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Examining the Interaction of Autism Spectrum Disorder-Related Traits and Unit Cohesion on Suicide Risk Among Military Personnel

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Abstract

Background: Suicide rates are elevated among United States (U.S.) military service members. Research has found that service members with autism spectrum disorder-related (ASD-related) traits are at increased risk for suicide. Complementary lines of inquiry have suggested that unit cohesion is a protective factor against developing suicidal ideation in military service members. However, given the social difficulties inherent in ASD, it is unclear whether unit cohesion might protect against suicide risk in this population.

Method: Our sample consisted of 285 active duty U.S. military service members recruited online. We examined the interaction between ASD-related traits (as measured by the Autism Spectrum Quotient [AQ]), unit cohesion, and suicide risk (as measured by the Suicidal Behaviors Questionnaire-Revised [SBQ-R]). We also conducted exploratory analyses to examine whether unit cohesion attenuates the association between ASD-related traits and suicidal intent.

Results: Elevated ASD-related traits were independently associated with higher levels of global suicide risk; however, unit cohesion was not independently associated with suicide risk. Unit cohesion did not significantly interact with ASD-related traits to predict suicide risk. Finally, we found that elevated ASD-related traits and unit cohesion have an independent effect on current suicidal intent.

Discussion: Our findings suggest that unit cohesion might not buffer the effect of ASD-related traits on suicide risk. However, our results do show that greater unit cohesion may be independently associated with decreased suicidal intent. This study is limited by a cross-sectional design and use of self-report measures.

Keywords

autism spectrum disorder; autism-related traits; military; suicide risk; unit cohesion

Suicide is a leading cause of death in the United States (U.S.) that has far-reaching impacts. In 2017, over 47,000 individuals died by suicide in the U.S. and the suicide rate has risen every year since 1999 (Centers for Disease Control, 2017; Hedegaard, Curtin, & Warner, 2018). In addition to this trend in the general population, suicide rates have risen within the

U.S. military at an alarming rate (Ramchand, Acosta, Burns, Jaycox, & Pernin, 2011), and military suicide rates are now comparable to the general population, when, historically, U.S. military personnel were at lower risk than the general population (Department of Defense, 2017). This increasing rate underscores the need to identify risk and protective factors for suicide among the U.S. military population (Nock et al., 2013).

Those with autism spectrum disorder (ASD; for a review, see Hedley & Uljarević, 2018) are another group at higher than average risk for suicidal thoughts and behaviors. Among youth with ASD admitted for specialized psychiatric inpatient treatment related to ASD and associated emotional and behavioral problems, 22% reported frequently talking about death and/or suicide (i.e., suicidal ideation; Horowitz et al., 2018). Individuals with ASD are also more likely to die by suicide than their non-ASD peers, with suicide being one of the leading causes of premature death in those with ASD (Hirvikoski et al., 2016; Kirby et al., 2019). As we have illustrated, there is substantial evidence that ASD is associated with increased risk for suicide. However, there is also evidence that subclinical manifestations of ASD that are present in the general population, or ASD-related traits, are also associated with increased risk for suicide. For example, there is a demonstrated direct relationship between greater severity of ASD-related traits and global suicide risk (Pelton & Cassidy, 2017). There is also evidence that those with ASD-related traits may have suicidal symptoms comparable to those with ASD. In a study conducted by Dell'Osso and colleagues (2019), they did not find any differences in self-reported suicidal symptoms between those diagnosed with ASD and those with ASD-related traits. This last study is particularly concerning, given that ASD-related traits may be more likely than those with ASD to go untreated due to their less salient symptoms. In light of the increased risk for suicidal thoughts and behaviors among U.S. military personnel and those with ASD-related traits, it stands to reason that those with ASD-related traits in the U.S. military may be at especially high risk for suicidality. However, though ASD-related traits may be more common in the military than previously thought (see below), ASD is remarkably understudied in military personnel, particularly regarding this population's risk for suicide.

To our knowledge, the only study examining the intersection of ASD-related traits and suicide-related symptoms within a large military sample was conducted by Stanley and colleagues (2020). Importantly, Stanley and colleagues found that 4.1% of respondents met the clinical cutoff for likely ASD diagnosis based on scores on the Autism Spectrum Quotient. They also found that the two core diagnostic features of ASD (American Psychiatric Association, 2013)—(1) difficulties with social communication/interaction and (2) engaging in restricted, repetitive behaviors, interests, or activities—were each associated with increased risk of reporting having suicidal ideation, having suicidal plans, engaging in non-suicidal self-injury, and making a suicide attempt since joining the military. Moreover, both domains of ASD symptoms were found to have an indirect effect on suicidal ideation through perceived burdensomeness and thwarted belongingness (i.e., the perception that one is a burden on others, and that one does not belong, respectively; Joiner, 2005; Van Orden et al., 2010). Given that interpersonal constructs may explain the relationship between ASD-related traits and suicide risk among U.S. military service members, it stands to reason that identifying modifiable, military-specific protective factors that are interpersonal in nature may attenuate the association between ASD-related traits and suicide risk within this unique

population. Examining protective factors for suicide may offer a point of intervention, which is particularly important for individuals with ASD, who often have difficulty navigating interpersonal relationships because of their difficulties in social communication. One potential factor that fulfills these criteria that is particularly relevant to military service members is unit cohesion.

Unit cohesion, or the social connection and unity in pursuing tasks and goals within a military unit, has been shown to be an independent predictor of reduced risk of negative outcomes in the general military population. For example, one meta-analysis found that unit cohesion was associated with general well-being (Oliver, Harman, Hoover, Hayes, & Pandhi, 1999). Moreover, a recent longitudinal study found that greater unit cohesion was associated with decreased risk of developing alcohol use disorder, major depression, and, notably, suicidal ideation (Anderson et al., 2019). In addition to being an independent predictor, unit cohesion has been found to be a protective factor in the general military population. That is, a factor that buffers the effects of a risk factor. We use this definition instead of a definition that includes independent effects because otherwise lower levels of risk factors could be conceptualized as protective factors. A study conducted by Mitchell, Gallaway, Millikan, and Bell (2012) found that even among combat exposed U.S. service members, suicidal ideation was reduced in individuals who experienced high unit cohesion. Findings from these studies suggest that unit cohesion may be a robust protective factor against suicidal ideation, even in the presence of factors associated with increased risk for suicide.

Given the interpersonal difficulties that are inherent in ASD, it is unclear whether unit cohesion would be an effective protective factor for military personnel with ASD-related traits. Military personnel with more severe ASD-related traits may be at even higher risk for suicide if the cohesion within their unit is strained given that feelings of thwarted belonging have been found to be a correlate of suicide attempts (Chu et al., 2017). If this is the case, then it would underscore the need to identify those with elevated ASD-related traits or ASD symptoms in the U.S. military and monitor the cohesion within their unit. There is also evidence that unit cohesion is predicted by familiarity among personnel within the unit and going through positive, stressful training experiences together (Bartone, Johnsen, Eid, Brun, & Laberg, 2002), indicating that increasing military cohesion may serve as a point of intervention for preventing suicide.

The Present Study

The purpose of the present study is to examine the intersection between the severity of ASD-related traits, unit cohesion, and their relation to suicide risk among active duty U.S. military personnel. Based on previous work, we hypothesized that: (1) more severe ASD-related traits would be associated with increased suicidality; (2) greater unit cohesion would be associated with reduced suicide risk and; (3) ASD-related traits would be associated with increased suicide risk, but only in the context of low unit cohesion (i.e., ASD-related traits and unit cohesion would interact in the prediction of suicide risk). In addition to these hypotheses, we also conducted two exploratory analyses examining these same hypotheses with suicidal intent as the outcome.

Method

Participants

The present study is an analysis from an investigation of ASD symptoms and their relation to suicide-related outcomes (Stanley et al., 2020). The study included 292 participants; the current analysis uses complete cases for our variables of interest (please see Data Analytic Plan below for more information regarding missing data). Thus, participants for the present study were 285 active duty U.S. military service members recruited from TurkPrime, a provider of survey panels (Litman, Robinson, & Abberbock, 2017). Participants' age ranged from 18 to 57 years ($M = 28.62$, $SD = 7.37$). Regarding gender, 68.8% identified as male, 30.2% identified as female, 0.7% declined to state their gender, and 0.4% identified their gender as "other". Regarding race, 78.6% identified as White/Caucasian, 10.5% identified as Black/African American, 4.9% identified as Asian/Pacific Islander, 2.1% identified as Native American or Alaska Native, and 3.9% identified their race as "other". For full demographics, please see Table 1. For participant military service characteristics, see Table 2.

Procedure

Participants were given a web-based informed consent through Qualtrics and were required to correctly answer three multiple-choice questions about the consent form to proceed with the survey. Consenting participants then completed a 25-minute battery of self-report questionnaires through Qualtrics. Following participation, participants were presented with national mental health resources, including the National Suicide Prevention Lifeline (1-800-273-TALK) and the Veterans Crisis Line (<https://www.veteranscrisisline.net>). Participants received compensation commensurate with the duration of the study and the platform through which they entered the survey, consistent with TurkPrime practices. The University's Institutional Review Board (IRB) approved all study procedures.

We implemented several safeguards to ensure that valid and reliable data were collected from active service members. First, reCAPTCHA verification was used to protect against survey bot responses (Google, 2018). Second, all participants were presented with two open-ended military service validation questions (1) "What is the acronym for the locations where final physicals are taken prior to shipping off for basic training? (four letters)" and (2) "What is the acronym for the generic term the military uses for various job fields? (three letters)." Previous work has shown that these questions reliably differentiate between individuals with and without military service history who were recruited from web-based survey panels such as TurkPrime (Lynn & Morgan, 2016). We only included participants in our analyses if they correctly answered both questions. Third, we included two items from the Conscientious Responders Scale (Marjanovic, Struthers, Cribbie, & Greenglass, 2014) within the survey battery as a validity check: (1) "To answer this question, please choose option number four, 'neither agree nor disagree'" and (2) "Choose the first option—'strongly disagree'—in answering this question." Only participants who correctly answered both validity check items were included in analyses. Fourth, we only included participants who self-reported active duty status—as opposed to veteran status—for our analyses.

Measures

Demographic & Medical History Overview.—A demographics questionnaire was administered to characterize the sample. Information collected included age, race/ethnicity, sex, gender identity, sexual orientation, marital status, and military-specific demographic variables, such as branch, years of service, deployment history, and combat exposure.

Autism Spectrum Quotient (AQ; Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001).—The AQ is a 50-item self-report questionnaire that assesses associated symptoms of high-functioning ASD, including social skills, attention switching, attention to detail, communication, and imagination. A total score is obtained (range: 0–50), with higher scores indicating more severe ASD-related traits. A cutoff score of 32 has been proposed as a positive screen for ASD in the general population (Baron-Cohen et al., 2001). Within this sample, the total AQ score had good internal consistency ($\omega = 0.81$; $\alpha = 0.78$)¹.

The Suicidal Behaviors Questionnaire–Revised (SBQ-R; Osman et al., 2001).—The SBQ-R is a four-item self-report instrument that assesses global suicidality. The SBQ-R measures the presence, severity, and frequency of lifetime suicidal ideation and attempts, as well as individuals' perceived likelihood of making a future suicide attempt. Higher scores indicate greater suicidality. In the current sample, the internal consistency was good ($\omega = 0.85$; $\alpha = 0.82$). For our exploratory analyses, we used item four, suicidal intent, as the criterion variable. Item four of the SBQ-R has been used as an outcome in several studies (e.g., Boffa, King, Turecki, & Schmidt, 2018; Currier, McDermott, McCormick, Churchwell, & Milkeris, 2018; Stanley, Joiner, & Bryan, 2017).

Unit Cohesion Measure.—Each participant's perception of military cohesion was measured using a three-item scale originally created by Wilk and colleagues (2010). Although we recognize that this measure has not been formally validated, it is a commonly used measure of military cohesion (e.g., Mitchell et al., 2012). The participants rated each item from 0 “*Strongly Disagree*” to 4 “*Strongly Agree*.” The items were: (1) “The members of my unit cooperate with each other”; (2) “The members of my unit know they can depend on each other”; and (3) “The members of my unit stand up for each other.” These three items were then summed to create a total unit cohesion score, such that higher scores indicated greater unit cohesion. The internal consistency for this measure within the current sample was excellent ($\omega = 0.91$; $\alpha = 0.91$).

Data Analytic Plan

Manuscript preparation and analyses were conducted in R (Version 3.5.2; R Core Team, 2018) using the following R-packages: *car* (Version 3.0.5; Fox & Weisberg, 2011), *DataExplorer* (Version 0.7.0; Cui, 2018), *Hmisc* (Version 4.2.0; Harrell Jr, Charles Dupont, & others., 2018), *lmSupport* (Version 2.9.13; Curtin, 2018), *MASS* (Version 7.3.51.1; Venables & Ripley, 2002), and *papaja* (Version 0.1.0.9842; Aust & Barth, 2018). First, we

¹Throughout this article, we first report ω (Zinbarg, Revelle, Yovel, & Li, 2005) as our measure of internal consistency. This choice is due to a large body of methodological evidence indicating that α relies on assumptions that are frequently violated and that result in inflated internal consistency measurements (see Dunn, Baguley, & Brunsden, 2014 for a review and discussion).

examined our data set for missing data, and found that 7 participants did not have complete data for our variables of interest, including 1.03% of cases missing the AQ total score, a key variable of interest. Given the low percentage of missing data, we opted to retain only complete cases for our analyses ($n = 285$). We also examined our main variables of interest (i.e., AQ total score, SBQ-R, and unit cohesion) for univariate outliers, as defined by values greater or less than two times the interquartile range. All values that were outside of this were brought to the fence (i.e., to the value greater than or less than two times the interquartile range). Using this approach, one value for AQ total score, 16 values for SBQ-R, and four values for unit cohesion were modified². We also visually inspected Q-Q plots for violations of normality and inspected our predictor's residual plots for violations of linearity and homoscedasticity; all appeared within normal ranges.

To test our hypotheses, we conducted two linear regressions. First, we entered AQ total score and unit cohesion as predictors of SBQ-R suicide risk, with years of military service included as a covariate. Second, within the same model, we entered in the interaction between ASD-related trait severity and unit cohesion. We then tested the change in R^2 between our first model, which only included independent effects, and our second model, which contained the independent effects and the interaction between unit cohesion and AQ total score. We also conducted exploratory ordinal logistic regression analyses to examine the same hypotheses using SBQ-R item 4 (suicidal intent) as the outcome. We then used a likelihood ratio test to compare our independent effects ordinal logistic regression and our ordinal logistic regression with the interaction between AQ total score and unit cohesion.

Results

A Priori Analyses

Bivariate correlations for all study variables are available in Table 3. In this sample, the average AQ total score was 20.26, with 4.2% satisfying the ASD cutoff score of 32. For full *a priori* results, see Table 4. In our first linear regression (Model 1) examining independent effects of AQ total score and unit cohesion on SBQ-R total scores, the overall model was significant, $R^2 = .12$, 90% CI [0.06, 0.18], $F(3, 281) = 13.16$, $p < .001$. The AQ total score was a significant predictor of SBQ-R scores, [$t(281) = 4.91$, $p < .001$, $\beta = 0.28$], but unit cohesion was not [$t(281) = -1.90$, $p = .058$, $\beta = -0.11$]. Thus, in this model, more severe ASD-related traits were associated with increased suicide risk, but unit cohesion had no relation to global suicide risk. Our second model (Model 2) including the interaction between AQ total score and unit cohesion was also significant, $R^2 = .13$, 90% CI [0.06, 0.19], $F(4, 280) = 10.42$, $p < .001$. In this model, the interaction between AQ ASD-related traits and unit cohesion was not significant [$t(280) = 1.43$, $p = .154$, $\beta = 0.31$]. The addition of the interaction did not significantly increase variance explained in SBQ-R scores [$R^2 = .01$, $F(1, 280) = 2.04$, $p = 0.15$]. Thus, for our discussion of the independent effects of ASD-related traits and unit cohesion on suicide risk, we will interpret model one containing only the independent effects.

²We also tested our analyses without changing univariate outliers. Results remained the same.

Exploratory Analyses

After conducting our *a priori* analyses, we pondered whether the lack of a relationship between unit cohesion and suicide risk was due to the heterogeneous nature of the SBQ-R's items—that is, while the unit cohesion variable represents a contemporaneous account of unit cohesion, the SBQ-R suicide risk total score assesses both chronic (e.g., lifetime suicide attempts) and acute (e.g., suicidal intent) indices of risk. It is possible that current levels of unit cohesion may not be related to one's suicide attempt from, say, five years prior. Therefore, we explored our same hypotheses using SBQ-R item 4 (i.e., current suicidal intent) as the outcome variable, rather than SBQ-R total score. For a summary of our exploratory results, see Table 5. In our first ordinal logistic regression (Model 3) examining independent effects of AQ total score and unit cohesion on SBQ-R suicidal intent, AQ total score [OR = 1.05, $p = .019$] and unit cohesion [OR = 0.87, $p = .003$] were each significant predictors of SBQ-R current suicidal intent. In our second ordinal logistic regression (Model 4) including the interaction between AQ total score and unit cohesion, the interaction between AQ total score and unit cohesion was not significant [OR = 1.00, $p = .576$]. Comparing our first ordinal model to our second, the addition of the interaction did not significantly increase model fit [$\chi^2(1) = 0.32$, $p = .575$]. Thus, for our discussion of our exploratory analyses, we will interpret the model containing only the independent effects.

Discussion

Previous work indicates that ASD-related traits are associated with increased suicide risk (Pelton & Cassidy, 2017), and specifically that military service members with elevated autism symptoms may be at especially high risk for suicide (Stanley et al., 2020). Past work also indicates that unit cohesion may serve as a protective factor among the general military population (Mitchell et al., 2012), but this relationship has not been evaluated in the context of ASD-related traits. The present study aimed to examine the independent and interactive effects of unit cohesion and ASD-related traits on global suicide risk. Our results did not indicate that unit cohesion attenuates the association between ASD-related traits and global suicide risk. However, our results provided support for an independent effect ASD-related traits on global suicide risk, and for independent effects of ASD-related traits and unit cohesion on current suicidal intent.

Specifically, our *a priori* analyses revealed that more severe ASD-related traits were associated with increased suicide risk. In contrast to our hypotheses, however, unit cohesion did not have an independent association with suicide risk, and the interaction between ASD-related traits and unit cohesion predicting suicide risk was also not significant. Because the items used to assess global suicide risk are heterogeneous in content, we conducted exploratory analyses similar to our *a priori* analyses, replacing our outcome with suicidal intent. Similar to our *a priori* analyses, we found that increased ASD-related traits were associated with increased suicidal intent. In contrast to our *a priori* analyses, our exploratory analyses revealed that unit cohesion was associated with decreased suicidal intent. However, we did not find a significant interaction between unit cohesion and ASD-related traits in predicting suicidal intent, which was consistent with *a priori* analyses.

Though we did not find a relationship between unit cohesion and global suicide risk, higher levels of unit cohesion were related to lower levels of suicidal intent. This latter finding is consistent with a body of research showing that unit cohesion is a driver of positive psychological outcomes among general military personnel, including general well-being (Oliver et al., 1999), decreased risk for posttraumatic stress symptoms (Brailey, Vasterling, Proctor, Constans, & Friedman, 2007), and decreases in suicidal ideation (Kessler, Berglund, Borges, Nock, & Wang, 2005; Mitchell et al., 2012). Suicidal intent is a necessary component of suicidal behavior (Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007), and evidence suggests that higher suicidal intent is predictive of future suicide attempts (Lee et al., 2018). If future longitudinal studies support unit cohesion as a driver of decreased suicidal intent, researchers examining suicide prevention among military service members (regardless of ASD symptoms or ASD-related traits) may consider designing suicide interventions that aim to increase unit cohesion. Such an intervention would be in line with a body of evidence supporting the importance of social relationships in reducing suicide risk. For example, a study using ecological momentary assessment found that social support is associated with decreased suicidal ideation (Coppersmith, Kleiman, Glenn, Millner, & Nock, 2018). Similarly, a recent meta-analysis found that increased feelings of belonging were associated with decreased suicidal ideation and suicide attempt history (Chu et al., 2017).

Across our *a priori* and exploratory analyses, we found that unit cohesion did not interact with ASD-related traits to predict suicide risk. Although our results suggest that individuals with more severe ASD-related traits may have greater suicide risk than those with less severe ASD-related traits, differences in unit cohesion do not amplify or diminish the effect of ASD-related traits on suicide risk. This finding is at odds with research showing that unit cohesion is protective against suicidal ideation after combat exposure (Mitchell et al., 2012). Though we cannot be certain as to the cause of this null finding, this divergent result may be an indicator that protective factors in the general population (i.e., citizen or military), are not as effective for, or applicable to, individuals with ASD-related traits. For example, though social support is often cited and found to be associated with decreased suicidal ideation, this association was not found within a sample of adults with ASD (Hedley, Uljarević, Wilmot, Richdale, & Dissanayake, 2017). Thus, with corroborating evidence from longitudinal and/or experimental studies, those designing suicide prevention efforts for military service members with ASD or ASD-related traits may consider targeting factors other than unit cohesion. We want to emphasize that this does not mean that increasing unit cohesion among the general military population would not be effective for reducing general suicide risk, especially given recent longitudinal evidence to the contrary (Anderson et al., 2019). Rather, we are suggesting that those with ASD or ASD-related traits in the military may require interventions that are specifically designed to be effective for those with ASD. Unfortunately, as has been noted by others (Hedley & Uljarević, 2018; Richa, Fahed, Khoury, & Mishara, 2014), there is a dearth of studies investigating best practices for treating suicidality among individuals with ASD. Therefore, future work may consider identifying the mechanisms responsible for the association between ASD symptoms or ASD-related traits and suicide risk, and develop interventions that target those mechanisms (here, we use the definition of mechanism described by Thomas & Sharp, 2019).

Considering our *a priori* and exploratory analyses, it is clear that more severe ASD-related traits are associated with suicidal outcomes. This finding across our analyses is consistent with a growing body of evidence showing that ASD symptoms and ASD-related traits are related to suicidal thoughts and behaviors (Hedley & Uljarević, 2018; Pelton & Cassidy, 2017). Given that U.S. military personnel are at greater risk for suicide-related outcomes (Department of Defense, 2017; Nock et al., 2014), and that a non-trivial portion of our sample experienced elevated ASD symptoms (4.2%), this finding suggests that it is important to identify military personnel with ASD symptoms. Early identification of service members at greater risk for suicidality may be an effective prevention strategy if used in conjunction with evidence-based psychotherapy for suicide among military service members (e.g., Resick et al., 2017; Rudd et al., 2015). However, it is noteworthy that the studies examining the effectiveness of these psychotherapies for suicidality among military service members were not conducted among those with ASD. Moreover, the evidence for the effectiveness of evidence-based therapy approaches (e.g., cognitive behavioral therapy) on symptoms of mood and anxiety disorders in those with ASD has been mixed (Weston, Hodgekins, & Langdon, 2016). Therefore, there is a dire need to identify best practices for suicide prevention, including which therapeutic approaches to implement, among this population.

Though our study contributes to the knowledge of suicidality and ASD-related traits in military service members, our results should be interpreted in the context of the limitations of our study. First, some of our results were from exploratory analyses. As such, these results are in need of replication. Second, our study was cross-sectional, precluding any causal or directional conclusions. Third, our use of self-report questionnaires to measure ASD-related traits rather than conducting a diagnostic interview limits our ability to know whether our results would replicate if our predictor variable were ASD diagnoses rather than ASD-related traits. Moreover, our measure of suicide risk and suicidal intent, the SBQ-R, has not been validated in an ASD sample. Until a measure of suicide risk is validated in an ASD sample, it is unclear whether our study, and other studies investigating the relationship between ASD or ASD-related traits and suicide risk, are truly measuring what they purport to measure (Cassidy, Bradley, Bowen, Wigham, & Rodgers, 2018).

Future work may consider addressing some of the limitations of the current study. Indeed, along with Cassidy and colleagues (2018), we call for research examining the measurement of suicidality among those with ASD and ASD-related traits. Moreover, longitudinal investigations are needed to examine predictors of suicidality among military service members with ASD-related traits. These future investigations could build on the results of the present study by using a representative military sample and assessing for ASD using a gold standard clinical interview.

Conclusions

In summary, both individuals with autism spectrum disorder (ASD) and military service members have been found to be at increased risk for suicidality, but few investigations have studied risk and protective factors for suicide risk among military service members exhibiting ASD-related traits. A protective factor identified in previous research is unit

cohesion, and the present study sought to examine whether unit cohesion buffers the association of ASD-related traits and global suicide risk. Among a sample of active duty service members, the present study found that, while ASD-related traits were independently associated with global suicide risk, unit cohesion was not, nor did it interact with ASD-related traits to mitigate the association between ASD-related traits and global suicide risk. However, our results did reveal that unit cohesion is independently associated with decreased suicidal intent. Results suggest that prevention efforts to decrease suicide risk among military personnel with ASD-related traits should consider targeting factors other than unit cohesion that are relevant to individuals with ASD.

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Table 1

Participant Demographic Characteristics (N = 286)

Variables	n	Valid Percent
Gender		
Male	196	68.8%
Female	86	30.2%
Decline to State	2	0.7%
Other	1	0.4%
Race		
White/Caucasian	224	78.6%
Black/African American	30	10.5%
Asian/Pacific Islander	14	4.9%
Native American or Alaska Native	6	2.1%
Other	11	3.9%
Ethnicity		
Hispanic or Latino/a	34	11.9%
Not Hispanic or Latino/a	251	88.1%
Sexual Orientation		
Heterosexual/straight	258	90.5%
Gay/Lesbian/Homosexual	5	1.8%
Bisexual	18	6.3%
Not sure	2	0.7%
Decline to State	1	0.4%
Other	1	0.4%
Marital Status		
Married	158	55.4%
Divorced or Separated	31	10.9%
Never Married	96	33.7%

Table 2**Participant Military Service Characteristics (N = 286)**

Variables	n	Valid Percent
Military Branch		
Marine Corps	41	14.4%
Coast Guard	3	1.1%
Air Force	56	19.6%
Army	124	43.5%
Navy	61	21.4%
Deployment History		
No	122	42.8%
Yes	163	57.2%
Combat Exposure		
No	214	75.1%
Yes	71	24.9%
Paygrade		
W-1, W-2, or W-3 (\$3,116.4 – \$7,038.6)	7	2.5%
O-1, O-2, or O-3 (\$3,188 – \$6,917)	25	8.8%
O-4, O-5, or O-6 (\$4,835 – \$11,901)	6	2.1%
E-1, E-2, or E-3 (\$1,681 – \$2,234)	44	15.4%
E-4, E-5, OR E-6 (\$2,195 – \$4,047)	177	62.1%
E-7, E-8, OR E-9 (\$3,021 – \$8,242)	23	8.1%
Decline to State	3	1.1%

Note. For a resource on United States military paygrade ranks, please see <https://www.federalpay.org/military>. Military paygrades included indicate monthly pay in the year 2019.

Table 3

Correlations Between Study Variables

	M	SD	1	2	3	4
1 Military Years	7.72	6.65				
2 AQ	20.26	6.75	.02			
3 SBQ-R Total	4.49	1.90	.12 [*]	.31 ^{***}		
4 Unit Cohesion	8.76	2.84	.07	-.25 ^{***}	-.17 ^{**}	
5 SBQ-R Intent	0.52	0.96	.06	.19 ^{**}	.63 ^{***}	-.22 ^{***}

Note.

*** =
p < .001;

** =
p < .01;

* =
p < .05.

AQ = Autism Spectrum Quotient; SBQ-R = Suicidal Behavior Questionnaire-Revised; Unit Cohesion. Correlations are Pearson correlations.

Table 4

Regression Results Predicting SBQ-R Global Suicide Risk

Predictor	<i>b</i>	95% CI	<i>t</i> (281)	<i>p</i>	β
Model 1					
Intercept	3.25	[2.17, 4.32]	5.96	< .001	
Military years	0.04	[0.00, 0.07]	2.20	.029	0.12
AQ Total	0.08	[0.05, 0.11]	4.91	< .001	0.28
Unit cohesion total	−0.07	[−0.15, 0.00]	−1.90	.058	−0.11
Model 2					
Intercept	4.77	[2.42, 7.12]	3.99	< .001	
Military years	0.04	[0.00, 0.07]	2.25	.025	0.13
AQ Total	0.01	[−0.09, 0.11]	0.22	.826	0.04
Unit cohesion total	−0.24	[−0.49, 0.00]	−1.95	.052	−0.36
AQ Total × Unit cohesion total	0.01	[0.00, 0.02]	1.43	.154	0.31

Note. AQ = Autism Spectrum Quotient. 95% CI = 95% confidence interval of the unstandardized coefficients.

Table 5

Exploratory Ordinal Logistic Regression Results Predicting SBQ-R Suicidal Intent

Predictor	OR	95% CI	<i>p</i>
Model 3			
Military years	1.03	[0.99, 1.06]	0.116
AQ total	1.05	[1.01, 1.09]	0.019
Unit cohesion total	0.87	[0.8, 0.96]	0.003
Model 4			
Military years	1.03	[0.99, 1.06]	0.118
AQ total	1.08	[0.96, 1.22]	0.191
Unit cohesion total	0.95	[0.7, 1.3]	0.741
AQ Total X Unit Cohesion Total	1	[0.98, 1.01]	0.576

Note. AQ = Autism Spectrum Quotient. OR = Odds Ratio. 95% CI = 95% confidence interval of odds ratio.