 0.76$). Additionally, the abbreviated ACSS utilized here contained items from both factors comprising the ACSS: pain tolerance and fearlessness about death (Ribeiro et al., 2014). Another difficulty in the present study was that the sample contained unequal cell sizes for the analyses, resulting in a significant test of equality of covariance matrices ($p < .001$). However, the discrepancy in cell sizes is representative of discrepancies found in the general population (i.e., AI/AN individuals comprise 2.7% of our sample; AI/AN individuals similarly comprise 1.7% of the U.S. population [Humes, Jones, & Ramirez, 2011]). In addition, using Pillai's Trace in the context of MANOVA has been shown to be robust regardless of inequality of covariances (Finch & French, 2013). Further, while the present results may not be used to draw direct conclusions about any relationships between acquired capability and suicide risk in the groups observed, the evidence presented in this study provides a foundation to inform future studies focusing on cultural differences in suicide rates. Also, the sample included only Army recruiters, a particularly healthy subset within the military; consequently, results may not be representative of the entire population of U.S. military service members or of non-military civilians.

The present findings also suggest that future researchers should conduct a wider variety of analyses (e.g., dedicated sampling, predictive analyses with suicide-related outcome variables, mediator/moderator models utilizing the present constructs) to illustrate more clearly the role of acquired capability and/or pain tolerance in AI/AN suicide risk. These results suggest that future emphasis on acquired capability in AI/AN samples could contribute meaningful evidence for understanding the influence of this potential risk factor and its management, within the context of this particular group. One potential future direction would be to attempt to replicate these findings in a more generalizable (i.e., non-military) sample containing higher numbers of AI/AN individuals. Additionally, our findings imply that there may be an intersectionality effect for higher acquired capability among AI/AN service members, beyond the effects of membership in each group individually. As we could not test this question explicitly, future research studies could test this question directly by gathering dedicated samples from the following groups: 1) AI/AN individuals who have never served in the military, 2) AI/AN individuals who currently serve in the military, 3) non-AI/AN individuals who have never served in the military, and 4) non-AI/AN individuals who currently serve in the military. Such an approach would allow for examination of any potential interaction effects of membership in these high-risk groups.

As previously discussed, the rates of suicide within the military vary substantially across subgroups (T2 & DCoE, 2010, 2013, 2014). Therefore, it is crucial for future research to investigate the role of acquired capability for suicide across understudied and/or at-risk subgroups (e.g., recruiters, Reserves, National Guard) individually. Similarly, research on the role of acquired capability in military settings should not only further extend to veterans, a group known to be at risk for suicide (e.g., Guerra & Calhoun, 2011; Ilgen et al., 2012), but should also investigate these subgroups among veterans individually (e.g., veteran recruiters, Reserve or National Guard veterans), as there may be parallels to their active-duty counterparts, which could be greatly informative.

The present study attempted to use a novel approach to understand the high rates of suicidal behavior among a specialized population: service members who identify as AI/AN. The interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010) has broad applications for understanding suicidal behavior and was the approach used in the present study. In the case of this specialized population, we know that acquired capability and/or pain tolerance is present at elevated levels in both AI/ANs and in military service members. Our observation of a sample having a combined identity as both AI/AN individuals and service members in the U.S. military indicates a potentially increased risk for suicidal behavior, specifically due to significantly higher

levels of acquired capability for suicide if an individual is in the military and of AI/AN background, as compared to all other racial/ethnic groups in the military. While the interpersonal theory (Joiner, 2005; Van Orden et al., 2010) states that the most dangerous levels of suicide risk are conferred by the combination of elevated desire and elevated levels of acquired capability, the results of the present study help elucidate the importance of emphasizing pain tolerance and acquired capability in future research aimed at understanding suicide risk among AI/AN individuals in the military, as well as potentially outside of the military. These findings also may inform future studies aimed at investigating avenues for managing that risk.

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