Psychiatry Research 227 (2015) 360–362

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Brief report

Non-suicidal self-injury as a predictor of active and passive suicidal ideation among Iraq/Afghanistan war veterans

Nathan A. Kimbrel [a,b,c,*], Kim L. Gratz [d], Matthew T. Tull [d], Sandra B. Morissette [e,f,g], Eric C. Meyer [e,f,g], Bryann B. DeBeer [e,f,g], Paul J. Silvia [h], Patrick C. Calhoun [a,b,c,i], Jean C. Beckham [a,b,c]

[a] Durham Veterans Affairs Medical Center, Durham, NC, USA
[b] VA Mid-Atlantic Mental Illness Research, Education, and Clinical Center, Durham, NC, USA
[c] Duke University Medical Center, Durham, NC, USA
[d] University of Mississippi Medical Center, Jackson, MS, USA
[e] VISN 17 Center of Excellence for Research on Returning War Veterans, Waco, TX, USA
[f] Central Texas Veterans Health Care System, Temple, TX, USA
[g] Texas A&M University Health Science Center, College Station, TX, USA
[h] University of North Carolina at Greensboro, Greensboro, NC USA
[i] VA Center for Health Services Research in Primary Care, Durham, NC, USA

ARTICLE INFO

Article history:
Received 20 May 2014
Received in revised form
4 March 2015
Accepted 15 March 2015
Available online 1 April 2015

Keywords:
Suicide
Non-suicidal self-injury
Depression

ABSTRACT

The present study examined the association between lifetime non-suicidal self-injury (NSSI) and current suicidal ideation among Iraq/Afghanistan veterans. NSSI was positively associated with passive, active, and concurrent active–passive suicidal ideation at the bivariate level. NSSI remained a predictor of active, *OR*=5.15, and concurrent active–passive suicidal ideation, *OR*=7.01, when other risk factors were considered. These findings suggest that NSSI may be a particularly useful marker of active suicidal ideation among veterans.

Published by Elsevier Ireland Ltd.

1. Introduction

Non-suicidal self-injury (NSSI) is the act of deliberately destroying one's body tissue without conscious suicidal intent (Chapman et al., 2006). Although NSSI is, by definition, distinct from suicidal behaviors that involve some intent to die, the Interpersonal Theory of Suicide (Joiner, 2005) proposes that NSSI increases suicide risk by increasing an individual's acquired capability for suicide (defined as an enhanced tolerance of physiological pain and diminished fear of death and/or bodily harm; Joiner, 2005; Nock et al., 2006). A recent literature review supports this theory, finding that NSSI is associated with suicidality across a variety of populations, even after accounting for key demographic variables such as age, race, and gender (Hamza et al., 2012).

Unfortunately, despite high rates of death by suicide among Iraq/Afghanistan veterans with mental health disorders (Kang and Bullman, 2008), there has been relatively little research on NSSI among veterans. We recently conducted the first study of NSSI among male Iraq/Afghanistan veterans seeking treatment for posttraumatic stress disorder (PTSD; Kimbrel et al., 2014) and found that this behavior was highly prevalent and strongly associated with suicidal ideation. This study did, however, have several limitations that the current study was designed to overcome. First, we used a single item in our previous study that only assessed active suicidal ideation, which made it impossible for us to determine whether NSSI was associated with both active and passive suicidal ideation. Given the growing recognition that active suicidal ideation (i.e., specific thoughts of killing oneself or committing suicide) represents a more severe form of ideation than passive suicidal ideation (e.g., wishing to be dead or wishing to fall asleep and to not wake up; Posner et al., 2011), the current study examined active and passive ideation separately in order to determine if NSSI was more strongly related to one of these specific forms of suicidal ideation. A second limitation of our previous study was that we were not able to consider the association between NSSI and suicidal ideation within the context of other important risk factors for suicidality, such as major

* Corresponding author at: Durham Veterans Affairs Medical Center, Durham, NC, 27705. Tel.: +919 286 0411x6759.
E-mail address: Nathan.Kimbrel@va.gov (N.A. Kimbrel).

http://dx.doi.org/10.1016/j.psychres.2015.03.026
0165-1781/Published by Elsevier Ireland Ltd.

depressive disorder (MDD), alcohol-use disorder (AUD), and childhood sexual abuse (CSA; Joiner, 2005; Nock et al., 2008). Finally, a third limitation of our previous study was that we examined current NSSI as a predictor of current ideation in the regression analyses when it would have been optimal to examine lifetime NSSI as a predictor of current ideation.

1.1. Study objective

The objective of the present study was to address these limitations by: (1) examining the association between lifetime NSSI and current passive and current active suicidal ideation in a sample of Iraq/Afghanistan veterans; and (2) determining if the hypothesized association between lifetime NSSI and current suicidal ideation among Iraq/Afghanistan veterans would remain significant within the context of other well-established risk factors for suicidal ideation.

2. Method

2.1. Participants and procedures

Participants included 197 Iraq/Afghanistan veterans recruited from the Central Texas Veterans Health Care System to participate in two studies on the genetics of PTSD. Participants with PTSD were oversampled through targeted mailings, flyers, and hospital staff recruitment, resulting in high rates of current PTSD (35%), MDD (21%), and AUD (8%) in the final sample. Both treatment-seeking and non-treatment-seeking veterans were included. Schizophrenia and bipolar disorder were exclusionary criteria in the original studies. In addition, participants were required to have completed the NSSI measure to be eligible for the current analyses, resulting in a final sample of 151 participants. Participants were predominantly male (93%) and White (67%), although African Americans were also well-represented (27%). Regarding ethnicity, approximately 15% of participants identified as Latino. Participants were 40 years old (S.D.=10) on average. Most had served in Iraq (91%), the remainder in Afghanistan. Following informed consent, participants completed a clinical interview and self-report measures in private offices.

2.2. Measures

Suicidal ideation was assessed with the Psychiatric Diagnostic Screening Questionnaire (PDSQ; Zimmerman, 2002). Participants endorsing one or more of three passive ideation items on the PDSQ (e.g., *During the past two weeks did you frequently think of dying in passive ways like going to sleep and not waking up?*) were categorized as having passive suicidal ideation, whereas participants endorsing one or more of three active ideation items on the PDSQ (e.g., *During the past two weeks did you think about a specific way to take your life?*) were categorized as having active suicidal ideation.

The 17-item *Deliberate Self-Harm Inventory* (DSHI; Gratz, 2001) was used to assess lifetime NSSI. Participants endorsing one or more forms of NSSI (e.g., intentionally cutting oneself, intentionally burning oneself, intentionally punching oneself) were categorized as having a history of NSSI.

The 5-item CSA subscale from the *Childhood Trauma Questionnaire* (CTQ; Bernstein and Fink, 1998) was used to assess CSA. Participants endorsing one or more items on the CSA subscale were categorized as having a history of CSA.

The *Mini International Neuropsychiatric Interview* (MINI; Sheehan et al., 1998) for DSM-IV was used to diagnose MDD and AUD in both samples. The MINI was also used to diagnose PTSD in 70 of the participants, whereas the *Clinician-Administered PTSD Scale for DSM-IV* (CAPS-IV; Blake et al., 1995) was used to diagnose PTSD in the remaining 81 participants. The interview used to diagnose PTSD did not have a significant effect on rate of diagnosis, χ^2 (1)=0.239, p=0.625.

3. Results

Approximately 21% of participants endorsed passive suicidal ideation; 13% endorsed active suicidal ideation; and 9% endorsed concurrent active–passive ideation. In addition, approximately 14% reported a history of NSSI, and 24% reported a history of CSA. As expected, NSSI was positively associated with passive ideation, χ^2=6.855(1), p=0.009, active ideation, χ^2=5.669(1), p=0.017, and concurrent active–passive ideation, χ^2=7.163(1), p=0.007, at the bivariate level (Fig. 1).

Stepwise logistic regression was used to examine the association between NSSI and suicidal ideation within the context of other known risk factors. Potential predictors in these models included gender, age, PTSD, MDD, AUD, CSA, and NSSI (selection criteria=0.05). For passive suicidal ideation, the final set of selected predictors consisted of gender, *OR*=17.88 (2.05–155.74), p=0.009, MDD, *OR*=12.57 (3.84–41.12), $p<0.001$, CSA, *OR*=7.20 (2.29–22.655), p=0.001, and PTSD, *OR*=3.17 (1.16–8.69), p=0.025, Nagelkerke R^2=0.40. For active suicidal ideation, the final set of predictors consisted of only MDD, *OR*=8.93 (2.97–26.83), $p<0.001$, and NSSI, *OR*=5.15 (1.45–18.32), p=0.01, Nagelkerke R^2=0.25. Similarly, the final set of predictors for concurrent active–passive ideation consisted of only MDD, *OR*=9.83 (2.64–36.58), p=0.001, and NSSI, *OR*=7.01 (1.69–29.15), p=0.007, Nagelkerke R^2=0.26.

4. Discussion

Consistent with the Interpersonal Theory of Suicide (Joiner, 2005), the present study found that NSSI was associated with both passive and active suicidal ideation among an at-risk sample of Iraq/Afghanistan war veterans at the bivariate level. The present study also adds to the literature by demonstrating that NSSI was uniquely associated with both active suicidal ideation and concurrent passive–active suicidal ideation after accounting for other well-established risk factors. These results suggest that NSSI may be a particularly useful marker of active suicidal ideation among Iraq/Afghanistan veterans. Given recent findings demonstrating that certain forms of active suicidal ideation (e.g., active ideation with intent or plan) may be more strongly associated with suicide attempts than passive ideation (Posner et al., 2011), our results suggest that Iraq/Afghanistan veterans who report either NSSI or active ideation should be closely monitored. It should also be

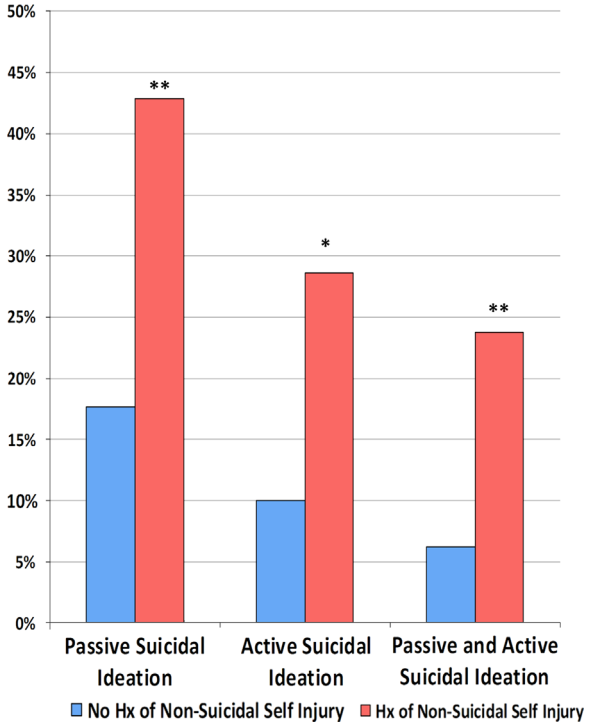


Fig. 1. Effect of lifetime history of non-suicidal self-injury (NSSI) on prevalence of current suicidal ideation. Chi-square tests revealed that NSSI was positively associated with passive suicidal ideation, χ^2=6.855(1), p=0.009, active suicidal ideation, χ^2=5.669(1), p=0.017, and concurrent active–passive suicidal ideation, χ^2=7.163(1), p=0.007, at the bivariate level.*$p<0.05$; **$p<0.01$.

noted that MDD was the only variable associated with suicidal ideation in all three models (average $OR = 10.4$), suggesting that MDD was the most robust predictor of ideation assessed. Gender, CSA, and PTSD also had strong and statistically-significant associations with passive ideation.

The present research had several limitations that should be noted, including a cross-sectional design, retrospective assessment of CSA and NSSI, and failure to assess and include other factors known to be associated with NSSI and suicidality in the regression models, such as sexual orientation, suicide attempts, and past psychiatric hospitalizations. Thus, additional research to determine if NSSI is predictive of suicidal ideation among Iraq/Afghanistan veterans after accounting for these important variables is needed. In addition, because Iraq/Afghanistan veterans with PTSD were oversampled in the present study, the findings from this study should not necessarily be considered representative of Iraq/Afghanistan veterans in general.

Despite these limitations, the present findings shed new light on the association between NSSI and suicidal ideation among Iraq/Afghanistan veterans and suggest that NSSI may be a particularly useful marker for active suicidal ideation within this important segment of the veteran population.

Acknowledgments

This work was supported by a Career Development Award (IK2 CX000525) to Dr. Kimbrel from the Clinical Science Research and Development Service of the Department of Veterans Affairs (VA) Office of Research and Development (ORD), a VA VISN 17 New Investigator Award to Dr. Kimbrel entitled Genetic and Environmental Effects on PTSD, Depression, and Alcohol Misuse, a Merit Award (I01RX000304) to Dr. Morissette from the Rehabilitation Research and Development Service of the VA ORD, the VA VISN 17 Center of Excellence for Research on Returning War Veterans, the Central Texas Veterans Health Care System, the VA Mid-Atlantic Mental Illness Research, Education, and Clinical Center, and the Research & Development and Mental Health Services of the Durham VA Medical Center. The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States government.

References

Bernstein, D.P., Fink, L., 1998. Childhood trauma questionnaire: a retrospective self-report manual. Psychological Corporation, San Antonio.

Blake, D., Weathers, F.W., Nagy, L.M., Kaloupek, D.G., 1995. The development of a clinician-administered PTSD scale. Journal of Traumatic Stress 8, 75–90.

Chapman, A.L., Gratz, K.L., Brown, M.Z., 2006. Solving the puzzle of deliberate self-harm: the experiential avoidance model. Behaviour Research and Therapy 44, 371–394.

Gratz, K.L., 2001. Measurement of deliberate self-harm: preliminary data on the Deliberate Self-Harm Inventory. Journal of Psychopathology and Behavioral Assessment 23, 253–263.

Joiner, T.E., 2005. Why People Die by Suicide. Harvard University Press, Cambridge.

Hamza, C.A., Stewart, M.E., Willoughby, T., 2012. Examining the link between nonsuicidal self-injury and suicidal behavior: a review of the literature and an integrated model. Clinical Psychology Review 32 (6), 482–495.

Kang, H.K., Bullman, T.A., 2008. Risk of suicide among US veterans after returning from the Iraq or Afghanistan war zones. Journal of the American Medical Association 300, 652–653.

Kimbrel, N.A., Johnson, M.E., Clancy, C., Hertzberg, M., Collie, C., Van Voorhees, E.E., Dennis, M., Calhoun, P.S., Beckham, J.C., 2014. Deliberate self-harm in male Iraq/Afghanistan veterans seeking treatment for posttraumatic stress disorder. Journal of Traumatic Stress 27, 474–477.

Nock, M.K., Borges, G., Bromet, E.J., Cha, C.B., Kessler, R.C., Lee, S., 2008. Suicide and suicidal behavior. Epidemiologic Reviews 30 (1), 133–154.

Nock, M.K., Joiner Jr, T.E., Gordon, K.H., Lloyd-Richardson, E., Prinstein, M.J., 2006. Non-suicidal self-injury among adolescents: diagnostic correlates and relation to suicide attempts. Psychiatry Research 144 (1), 65–72.

Posner, K., Brown, G.K., Stanley, B., Brent, D.A., Yershova, K.V., Oquendo, M.A., Currier, G.W., Melvin, G.A., Greenhill, L., Shen, S., Mann, J.J., 2011. The Columbia-Suicide Severity Rating Scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. The American Journal of Psychiatry 168 (12), 1266–1277.

Sheehan, D.V., Lecrubier, Y., Sheehan, K., Amorim, P., Janavs, J., Weiller, E., 1998. The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. Journal of Clinical Psychiatry 59, 22–33.

Zimmerman, M., 2002. The psychiatric diagnostic screening questionnaire. Western Psychological Services, Los Angeles, CA.