Is Gratitude Associated With Suicidal Ideation in Veterans With Mental Illness and Student Veterans With PTSD Symptoms?

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Abstract: The present study is aimed to identify the effect of gratitude as an adaptive regulating mechanism from suicidal ideation (SI) for veterans with mental illness (study 1) and student veterans with posttraumatic stress disorder (PTSD) symptoms (study 2) in the United States. Descriptive statistics and regression analyses were used to examine sociodemographic characteristics and relationships between gratitude and SI. Our study 1 consisted of 156 veterans with mental illness. The mean age for study 1 was 37.85. Our study 2 consisted of 232 student veterans with PTSD symptoms. The mean age for study 2 was 28.43. Higher gratitude scores in study 1 and study 2 were significantly associated with lower SI scores after adjusting for demographics and depression. This study partially supports the association between gratitude and SI in veterans with mental illness. Based on the results from this study, gratitude interventions may be effective in reducing SI when working with veterans with mental illness.

Key Words: veterans and student veterans, gratitude, mental illness, PTSD, suicide

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SUICIDE AMONG VETERANS AND MENTAL ILLNESS

Suicide and suicidal ideation (SI) have increased among civilians, specifically in the veteran population, which is a major concern. Suicide counts have increased in the US adult population since 2000, as 46,510 American adults died by suicide in 2018, compared with 45,390 in 2017 and 31,610 in 2005 (US Department of Veterans Affairs, 2020). In addition, the number of veteran suicides has exceeded 6300 each year since 2008 (US Department of Veterans Affairs, 2020). The Veterans Affairs (VA) reported that despite a decrease in the veteran population from 24.5 million to 20.1 million, 6435 veterans died by suicide in 2018, compared with 6056 in 2005, an increase of 6.3%. Besides, it is worth noting that veterans' suicide rates were higher and rose faster than those among nonveteran US adults (US Department of Veterans Affairs, 2020).

Student veterans are a subpopulation of veterans. The SI concern is also very common among this subgroup of veterans. Studies with SI among student veterans ranged from 7.6% (past month incidence) to 33.4% and 46% (lifetime) (Bryan and Bryan, 2015; Rudd et al., 2011). Among student veterans in a college setting, 14.8% of them have an undiagnosed episode of depression, which may cause a lack of support and understanding (Thomas et al., 2018). In addition, student veterans were more likely to experience self-harm than students without military experience (Blosnich et al., 2015). Compared with other veterans, student veterans experience additional challenges that may affect their mental health and SI. For example, interruption of their studies may occur due to family issues or disabilities, the accommodations needed to access information, the feelings of disconnection to campus life, and preparation for transition to civilian employment (Whitley et al., 2013). Hence, it is particularly important to examine SI in this population.

Previous research studies revealed that mental health conditions and symptoms are associated with SI among veterans. SI was found to be associated with psychiatric conditions such as posttraumatic stress disorder (PTSD), depression, or a combination of both (Jakupcak et al., 2011; Lemaire and Graham, 2011; Pietrzak et al., 2011; Smith et al., 2016). Veterans often experience severe anxiety, depression, and PTSD (Rudd et al., 2011), and these psychiatric issues often contribute to suicide risk (Brådvik, 2018; Smith et al., 2016). Veterans are also more vulnerable to suicide due to feelings of burdensomeness and hopelessness brought by these mental health conditions (Pfeiffer et al., 2014; Pietrzak et al., 2011). Besides, veterans' physical health difficulties (such as chronic pain and traumatic brain injury) were additionally associated with SI (Smith et al., 2016). When they are dealing with these mental and physical challenges, the use of maladaptive coping strategies, including cognitive-social avoidance or substance abuse, is related to SI (Pietrzak et al., 2011; Smith et al., 2016). Given veterans are at high risk of suicide, it is important to examine protective factors that can reduce suicide and SI among veterans with mental health concerns.

POSITIVE PSYCHOLOGY, GRATITUDE, AND SUICIDAL IDEATION

Although SI is a risk factor among veterans, positive psychological traits can be highly relevant when considering reducing or preventing SI among veterans. Positive psychology (PP) is an emerging theory concerned with building the qualities and experiences that enhances psychological well-being. Instead of psychopathology, PP investigates and emphasizes psychological strengths to promote positive emotions and life satisfaction (Gillham and Seligman, 1999). The positive traits are negatively associated with SI and moderate the relationship between depression and SI, including optimism and hope (Davidson et al., 2010; O'Keefe et al., 2011; Tucker et al., 2013), forgiveness (Quintana-Orts and Rey, 2018), meaning in life (Bryan et al., 2013), and gratitude (Kaniuka et al., 2021; Kleiman et al., 2013; Krysinska et al., 2015; Li et al., 2012; Lin, 2015; Lo et al., 2017). Among these positive traits, gratitude has been proven to buffer the relationship among depression, hopelessness, and SI. Yet, only a few studies examined the gratitude-suicide relationship among veterans, a population at a greater risk of suicide.

Gratitude is a sense that one ought to make a positive response to an act of kindness or a feeling of appreciation (McConnell, 2013). In the former sense, gratitude arises from others' help (Wood et al., 2010); therefore, in moral philosophy and theology, gratitude is viewed as a virtue (Emmons and Shelton, 2002). Yet, in the latter sense, gratitude is a

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psychological and emotional state that focuses on and appreciates the positive aspects of life (Wood et al., 2010) and results from an awareness of whichever is valuable and meaningful to oneself (Emmons et al., 2019).

Gratitude is pertinent when considering decreasing the risk of suicide. First, it is possible that gratitude could counteract the effect of depression, a major risk factor of suicide (Chesney et al., 2014; Lemaire and Graham, 2011). The reason behind that is gratitude is orientated toward noticing and appreciating the positivity in life, which is incompatible with the perceived negative orientation toward self, to the world, and future episodic depression (Wood et al., 2010). Second, gratitude serves as a protective factor against PTSD symptoms (Israel-Cohen et al., 2015), and the PTSD avoidance symptom cluster was associated with the risk of SI (Lemaire and Graham, 2011). Third, gratitude is associated with autonomy, environmental mastery, personal growth, purpose in life, and self-acceptance (Wood et al., 2010). Accepting the authentic self and finding the purpose in life can also potentially lessen SI caused by hopelessness and burdensomeness (Kleiman et al., 2013; Pfeiffer et al., 2014). Fourth, from a social perspective, gratitude strengthens relationships and promotes relationship formation and maintenance (Wood et al., 2010), and strong social support has been proven to be a protective factor against suicide (Krysinska et al., 2015; Lemaire and Graham, 2011; Smith et al., 2016). Because gratitude draws people's attention to the present benefits and reduces the likelihood of taking good things for granted, grateful people are more likely to increase positive emotion (Sheldon and Lyubomirsky, 2006), experience job satisfaction (Waters, 2012), and improve subjective well-being (Nelson, 2009; Wood et al., 2010; Young and Hutchinson, 2012).

PURPOSE

Previous literature has revealed that gratitude has a significant protective role in buffering risk factors of suicide and improving well-being. Yet, there is not enough evidence showing the effect of gratitude on SI among US veterans and student veterans who experience unique mental health challenges. Therefore, the purpose of this study is to identify the effect of gratitude as an adaptive regulating mechanism from SI for veterans with mental illness (study 1) and student veterans with PTSD symptoms (study 2) in the United States.

METHODS

Study 1

Design and Procedure

Our study was reviewed and approved as an exempt study by the University of Texas at El Paso's Institutional Review Board. This study is a part of an internally funded larger research project on veterans with mental illness (*e.g.*, Umucu, 2020; Umucu et al., 2020c; Umucu et al., 2021). The data were collected by using Amazon MTurk, which is a reliable, valid, diverse, and cost-effective large data collection tool (Goodman et al., 2013; Rand, 2012). Using Amazon MTurk options, only participants residing in the US with military experience could participate in the study. Besides, we included participants 1) who are 18 years or older and 2) who have any type of mental illness. Our participants read an online consent form and agreed to be a participant in this study. Participants received $4.00 upon completing the online survey.

Participants

Our study 1 sample consisted of 156 veterans with mental illness. The mean age was 37.85 (SD_{age} = 10.74; range = 49.00). We had a total of 104 male (66.7%) and 52 female (33.3%) participants. The majority of participants were White (69.9%), followed by Black or African American (11.5%), Hispanic (7.1%), Asian (3.8%), and others (7.6%). More than 50% of participants had at least a bachelor's degree. The majority of participants served in Army (55.8%), followed by Air Force (17.9%), Navy (12.2%), Marine Corps (10.3%), and Cost Guard (3.8%). Regarding marital status, approximately 53% of participants were married. Regarding mental illnesses, participants reported at least one type of mental illness, including 64.7% reported depression, 57.1% reported anxiety, 35.3% reported PTSD, 10.3% reported substance use disorder, 4.5% reported bipolar disorder, 4.5% reported personality disorder, and 3.9% reported others.

Measures

SI was measured by using item 9 (*i.e.*, "Over the past 2 weeks, how often have you been bothered by thoughts that you would be better off dead or of hurting yourself in some way.") of the Patient Health Questionnaire–9 (PHQ-9) (Kroenke et al., 2001). Response options for this item ranged from 0 (not at all), 1 (several days), 2 (more than half the days), to 3 (nearly every day). This response option was transformed to a binary response option (0 = absence of SI; 1 = presence of SI). Item 9 of the PHQ-9 was used to measure SI in previous research (Louzon et al., 2016; Rossom et al., 2017). The authors reported that higher levels of SI measured by item 9 of the PHQ-9 were related to increased risk of suicide among VA patients (Louzon et al., 2016). Similarly, Rossom et al. (2017) reported that item 9 of the PHQ-9 is a robust predictor of suicide attempts and deaths in adult outpatients. Depression was measured using the first 8 items in the PHQ-9 (Kroenke et al., 2001). Response options for these eight items ranged from 0 (not at all), 1 (several days), 2 (more than half the days), to 3 (nearly every day). The total score ranged from 0 to 24, with higher scores indicating greater depressive symptoms. The PHQ-8 was used in previous research to measure depression (Rossom et al., 2017). Internal consistency for the PHQ-8 was 0.89 in the current study. Gratitude was measured by using the Gratitude Questionnaire (McCullough et al., 2002). The scale consists of six items (*e.g.*, "I have so much in life to be thankful for."). Each item is rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Thus higher scores represent greater gratitude among participants. In the current study, the Gratitude Questionnaire had an internal consistency reliability coefficient of 0.88.

Data Analysis

We used descriptive statistics to report participants' sociodemographic characteristics. We conducted a hierarchical logistic regression to examine whether higher scores in gratitude were associated with SI (0 = absence of SI, 1 = presence of SI) after accounting for demographic variables and depression scores among veterans with mental illness. In step 1, we entered demographic covariates (*i.e.*, age, sex [1 = male], race [1 = White]); in step 2, we entered depression scores; and step 3, we entered gratitude scores. All statistics were conducted with SPSS 25.0.

Study 2

Design and Procedure

Study 2 data were collected for another study approved by the Institutional Review Board of the University of Texas at El Paso. This study is a part of an externally funded larger research project on student veterans with PTSD symptoms (*e.g.*, Umucu et al., in press). The principal investigator (PI) communicated with the student veteran office at University of Texas at El Paso to collect data. The PI shared a survey link (via Qualtrics) with the student veteran office, where they distributed the survey link via e-mail and social media to student veterans. Student veterans agreed to be part of the study after reading the consent form. For study 2, inclusion criteria were 1) age of 18 or older, 2) being a veteran, 3) a current college/university student, and 4) a previous traumatic event causing PTSD symptoms. Participants received a $20 gift card upon completion of the survey.

Participants

Our study 2 sample consisted of a total of 232 student veterans with PTSD symptoms. Majority of participants were male (84.5%; females = 15.5%), White (71.6%), and single (53.4%). Participants' mean age was 28.43 (SD = 5.42). Approximately 26% of participants identified themselves as being of Hispanic, Latino, or Spanish origin. The majority of participants had served in the Army (46.6%) and were working (51.3%), full-time students (60.8%), and using the GI Bill (70.7%). All participants reported that they had experienced a traumatic event, with at least one PTSD symptom measured by the Primary Care PTSD Screen for the *DSM-V* (Prins et al., 2016). Based on our inclusion questions on PTSD measured by the PC-PTSD (Prins et al., 2016), approximately 86% of student veterans had probable PTSD (a PC-PTSD score of 3 or above).

Measures

SI was measured with a single item (*i.e.*, "How much has each problem distressed, worried, or bothered you in the past few weeks?" "Suicidal thoughts or concerns?") from the Inventory of Common Problems (Hoffman and Weiss, 1986). The item is rated on a 5-point Likert scale ranging from 1 (not at all) to 5 (very much). Depression was measured using the PHQ-4 (Kroenke et al., 2009). The scale consists of four items measuring depression and anxiety. We used only depression items for this study. Each item is rated on a 4-point Likert-type scale ranging from 0 to 3, with higher scores representing greater levels of depression. Internal consistency for the PHQ-2 was 0.33 in the current study. Gratitude was measured by using the Gratitude Questionnaire (McCullough et al., 2002). The scale consists of six items. Each item is rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The higher scores represent greater gratitude among participants. Internal consistency for the Gratitude Questionnaire was 0.42 in the current study. Because study 2 was a different study design, we used different scales for SI and depression.

Data Analysis

We used descriptive statistics to report participants' sociodemographic characteristics. We conducted a hierarchical regression analysis to examine whether higher scores in gratitude were associated with SI after accounting for demographic variables and depression scores among student veterans with PTSD symptoms. In step 1, we entered demographic covariates (*i.e.*, age, sex [1 = male], race [1 = White]); in step 2, we entered depression scores; and step 3, we entered gratitude scores. All statistics were conducted with SPSS 25.0.

RESULTS

Study 1

Descriptive Statistics

The mean scores for depression and gratitude were 9.79 (SD = 5.98) and 4.81 (SD = 1.31), respectively. A total of 59 participants reported that they had SI, and 97 participants reported that they did not have any SI. Our point-biserial correlation analysis results revealed that the presence of SI was positively associated with depression scores ($r_{p.b}$ = 0.55, $p < 0.05$) and negatively associated with gratitude scores ($r_{p.b}$ = −0.37, $p < 0.05$). The Pearson correlation analysis results revealed that gratitude was negatively associated with depression scores (r = −0.39, $p < 0.05$).

Hierarchical Logistic Regression Analysis

The first step of the logistic regression included demographic variables (*i.e.*, age, sex, race), followed by depression scores in the second block, with gratitude scores in the third block. The first block with demographic variables was not significantly associated with the presence of SI (χ^2 = 0.92, df = 3, p = 0.82) with the Nagelkerke R^2 = 0.008.

The second block with demographic variables and depression was significantly related to the presence of SI (χ^2 = 56.51, df = 4, $p < 0.05$) with the Nagelkerke R^2 = 0.41. By examining specific variables in the second block, depression scores were significantly related to the presence of SI (adjusted odds ratio [AOR], 1.31; 95% confidence interval [CI], 1.19–1.43; $p < 0.05$).

Our third block, including demographic variables, depression scores, and gratitude, was associated with the presence of SI (χ^2 = 63.67, df = 5, $p < 0.05$) with the Nagelkerke R^2 = 0.46. By examining specific variables in the third block, we found that depression scores (AOR, 1.27; 95% CI, 1.16–1.40; $p < 0.05$) and gratitude scores (AOR, 0.63; 95% CI, 0.45–0.90; $p < 0.05$) were significantly associated with the presence of SI.

Overall, the entire model containing all predictor variables in three blocks explained 46% (Nagelkerke R^2) of the variance in the presence of SI, indicating that the model could distinguish between veterans with mental illness who had SI and those who did not.

Study 2

The mean scores for SI, depression, and gratitude were 2.98 (SD = 1.14), 1.50 (SD = 0.63), and 4.25 (SD = 0.66), respectively. Our correlation analysis results revealed that SI was positively associated with depression scores (r = 0.20, $p < 0.05$) and negatively associated with gratitude scores (r = −0.20, $p < 0.05$). Results revealed that gratitude was not associated with depression scores (r = −0.11, p = 0.08).

Hierarchical Regression Analysis

The first step of the hierarchical regression included demographic variables (*i.e.*, age, sex, race), followed by depression scores in the second block, with gratitude scores in the third block. The first block with demographic variables was not significantly associated with SI; R = 0.093, R^2 = 0.009, ΔR^2 = 0.009, $F(3, 228)$ = 0.67, p = 0.57.

The second block with demographic variables and depression was significantly related to SI; R = 0.22, R^2 = 0.05, ΔR^2 = 0.04, $F(4, 227)$ = 2.87, $p < 0.05$. By examining specific variables in the second block, depression scores were significantly related to SI (β = 0.20, $p < 0.05$).

Our third block, including demographic variables, depression scores, and gratitude, was associated with SI; R = 0.27, R^2 = 0.08, ΔR^2 = 0.03, $F(5, 226)$ = 3.65, $p < 0.05$. By examining specific variables in the third block, we found that depression scores (β = 0.18, $p < 0.05$) and gratitude scores (β = −0.17, $p < 0.05$) were significantly associated with SI.

Overall, the entire model containing all predictor variables in three blocks explained 8% of the variance in SI, a small to moderate effect size.

DISCUSSION

The purpose of this study was to identify the effect of gratitude as an adaptive regulating mechanism from SI for veterans with mental illness and student veterans with PTSD symptoms in the United States. Findings from study 1 and 2 demonstrated that gratitude was inversely associated with SI in both samples (*i.e.*, veterans with mental illness, student veterans with PTSD symptoms) after accounting for demographic variables and depression. This is consistent with previous research findings on the relationships among gratitude, depressive symptoms, and suicidality (Kleiman et al., 2013; Li et al., 2012; Rey et al., 2019). For example, adolescents who have higher levels of gratitude are less likely to have SI and behaviors (Li et al., 2012; Rey et al., 2019). Zhang et al. (2018) found that Chinese college students with higher levels of gratitude indicated fewer depressive symptoms. A recent study on college students demonstrated that depression served as a mediator between gratitude and suicidal behaviors, suggesting that higher levels of gratitude were associated with less depression, leading to less suicidal behavior (Kaniuka et al., 2021).

Similarly, Kleiman et al. (2013) found that, among college students with greater levels of depressive symptoms, those with higher levels of gratitude indicated lower levels of SI when compared with those with low levels of gratitude. Recently, McGuire et al. (2021) found that higher levels of gratitude were associated with decreased risk for mental disorders and SI among veterans. Although research has examined gratitude and its link to mental distress and SI in adolescents and college students, to our knowledge, there is limited research investigating this association in veterans and student veterans. Therefore, this study adds to the literature by providing support for the association between gratitude and SI in veterans with mental illness and student veterans with PTSD symptoms.

Gratitude has been discussed as a protective factor for depressive symptoms and SI (Kleiman et al., 2013; White et al., 2017). People with higher levels of gratitude focus on positive life aspects and combat negative emotional and cognitive patterns. In contrast, those with lower levels of gratitude may engage more in negative cognitive and emotional processing, contributing to increased suicidality (Kaniuka et al., 2021). As gratitude is related to experiencing more positive emotional reactions, gratitude may protect people from brooding SI (Kleiman et al., 2013; McCullough et al., 2004).

Although previous studies have examined the risk and protective factors for suicidality, there are relatively fewer studies examining the role of gratitude in veteran population. Risk factors for SI among veterans included experiencing greater psychosocial difficulties, stigma, barriers to care, and screening positive for depression, PTSD, and alcohol problems (Lemaire and Graham, 2011; Pietrzak et al., 2010). Conversely, perceived social support and curiosity, purpose in life, and optimism were identified as protective factors for suicidality in veterans (Jakupcak et al., 2010; Kachadourian et al., 2019; Lemaire and Graham, 2011; Pietrzak et al., 2010). Given that previous research has examined the link between gratitude and suicidality in veterans (Smith et al., 2016; Straus et al., 2019), this study contributed to the existing literature that gratitude was found to be associated with SI among veterans with mental illness and student veterans with PTSD symptoms. The study results are in accordance with previous findings where gratitude contributed to lower levels of perceived stress and buffered against poor mental health in soldiers (Valikhani et al., 2019). In another study by Smith et al. (2016), higher levels of gratitude were inversely related to SI onset in veterans. Similarly, those who developed SI were more likely to report lower levels of gratitude among veterans with PTSD and/or major depressive disorder (Straus et al., 2019).

As Rudd et al. (2011) suggested, a considerable number (46%) of student veterans reported SI, especially with 82% of those with PTSD reported suicide attempts. Rudd and colleagues discussed that a large proportion of student veterans experience significant psychiatric symptoms with a sizeable number at increased suicide risk, and PTSD was a moderator between depression and suicidality. In addition, Elliott (2015) discussed that PTSD and depression symptoms were associated with feelings of being judged, not fitting in, and discomfort on campus among student veterans. Given the challenges student veterans face during their college life transition, researchers have started to examine protective factors (*e.g.*, hope, gratitude, resilience, social support) that can improve psychological health and college life adjustment (Reyes et al., 2017; Romero et al., 2015; Umucu, 2017; Umucu et al., 2018, 2019, 2020a, and 2020b). Although little is known about the gratitude-suicidality link in the student veteran population, study 2 provided partial support for the association between gratitude and SI in student veterans with PTSD symptoms.

Limitations and Future Research

There are several important limitations to be considered when interpreting our findings. Our studies are two different cross-sectional designs; therefore, there remains a question concerning possible bidirectionality in the relationship between gratitude and SI. Future longitudinal studies could test the causal relationship between gratitude and SI. Next, because we used a single item to measure SI, future research would need to implement a multi-item scale to measure SI. Besides, the second study's scales of depression and gratitude had very low and unacceptable internal consistency. Although our scales measuring depression and gratitude had very low and unacceptable internal consistency, we did not drop study 2 given the data were coming from a unique study sample of student veterans with PTSD symptoms. Therefore, results in the second study need to be interpreted carefully keeping this fact in mind, and future research with more reliable measures is needed to validate our findings in study 2. Another important limitation is that our sample consisted of those with self-reported mental illnesses and those with PTSD symptoms; therefore, these self-reliant data on mental illness and PTSD also inherently created study limitations, given that mental illnesses and PTSD diagnostic elements were not medical diagnoses. Besides, given our studies are survey design, 1) we did not have any control over survey duplication and 2) there could be some response and social desirability biases. Finally, we believe that there could also be other variables (*e.g.*, substance use, family history of suicide) that can contribute to SI or other related outcomes that this study could not explain or identify. Therefore, future studies are essential, including these constructs in their model to examine the relationship between SI and gratitude.

Implications for Practice

Although our study has significant limitations, this study provided some preliminary support for the gratitude and SI link in veterans with mental health concerns, which suggests the potential role of increasing gratitude might plausibly reduce suicidal thoughts and risks. Gratitude is regarded as an adaptive strategy where people exhibit grateful responses to daily and life experiences (McCullough and Emmons, 2003). Given that gratitude can be modified through interventions, suicide prevention programs can focus on increasing an individual's gratitude and appreciation levels toward positive life aspects (Kleiman et al., 2013). Gratitude interventions (*e.g.*, gratitude diary, guided gratitude reflection, gratitude visit) have been shown to reduce depression and stress, and increase happiness (O'Leary and Dockray, 2015; Seligman et al., 2005; Wood et al., 2008). A gratitude diary refers to asking participants to list up to five things they felt grateful for, and a guided gratitude reflection refers to focusing on one thing participants were grateful for (O'Leary and Dockray, 2015). Gratitude visit includes asking participants to write and deliver a letter to someone who they are grateful for but had not properly thanked them before (Seligman et al., 2005). In addition, practitioners can boost clients' gratitude level by teaching them how to identify and change negative thought patterns (Wood et al., 2008), which has implications for suicide prevention. For example, gratitude diary intervention is effective in reducing depression and anxiety levels in suicidal inpatients (Ducasse et al., 2019). Practitioners working with veterans with mental illness can try gratitude interventions and strategies to increase their happiness and facilitate their gratefulness toward life experiences. This may consequently lead to a reduced tendency of rumination and SI. However, future research would be warranted to explore more on integrating gratitude in suicide prevention for veteran population, including student veteran population.

CONCLUSIONS

The present study shows an association between gratitude and SI in veterans with mental illness and student veterans with PTSD symptoms. In addition, the findings suggested the potential role of increasing gratitude to reduce the likelihood of SI onset in the veteran population. This study also provides suggestions for including gratitude interventions in reducing suicidal risks for veteran population, but more research is

warranted to explore more on integrating gratitude in suicide prevention for veteran population.

DISCLOSURE

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The authors declare no conflict of interest.

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