



Research report

Means and capacity for suicidal behavior: A comparison of the ratio of suicide attempts and deaths by suicide in the US military and general population



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ABSTRACT

Background: There is a discrepancy in the frequency of non-lethal and lethal suicidal behavior. Given the extensive training in firearms within the military and prior research indicating that military personnel exhibit elevated mean levels of the acquired capability, we hypothesized that the ratio between non-lethal and lethal suicidal behavior would be lower in US military personnel than in the general population.

Method: We examined publicly available data on non-lethal and lethal suicidal behavior within the US military and US general population.

Results: The ratio of non-lethal to lethal suicidal behavior was lower in military across sex and age. Furthermore, results indicated that a greater proportion of both non-lethal and lethal suicide attempts in military personnel involved firearms. When considering only suicidal behavior unrelated to firearms, the ratio remained significantly lower in the military. The ratio of non-lethal to lethal suicidal behavior involving drugs and alcohol was not significantly lower in the military.

Limitations: The use of public data precluded analyses directly testing competing theories. Also, level of intent involved in non-lethal self-injury in the general population was unclear. Finally, only active duty personnel were considered in analyses related to the military.

Conclusions: Suicide attempts in the military are more likely to result in death than in the general population. This appears to be primarily due to the use more lethal means. Clinically, this speaks to the importance of recognizing suicidal desire in military personnel, as it is more likely to be paired with the capacity for suicide than in civilians.

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1. Introduction

The study of suicide requires differentiating between varying levels of risk, with each level of increasing severity comprised of a smaller number of individuals. At the low end of the risk spectrum are passive thoughts of death and suicidal ideation. Recent data indicate that up to 8.6 million adults within the US experience some degree of suicidal ideation each year (Substance Abuse and Mental Health Services Administration, 2012). As severity increases, resolved plans and preparations and non-lethal suicide attempts emerge as concerns. Recent estimates indicate that approximately 3.1% of individuals within the US have developed a plan for a suicide attempt in their lifetime with 2.7% having engaged in at least one non-lethal suicide attempt (Nock et al., 2008). At the highest level of

risk, of course, is lethal suicidal behavior, which accounted for 38,364 deaths within the US in 2010, a number that represented 1.6% of total deaths nationwide (Centers for Disease Control and Prevention, 2012). A particularly notable aspect of these numbers is the vast discrepancy between the number of individuals who have engaged in non-lethal suicidal behavior and the number of individuals who die by suicide each year. These numbers clearly indicate that the vast majority of individuals who attempt to die by suicide ultimately survive their attempts.

A number of theories have been put forth to explain why there are so many non-lethal attempts for every lethal attempt. One perspective primarily implicates environmental variables related to access to lethal means. The impact of reduced access to lethal means has been demonstrated on an international level. In Hungary, for instance, rates of death by suicide decreased by 26.6% between the years of 1990 and 2001, with 62% of that reduction accounted for by decreasing numbers of death by overdose and poisoning (Berecz et al., 2005). Data indicate that, in large part, this shift can be

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explained by the increased use of psychotropic drugs with lower levels of toxicity (e.g., selective serotonin reuptake inhibitors) that drastically reduced the lethality of the most common suicide attempt method in that particular country. Results from studies examining this phenomenon domestically have been similar. As summarized by Ramchand et al. (2011), in the US there is consistent evidence indicating that household firearm ownership is associated with a greater likelihood of death by suicide (Miller et al., 2007) and that changes in suicide-related outcomes are associated with changes in household firearm ownership (Miller et al., 2006). Similarly, individuals who die by suicide have been shown to be more likely to have lived in a home with firearms than both living and deceased matched controls (Kellerman et al., 1992; Kung et al., 2005). Given the high lethality of self-inflicted gunshot wounds, this association is not altogether surprising and these data speak to the notion that the distinction between lethal and non-lethal suicidal behavior may be driven in large part by access to and familiarity with highly lethal means.

A second perspective put forth to explain the disparity between the number of non-lethal and lethal suicide attempts centers around the acquired capability for suicide, a component of the Interpersonal Psychological Theory of Suicidal Behavior (IPTS; Joiner, 2005) comprised of a heightened ability to tolerate physiological pain and a diminished fear of death and bodily harm. A central premise of the IPTS is that most individuals who desire suicide are incapable of enacting lethal self-harm and the vast majority of those capable of enacting lethal self-harm have no desire to do so. Risk for lethal or serious suicidal behavior peaks in individuals who exhibit elevations in both variables and, indeed, multiple studies have demonstrated that the interaction of the IPTS theory constructs significantly predicts both clinician-rated suicide risk and lifetime number of suicide attempts (e.g., Anestis and Joiner, 2011; Joiner et al., 2009; for a full review of the empirical support for the IPTS, see Van Orden et al., 2010). The acquired capability is theorized to be developed through repeated exposure to painful and/or provocative events, which ultimately results in habituation to physiological pain and the fear of death and bodily harm. Along these lines, prior research has demonstrated that the acquired capability – whether measured through self-report or behaviorally-indexed physiological pain tolerance – is associated with the experience of painful and/or provocative events such as previous episodes of suicidal behavior (e.g., Smith et al., 2010). From the perspective of the IPTS, the discrepancy between the number of non-lethal and lethal suicide attempts is thus best explained by the discrepancy between suicidal desire and capability, with non-lethal attempts occurring in individuals with insufficient levels of the acquired capability (albeit levels likely to be increased by their non-lethal suicidal behavior).

These two perspectives are by no means mutually exclusive and one particularly useful method by which to consider their potential explanatory utility is to focus on how these variables manifest in US military personnel relative to the general population, as military personnel are highly trained in the use of and familiar with firearms and are theorized to exhibit highly elevated levels of the acquired capability for suicide (e.g., Joiner, 2005). Recently, substantial attention has been directed towards suicidal behavior and death by suicide within the US military. The urgency of focusing on this particular population was prompted by a reversal in historical trends. In the past, the rate of death by suicide within the military has always been lower than that of the general population, indicating that, in some ways, military service may serve as a form of protective factor against suicide (e.g., Rothberg et al., 1990); however, over the past three years, US military personnel have died by suicide at a higher rate than that of the general population (e.g., Department of Defense Task Force on the Prevention of Suicide by Members of the Armed Forces, 2010; Lorge, 2008).

With respect to accessibility of means, data indicate that male veterans in the general population are twice as likely to die by suicide and significantly more likely to use firearms as their attempt method than are male non-veterans in the general population (Kaplan et al., 2007). Given the high lethality of self-inflicted gunshot wounds, this is an extremely important consideration. All military personnel receive some level of training in the use of firearms, and a smaller but sizable proportion receive extensive training for the explicit purpose of developing comfort and aptitude in their application in combat. Within the military, access to firearms is common for many service members, although the extent and frequency of access varies considerably by military occupation and context (e.g., home station versus deployed to a combat zone), although government-issued firearms can be (and often are) confiscated from personnel exhibiting heightened suicide risk. For example, on a day-to-day basis, most military personnel do not carry or have access to government-issued firearms, as these are not generally required for routine military-related duties. In addition to government-issued firearms, however, military personnel are legally entitled to ownership of personally-owned firearms. The extensive training in and exposure to firearms in the military could, in theory, both diminish a service member's fear of, and increase the desire for, owning a personal firearm and keeping it in a private residence. Indeed, the overwhelming majority of self-inflicted gunshot wounds (78%) among military personnel are with privately-owned, not government-issued weapons, and very few military suicides (< 9%) occur at work (Kinn et al., 2012).

With respect to the acquired capability, initial work considering the potential association between military service and the capacity for lethal self-harm was theoretical and qualitative. Anestis et al. (2009) reported two case studies of active duty post-deployers and noted that, in addition to the possibility of selection bias in which individuals with above average levels of the acquired capability are drawn towards voluntary military service, numerous aspects of training and life in the military (e.g., extensive training in firearms, grueling physical training, exposure to fearful stimuli for the purpose of diminishing the fear response in combat situations, exposure to combat) might contribute to the acquired capability. Preliminary empirical work in this area has thus far been supportive. For instance, in a sample of active duty US Air Force personnel who had just completed basic training, Bryan et al. (2009) reported that military personnel reported higher mean levels of the acquired capability than did individuals in a civilian clinical sample. Importantly, military personnel also reported higher mean levels of the acquired capability than individuals with multiple lifetime non-fatal suicide attempts. Such findings indicate that individuals in the military exhibit, on average, highly elevated levels of the acquired capability, thus making their risk of fatal suicidal behavior in the presence of suicidal desire substantially greater than in civilian populations.

Both the easy access to lethal means and highly elevated levels of the acquired capability associated with military service appear to place US military personnel at a greater risk of death by suicide when engaging in suicidal behavior than non-military personnel. In this sense, it seems entirely plausible that the disparity between the number of non-lethal suicide attempts and deaths by suicide noted in the general population might not be nearly as great in military samples, thus resulting in a lower non-lethal to lethal suicide attempt ratio in the military relative to the general population. To test this possibility, we designed a study in which publicly accessible data (described below) regarding non-lethal and lethal suicidal behavior in the military and general population were compared to one another. Because it is highly difficult to develop entirely reliable measures of non-lethal attempts (e.g., not all non-lethal attempts result in reports that would show up in such databases) and evidence that military personnel have

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