



Brief report

Age and belongingness moderate the effects of combat exposure on suicidal ideation among active duty Air Force personnel

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ABSTRACT

Objective: To determine if intensity of combat exposure relates to suicidal ideation among active duty Air Force personnel according to age and perceived belonging.

Method: Self-report measures of suicidal ideation, combat exposure (e.g., firing weapons, being fired upon), aftermath exposure (e.g., seeing dead bodies and devastation), emotional distress, belongingness, and perceived burdensomeness were completed by 273 (81.7% male; 67.8% Caucasian, 20.5% African American, 2.2% Native American, 7% Asian, 4% Pacific Islander, and 8.4% "other"; age $M=25.99$, $SD=5.90$) active duty Air Force Security Forces personnel. Multiple regression modeling was utilized to test the associations of combat exposure and aftermath exposure with recent suicidal ideation.

Results: A significant age-by-combat exposure interaction was found ($B=0.014$, $SE=0.006$, $p=0.019$), suggesting combat exposure and suicidal ideation was strongest among military personnel above the age of 34. The age-by-aftermath exposure interaction was not significant ($B=-0.003$, $SE=0.004$, $p=0.460$). A significant three-way interaction of age, combat exposure, and belongingness was also found ($B=0.011$, $SE=0.005$, $p=0.042$). The Johnson–Neyman test indicated that suicidal ideation was most severe among Airmen above the age of 29 years with high combat exposure and low levels of belongingness.

Limitations: Cross-sectional, self-report design limited to two Air Force units.

Conclusions: A strong sense of belonging protects against suicidal ideation among Airmen above the age of 29 years who have been exposed to higher levels of combat.

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1. Introduction

During the past decade, suicide has become a leading cause of death among U.S. military personnel (Department of Defense, 2010). One proposed explanation for this trend is increased combat exposure, although studies to date exploring the link between combat exposure and suicidal thoughts and behaviors have yielded mixed results. Several studies suggest an association of various dimensions of combat exposure with suicidal ideation (Fontana et al., 1992; Maguen et al., 2012; Rudd, in press; Thoresen and Mehlum, 2008), while others have failed to support a relationship (Bryan et al., 2013), or have suggested that the onset of new suicidal ideation following combat deployments is rare (Griffith, 2012) and occurs just about as often among deployed U.S. personnel who experienced combat as compared to those who did not experience combat (Griffith and Vaitkus, 2013). Yet another study with Canadian military personnel suggests that

combat was not associated with increased risk for suicidal ideation, but the witnessing of atrocities was (Sareen et al., 2007).

One factor that might account for these differential results is age. Studies reporting samples with mean ages above 30 years (Fontana et al., 1992; Maguen et al., 2012; Rudd, in press; Thoresen and Mehlum, 2008) tend to find significant effects, whereas studies reporting samples with mean ages less than 30 years (Bryan et al., 2013; Griffith, 2012; Sareen et al., 2007) do not. To date, however, no studies have explicitly tested the potential moderating effect of age on the relationship of combat exposure and suicidal ideation. Furthermore, few studies have investigated protective factors associated with reduced suicide risk among military personnel exposed to combat, such as belonging, which negatively correlates with suicidal ideation among military personnel (Bryan, 2011; Thoresen and Mehlum, 2008) and is a common factor associated with military suicide attempts (Bryan et al., 2012). Belongingness may therefore be an important protective factor for military personnel with more intense combat experience.

The primary hypotheses of the current study were that combat exposure would be associated with suicidal ideation among older military personnel (i.e., a moderating effect of age on combat

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exposure and suicidal ideation), and that a stronger sense of belongingness would weaken the association of combat exposure with suicide attempts and severity of suicidal ideation (i.e., a moderating effect of belongingness on combat exposure and suicidal ideation).

2. Methods

2.1. Participants

Participants included 273 (81.7% male, 18.3% female) active duty US Air Force Security Forces personnel ranging in age from 19 to 50 years ($M=25.99$, $SD=5.90$) with a mean of 6.44 ($SD=5.37$; range: 1–26) years of military service. Race distribution was 67.8% Caucasian, 20.5% African American, 2.2% Native American, .7% Asian, .4% Pacific Islander, and 8.4% “other.” Fifteen percent of Airmen endorsed Hispanic ethnicity. Rank distribution was 47.9% junior enlisted (E3 and E4), 37.9% noncommissioned officer (E5 and E6), 7.0% senior noncommissioned officers (E7–E9), and 2.5% officers (O2–O5). The majority of participants (92.3%) had been deployed at least once to Iraq or Afghanistan ($M=2.21$, $SD=1.60$; range: 0–8).

2.2. Procedures

Participants were recruited from two active duty Security Forces units located at separate Air Force installations in the Southern U.S. Data were collected in groups by the investigators, who explained study procedures and obtained written informed consent. To minimize coercion, unit commanders and senior leaders were not present during informed consent or data collection, and Airmen were informed that they could turn in a blank survey packet. Survey packets were then distributed to participants and completed anonymously. A total of 289 Airmen signed an informed consent document, but only 273 complete survey packets were returned (94.5% response rate). Study approval was obtained from the University of Texas at San Antonio's Institutional Review Board.

2.3. Measures

2.3.1. Beck Scale for Suicidal Ideation (BSSI)

The 19-item BSSI (Beck et al., 1988) was used to assess the intensity of thoughts and intentions about suicide. Items are summed to provide an indicator of suicidal ideation severity. The BSSI also includes an item that asks if the respondent has never attempted suicide, attempted suicide once, or attempted suicide two or more times. This item was used to determine if Airmen had ever made a suicide attempt, although responses were dichotomized to either no suicide attempts or any number of suicide attempts.

2.3.2. Anxiety Depression Distress Index-27 (ADDI-27)

The 9-item General Distress subscale of the ADDI-27 (Osman et al., 2011) was used to assess the severity of emotional distress. The scale is composed of nine mood descriptors (e.g., sad, worthless, and hopeless), which respondents rate on a scale ranging from 1 (“not at all”) to 5 (“extremely”). Reliability estimates greater than 0.72 have been found across clinical and nonclinical samples.

2.3.3. Deployment Risk and Resilience Inventory (DRRI)

The Combat Experiences Scale (CES) and the Aftermath of Battle Scale (ABS) from the DRRI (King et al., 2003) were used to measure combat (CES) and aftermath (ABS) exposure. The CES asks participants to endorse (either “yes” or “no”) if they have

experienced a range of combat-specific events such as direct exposure to firing a weapon, being fired upon, or going on patrols. The ABS asks participants about the experience of a range of events associated with the consequences of combat such as observing or handling human remains and seeing devastated communities. Each scale is summed separately to provide indicators of combat and aftermath exposure. Reliability estimates for both scales are acceptable (> 0.85).

2.3.4. Interpersonal Needs Questionnaire (INQ)

The INQ (Van Orden et al., 2012) was used to measure perceived burdensomeness (PB) and thwarted belongingness (TB). The PB subscale consists of six statements that assess the strength of perceptions that one is a burden on or a liability for others that are rated on a scale from 1 (“not at all true for me”) to 7 (“very true for me”). The TB subscale also consists of six statements that assess the strength of perceptions regarding social connectedness and support, using the same response scale as the PB scale. Mean scores for each scale are calculated to determine overall levels of PB and TB. For the purposes of the current study, the thwarted belongingness scale was reverse-scored so that higher scores indicated stronger belongingness. Both scales have acceptable levels of reliability (> 0.80).

2.4. Data analyses

Data from the 273 Airmen who turned in completed survey packets were included in the analyses, including 21 Airmen (7.7%) who had not deployed to either Iraq or Afghanistan. Analyses were repeated with only the 252 Airmen who had deployed to either Iraq or Afghanistan, with no differences in outcome. Results from the full sample are reported below. Generalized linear regression modeling with robust maximum likelihood estimation was used to test the associations of predictors with intensity of suicidal ideation. All predictors were centered prior to analysis.

3. Results

Six (2.2%) Airmen reported attempting suicide at least once during their lives and 39 (14.3%) reported recent suicidal ideation, with BSSI total scores ranging from 0 to 22 ($M=0.49$, $SD=2.40$). Combat exposure scores ranged from 0 to 20 ($M=4.39$, $SD=4.05$) and aftermath scores ranged from 1 to 15 ($M=5.23$, $SD=4.51$). Means, standard deviations, and intercorrelations of variables are presented in Table 1.

3.1. Are combat and aftermath exposure associated with increased severity of suicidal ideation?

In the first regression analysis, the following variables were entered as predictors: age, gender, previous suicide attempt, emotional distress, perceived burdensomeness, combat exposure, and aftermath exposure. Neither combat exposure ($B=-0.002$, $SE=0.029$, $p=0.941$) nor aftermath exposure ($B=-0.002$, $SE=0.022$, $p=0.928$) was significantly associated with severity of suicidal ideation when controlling for covariates. When the age-by-exposure interactions were added to the model, the age-by-combat interaction was statistically significant ($B=0.014$, $SE=0.006$, $p=0.014$) but the age-by-aftermath interaction was not ($B=-0.003$, $SE=0.004$, $p=0.460$). The Johnson–Neyman test for regions of significance indicated the relationship of combat exposure was more strongly associated with the severity of suicidal ideation for Airmen above the age of 34 years.

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