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Trauma, Historical Trauma, PTSD and Suicide in an American Indian Community Sample

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Abstract

Aims: To study the associations between perceived historical trauma, current traumatic events, diagnoses of post-traumatic stress disorder (PTSD), and suicidal behaviors in an American Indian community sample.

Methods: Participants were American Indians recruited from reservations who were assessed with the *Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA)*, as well as the *Historical Loss Scale*, *Historical Loss Associated Symptoms Scale*, and *Stressful Life Events Scale*.

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Credit authorship contribution statement

Cindy L Ehlers: Conceptualization, Methodology, Formal analyses, Writing original draft, Writing-review & editing, Supervision, Project administration, Visualization. **Rachel Yehuda:** Conceptualization, Methodology, Writing-review & editing. **Rebecca Bernert:** Conceptualization, Methodology, Writing-review & editing. **David A. Gilder:** Supervision, Formal analysis, Data curation, Writing-review & editing. **Kate Karriker-Jaffe:** Conceptualization, Data curation, Formal analyses, Project administration, Supervision, Writing-review & editing.

Ethical standards

The authors assert that all procedures and protocols for the study were carried out in accordance with the latest version of the Declaration of Helsinki. The protocol and procedures were approved by the Institutional Review Board of The Scripps Research Institute and Indian Health Council for the AI participating. Written informed consent was obtained from each participant after the study was fully explained.

Availability of data and materials

The data that support the findings of this study are available by contacting the first author. However, AI data availability are subject to approval of the tribes participating.

Conflict of Interest

All authors declare no potential conflict of interest.

Results: In data from 447 American Indian adults (mean age=33 years), twenty percent reported lifetime experiences of suicidal thoughts (ideation and/or plans) and 14% reported suicidal acts, (including either a suicide attempt history or verified death by suicide (n=4)). Diagnosis of PTSD and experience of assaultive trauma were each significantly associated with suicidal thoughts and acts, although assaultive trauma did not remain significant in models adjusting for gender and PTSD. High endorsement of symptoms associated with historical trauma was significantly associated with suicidal acts, and this remained significant when adjusting for gender and PTSD.

Conclusions: PTSD and historical trauma have an association with suicide and suicidal attempts in this American Indian community. Although further research is needed to evaluate the causal nature of these relations, these findings suggest treatment and prevention programs for American Indian suicide may benefit from addressing issues related to feelings of historical losses, PTSD, and their associated symptomatology.

Keywords

Suicide; Historical trauma; PTSD; American Indian

1. Introduction

Suicide is a preventable public health problem that ranks as the second leading cause of death among young adults residing in the US (Curtin et al., 2016). According to the Institute of Medicine, suicidal behaviors far exceed the number of deaths, with approximately 25 suicide attempts estimated to occur for every suicide death (Goldsmith, 2002). Suicide rates remain even higher among American Indians/Alaska Natives (AI/AN), with rates more than 50% greater when compared to the general U.S. population across all age groups (DHHS et al., 2009; Karaye, 2022; Leavitt et al., 2018; Wilson et al., 2022). While suicide rates are unquestionably higher in the AI/AN population as a whole as compared to other US populations, rates also vary based on geographic region, tribal affiliation and whether one is living on a reservation or not (see (Bolton et al., 2014; Chachamovich et al., 2015; Cwik et al., 2022; Cwik et al., 2014; Cwik et al., 2011; Cwik et al., 2016; Freedenthal and Stiffman, 2004; Livingston et al., 2019; Shaw et al., 2019; Shaw et al., 2022; Trout and Wexler, 2020; Wexler et al., 2015). Several studies have underscored the role of culture in accounting for the heterogeneity of suicidal ideation between tribal groups (Bolton et al., 2014; Livingston et al., 2019; Novins et al., 1999). Such studies highlight the need to identify risk and protective factors for suicide in individual tribal groups using community-based research approaches (Wexler et al., 2015). A task force convened by the National Action Alliance for Suicide Prevention in AI/AN reported that the majority of suicide research in AI/AN to date has focused on individual-level risk factors and suggested that an expansion of focus to include evaluation of the “cultural wounds inflicted on whole communities and whole ways of life” and the “consequences of structural violence” in the understanding of Indigenous suicide is warranted (Wexler et al., 2015 p.895).

Several authors have suggested that the experience of “historical trauma” may influence suicide in AI/AN (see Brave Heart and Bird, 2013); however, historical trauma has been primarily discussed from a theoretical perspective, and empirical data on the relationship between historical trauma and suicidal behaviors is lacking (Livingston et al., 2019).

Historical trauma is a term typically used to describe the intergenerational collective experience of trauma that was inflicted upon a group of people of a specific nationality, religious affiliation, or ethnicity (Evans-Campbell, 2008). Historical trauma is envisioned as both a description of trauma responses within a group of individuals, as well as, a factor capable of causing long-term distress among communities (Evans-Campbell, 2008). In addition to the PTSD-like symptoms that the actual victims of the original traumas experienced, data suggest that offspring of victims of trauma also may suffer from PTSD-like symptoms by a process often referred to as “intergenerational” trauma (Bergmann and Jucovy, 1990; Bowers and Yehuda, 2016; Danieli, 1998; Figley, 1995; Motta et al., 1994; Rosenheck, 1986; Rosenheck and Nathan, 1985). This response to trauma by the next generation is thought to be, in part, a basis of the persistent effects of historical trauma in multi-generational communities.

Over the last 15 years, there has been much interest in conceptualizing historical psychological distress in AI/AN populations in response to the histories of policies of forced acculturation, placement in boarding schools, loss of traditions, and genocide, under the construct of historical trauma as conceptualized by AI/AN authors and others (Brave Heart, 1998; Brave Heart and Bird, 2013; Braveheart-Jordan and DeBruyn, 1995; Denham, 2008; Evans-Campbell, 2008; Morgan and Freeman, 2009; Szlemko et al., 2006). While the effects of historical trauma appear to have some similarities across different ethnic and tribal groups, as pointed out by Szlemko and colleagues (Szlemko et al., 2006), “Native Americans’ uniqueness in terms of history, culture, and societal position has resulted in a distinct set of circumstances that are unlike those found in any other group”. Further, AI/AN, appear to experience a higher rate of *current* traumatic events compared to rates for other groups reported in general population surveys (Beals et al., 2002; Beals et al., 2005; Ehlers et al., 2013b; Evans-Campbell et al., 2006; Gnanadesikan et al., 2005; Manson et al., 2005; Robin et al., 1997; Sugarman and Grossman, 1996). Thus, as pointed out by Whitbeck and colleagues (Whitbeck et al., 2004a; Whitbeck et al., 2004b), the losses experienced by AI/AN people are not confined to a single catastrophic period in the past, but rather are “ongoing and present in their lives”. Thus, efforts to delineate the impacts of current trauma and historical trauma in relation to suicide in AI/AN are important to reduce the high burden of morbidity and mortality that these phenomena pose to some AI/AN communities, as well as to aid in the development of prevention, intervention and treatment programs tailored for specific AI/AN communities.

Although survey measures cannot fully describe complex phenomena, current trauma can be quantified by the use of stressful life events inventories (Green, 1996), and the presence of PTSD can be indexed by structured psychiatric interviews and symptom measures. However, indexing the nature and effects of historical trauma is more challenging and has not been widely standardized, which may account for its description in theoretical and qualitative terms, to date. Whitbeck and colleagues (Whitbeck et al., 2004a; Whitbeck et al., 2004b; Whitbeck et al., 2009) have developed two measures related to historical trauma among American Indian people: *The Historical Loss Scale* and *The Historical Loss Associated Symptoms Scale*. These scales show high internal reliability (Whitbeck et al., 2004a; Whitbeck et al., 2004b; Whitbeck et al., 2009). They have been used in both adult and adolescent AI/AN residing in the northern Midwest and east coast of the

United States, as well as in California and central Canada. Such studies have shown that the current generation of AI adults and adolescents, in the communities assessed, have frequent thoughts pertaining to historical losses, and thoughts of these losses are associated with negative feelings (Ehlers et al., 2013a) and poorer overall health outcomes (Gone et al., 2019; Soto et al., 2015; Spence et al., 2014; Wiechelt et al., 2012). However, the relationship between responses on these scales and current trauma, PTSD, and *suicide* has not been systematically investigated. This study seeks to address this gap by presenting data on trauma, including thoughts of historical trauma and its associated clinical symptoms, in relation to suicidal behaviors from a community sample of AI adults.

1.1 Aim of the study

The present report is part of a larger study exploring risk factors for mental and physical health in a community sample of American Indians (Ehlers et al., 2008; Ehlers et al., 2004a; Ehlers and Gizer, 2013; Ehlers et al., 2012; Ehlers et al., 2004b; Ehlers et al., 2001a, b, c, d; Ehlers et al., 2017; Gilder et al., 2006; Gilder et al., 2009; Gilder et al., 2007; Gilder et al., 2004). A description of the potential associations between thoughts about historical trauma, current trauma and suicide has not been reported in this AI/AN population. Therefore, the aims of the present study were: (1) to use *The Historical Loss Scale* and *The Historical Loss Associated Symptoms Scale* to describe associations with suicidal thoughts and acts; (2) to study the relationship of current traumatic events and PTSD diagnoses with suicidal thoughts and acts; and (3) to determine the concurrent associations between feelings of historical loss, current trauma and PTSD with suicidal thoughts and acts.

2. Method

2.1 Participants and settings

American Indian participants were recruited from eight geographically contiguous reservations with a total population of about 3,000 individuals. Participants were recruited using a combination of a venue-based method for sampling hard-to-reach populations (Kalton and Anderson, 1986; Muhib et al., 2001) and a respondent-driven procedure (Heckathorn, 1997) that has been described elsewhere (Gilder et al., 2004). To be included in the study, participants had to be at least 1/16th American Indian heritage, be between the ages of 18 and 70 years, and be mobile enough to be transported from his or her home to The Scripps Research Institute (TSRI). Approximately half of the participants were recruited using each method. A 10–25% rate of refusal using the venue method occurred depending on venue. The refusal rate in the respondent-driven procedure is not known. The protocol for the study was approved by the Institutional Review Board (IRB) of TSRI, and the board of Indian Health Council, a tribal review group overseeing health issues for the reservations where the recruitment was undertaken. Written informed consent was obtained from each participant after the study was fully explained.

2.2 Measures

Potential participants first met individually with research staff, and during a screening period, participants completed a questionnaire that was used to gather information on demographics, personal medical history, ethnicity, and drinking history (Schuckit, 1985).

Each participant also completed an interview based on the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA) (Bucholz et al., 1994), which was used to (1) assess diagnoses of psychiatric disorders, including PTSD, and to (2) collect lifetime history of two types of self-directed violence: suicidal thoughts including: ideation (have you ever thought about killing yourself?) and/or plans (did you have a plan? did you actually consider a way to take your life? What were you going to do?), as well as suicidal acts including: suicide attempt history (Have you ever tried to kill yourself? How did you try to kill yourself?) reported by the participants; and suicide deaths obtained from community sources (e.g., verified by public records, family/tribal informants).

The SSAGA is a semi-structured, poly-diagnostic psychiatric interview that has undergone both reliability and validity testing based on DSM-IV (Bucholz et al., 1994; Hesselbrock et al., 1999). It also has been used in another AI sample (Hesselbrock et al., 2003; Hesselbrock et al., 2000). More recently, data from the SSAGA has been used to conduct a latent class analysis of posttraumatic stress symptoms among EuroAmerican and African American participants in the Collaborative Study on the Genetics of Alcoholism (COGA) (Bender et al., 2021). This instrument has also been used to diagnose PTSD in Mexican Americans (Ehlers et al., 2016) as well as in this American Indian population (Ehlers et al., 2013a; Ehlers et al., 2013b). For the present study, a research psychiatrist/addiction specialist (DAG) made all best final diagnoses of PTSD (present vs. absent).

A supplemental trauma questionnaire assessed lifetime quantitative trauma exposure. The Stressful Life Events and Response to Stressful Life Events Scale was used (Green, 1996). To index historical trauma, *The Historical Loss Scale* and *The Historical Loss Associated Symptoms Scale* (Whitbeck et al., 2004a; Whitbeck et al., 2004b; Whitbeck et al., 2009) also were administered to each participant. These scales were added to the protocol mid-way through the study, so 447 participants out of a larger population of 933 completed the Historical Loss Scale and Associated Symptoms items; this is the subsample in this analysis.

2.3 Analyses

Data analyses were based on three specific aims. Aim 1: to describe the associations of historical trauma and associated symptoms, as assessed by *The Historical Loss Scale* and *The Historical Loss Associated Symptoms Scale*, with suicidal thoughts and acts. *The Historical Loss Scale* quantifies 12 types of losses that American Indian tribes might have experienced in the past (e.g., loss of land and language, broken treaties, etc.), and how often they are thought about these losses in the present time (daily, weekly, monthly, yearly, never, and don't know). *The Historical Loss Associated Symptoms Scale* quantifies 12 different symptoms they might have experienced as a result of thinking of those losses (e.g., anger, depression, anxiety, etc.) and how often they felt those symptoms when they talk about the losses (never, seldom, sometimes, often, always and don't know). To investigate this aim, the number and percent of respondents who endorsed feelings of historical losses and symptoms associated with these losses were tallied. Because the scales are not linear, the response options do not represent discrete intervals, and the data do not have a normal distribution, a median split of the data was used to dichotomize the two scales as either below, versus at or above the median as previously described in a prior study using the measure (Ehlers

et al., 2013a). These data were then analyzed using Pearson chi-squared tests to detect the associations of these historical trauma scores on suicidal thoughts (ideation and/or plans) and suicidal acts (attempts and deaths).

Aim 2: to study the relationship of current traumatic events and diagnoses of PTSD with suicidal thoughts and acts. To study this aim, reports of assaultive trauma and presence of a PTSD diagnosis were tallied. Chi-squared tests were used to compare participants who reported any assaultive trauma (military combat, sexual abuse, injury or assault, crime victimization) with those who did not on suicidal thoughts and acts, separately. In the next set of analyses, participants with a PTSD diagnosis were compared with those who did not meet diagnostic criteria for the disorder on suicidal thoughts and acts using chi-squared tests. In a third set of analyses PTSD (yes or no), assaultive trauma (yes or no), and gender (male or female) were entered in a logistic regression in order to determine which of these variables remained significantly associated with suicidal thoughts and/or suicidal acts.

Aim 3: to determine concurrent associations between feelings of historical loss and PTSD with suicidal thoughts and acts. For these analyses, logistic regression models were used. Historical trauma loss (median split), gender (male or female), and PTSD (yes or no) were entered into the logistic regression to determine which of these variables remained significantly associated with suicidal thoughts and/or suicidal acts.

3.0 Results

3.1 Participant Characteristics

Demographics of this sample are presented in Table 1. The sample was 43% male, most respondents were not married (83%), and 52% of the sample was under the age of 30. Most respondents (67%) had at least a high school education (completed grade 12 or had a GED) and 63% of the sample had an annual income of less than \$20,000 a year.

3.1 Historical trauma and suicide

Aim 1 describes associations of historical loss and associated symptoms with suicidal thoughts and acts. In this sample 299 (51%) individuals reported no lifetime suicidal thoughts or acts, 87 (27%) reported suicidal thoughts (ideation and/or plans), and 61 (21%) reported suicidal acts (suicidal attempt) including 4 community verified deaths, 3 males and 1 female. As shown in Figure 1, the measure of historical loss was not associated with either suicidal thoughts (Chi-squared =0.52, df=1,381; $p<0.5$) or suicidal acts (Chi-squared =0.64, df=1,355; $p<0.5$). However, the measure of historical loss associated *symptoms*, while not associated with suicidal thoughts (Chi-squared =0.2, df=1,376; $p<0.7$) was significantly associated with suicidal acts (Chi-squared =7.5, df=1,351; $p<0.006$).

3.2 Assaultive trauma, PTSD and suicide

Aim 2 was to study the relationships of suicidal thoughts and acts with current traumatic events and PTSD. A very high number (94%) of the participants reported having experienced one of the seven recent traumas of focus, which limited the variance on this variable. Limiting the traumatic exposure to only those participants who had experienced

assaultive trauma (70% of participants) revealed a significant association with both suicidal thoughts (Chi-squared =4.6, df=1,385; $p<0.03$) and suicidal acts (Chi-squared =7.7, df=1,359; $p<0.005$), as shown in Figure 1. In the second set of analyses, participants with a lifetime PTSD diagnosis were compared to those with no PTSD diagnoses and were found to be significantly more likely to experience both suicidal thoughts (Chi-Square =9.2, df=1,385, $p<0.002$) and suicidal acts (Chi-Square=11.9; df=1,359; $p<0.001$), as shown in Figure 1. When both assaultive trauma and PTSD were added in a logistic regression model also adjusting for gender, neither gender nor assaultive trauma were associated with either suicidal thoughts or suicidal acts, but PTSD remained a significant predictor of both suicidal thoughts ($B=0.6$; $p<0.04$; odds ratio =1.8; CI: 1.03,3.16) and suicidal acts ($B= 0.8$; $p<0.01$; odds ratio =2.2; CI: 1.18,4.17).

3.3 Historical trauma PTSD, gender and suicide

Aim 3, analyses determined concurrent associations between historical loss, loss-associated symptoms, gender, and PTSD with suicidal thoughts and acts. As shown in Table 2, individuals PTSD were more likely to report suicidal thoughts ($B= 0.7$; $p<0.01$; odds ratio 2.04; CI:1.17,3.56), but there were no associations of suicidal thoughts with historical loss, loss-associated symptoms or female gender. Individuals with PTSD also were more likely to have engaged in suicidal acts ($B= 0.8$; $p<0.008$; odds ratio 2.3;CI:1.24,4.21), as were individuals with higher scores on loss-associated symptoms ($B=0.7$; $p<0.04$; odds ratio=2.0;CI:1.0,4.0). There were no associations of suicidal behaviors with historical loss or female gender as shown in Table 2.

4.0 Discussion

Suicide has been increasing in incidence in the U.S. over the last 20 years to become the second leading cause of death in teens and young adults (Hedegaard et al., 2021; NIMH, 2020). American Indians and Alaska Natives (AI/AN) experience the highest burden of suicide when compared to other ethnic or racial groups, (Bolton et al., 2014; Karaye, 2022; Leavitt et al., 2018; Wilson et al., 2022). However, rates of suicide differ between tribal groups and in different regions (DHHS et al., 2009; U.S. IHS, 2015), underscoring the importance of delineating risk and resilience factors in local communities for use in the development of community-specific prevention and intervention efforts (Cwik et al., 2020; Livingston et al., 2019; Shaw et al., 2019; Trout and Wexler, 2020).

AI/AN have suffered an accumulation of negative impacts from long-standing policies of neglect, translocation, and extermination over the last two centuries, which has been referred to as the “American Indian genocide” (see Norton, 1979). The consequence of these phenomena on more recent generations of AI/AN has been operationalized as historical trauma (Brave Heart and DeBruyn, 1998; Brave Heart, 1998; Braveheart-Jordan and DeBruyn, 1995; Evans-Campbell, 2008). The community that participated in present study experienced a number of traumatic historical events potentially capable of inducing historical trauma. These included removal of children from Indian homes, forced attendance in boarding schools, loss of traditional territories, broken treaties, forced relocation, forced labor, loss of traditional sources of food, death from many infectious diseases introduced by

exposure to white people, and removal of sources of potable water from reservation lands, to name a few (Carrico, 1987). The use of the *Historical Loss Scale* to index how often this Indian community thinks and feels about these historical losses was addressed in a previous report (Ehlers et al., 2013a), which showed that many of the participants (@30%) thought about these losses “yearly or at special times”. However, about one quarter of the participants thought “daily” about several items on the scale that had to do with loss of culture. Thus, in this Indian community, having thoughts about historical losses is certainly part of their current thinking.

A general theory of historical trauma and suicide in American Indians posits that unresolved historical grief may contribute to or exacerbate the current social pathology of trauma and loss among American Indians (Brave Heart and DeBruyn, 1998; Brave Heart and Bird, 2013). Although a powerful theory scant quantitative evidence has been forwarded, prior to the present study (Livingston et al., 2019), and to our knowledge, the current study is the first to use a validated scale to index historical loss in order to explore whether thoughts about and symptoms associated with historical losses are related to *suicidal thoughts and acts* in an AI/AN community sample. In the present analyses, suicidal acts, but not suicidal thoughts, were associated with the *Historical Loss Associated Symptoms Scale*, but not with the *Historical Loss Scale*. These data suggest that participants demonstrating suicidal behaviors did not think more *often* about historical trauma than those who did not experience suicidal acts; however, when such participants thought about historical trauma, they experienced greater psychological distress symptoms, which were thereby associated with suicidal behaviors.

Whitbeck and colleagues (Whitbeck et al., 2004a; Whitbeck et al., 2004b) have questioned whether health issues and high mortality rates in AI communities might be attributed to historical causes. However, these conditions could also be related to contemporary conditions in AI communities, including economic disadvantage, high rates of discrimination, and ongoing trauma. Unfortunately, this is a difficult issue to tease apart, as AI/AN appear to be at higher risk than other US subgroups for exposure to contemporary traumatic events (Gallaher et al., 1992; Manson et al., 2005; Schiff and Becker, 1996). Trauma exposures, such as military combat, sexual violence and physical assault can lead to PTSD within Indian communities (Ehlers et al., 2013a; Gnanadesikan et al., 2005; Robin et al., 1997). While PTSD has been found to be associated with suicide in general U.S. population samples (see, for example, (Krysinska and Lester, 2010; Stanley et al., 2021)), this complex relationship has been understudied in American Indian communities.

In the present study, the relationships between historical and contemporary trauma exposure, as well as PTSD diagnoses, with risk for suicidal behaviors were investigated. The community reported experiencing very high levels of contemporary trauma, with 94% of the respondents indicating that they had experienced significant life-threatening trauma. Of those who experienced trauma, approximately one third of also qualified for a lifetime diagnosis of PTSD attributed to that trauma. In the present set of analyses, experiences of assaultive trauma were associated with both suicidal thoughts and acts until it was evaluated in the context of both gender and PTSD diagnosis. However, a lifetime PTSD diagnosis was significantly associated with both suicidal thoughts and suicidal acts, even when accounting

for historical loss and loss-associated symptoms. Thus, symptoms associated with the experience of historical trauma as well as symptoms associated with contemporary trauma both potentially influenced suicidal behaviors in this community sample. These findings, while not implying causality, suggest that prevention and treatment programs to address American Indian suicide may benefit from addressing issues related to historical losses, current PTSD and their associated symptomatology.

4.1 Strengths and Limitations

The results of this study should be interpreted in light of several limitations. The analyses were not meant to generate a comprehensive model of suicide risk in this community group, but rather to determine whether specific associations could be identified between suicidal thoughts and behaviors with historical trauma and contemporary trauma, a topic of great interest to AI communities (Brave Heart and Bird, 2013; Wexler et al., 2015). A large more powered sample would be capable of accessing additional variables associated with suicide risk. Our findings may not generalize to other American Indians in the population from which the sample was drawn or be representative of all American Indians, as rates of trauma, PTSD and suicide vary among tribes (Beals et al., 2005; Ehlers et al., 2004b; Gilder et al., 2004). We used retrospective data for lifetime measures, which are subject to recall bias and which may include a reporting bias for psychiatric symptoms. In addition, lifetime suicidal ideation and behaviors were assessed using a brief subscale of the SSAGA and death records. Validated symptoms measures, capable of assessing symptom severity and intensity of suicidal ideation, and able to index the lethality of suicidal behaviors – are recommended in follow up studies to elucidate symptom relationships, including other diagnostic variables. A prospective study of the developmental trajectories of thoughts of historical trauma and loss-associated symptoms, experiences of contemporary trauma, PTSD symptoms, and suicidal thoughts and behaviors would provide a more powerful model, which would further elucidate these relationships and evaluation of historical trauma as a causal risk factor for suicide and PTSD sequelae.

5. Conclusion

PTSD and historical trauma have an association with suicide and suicidal attempts in this American Indian community. Although further research is needed to evaluate the causal nature of these relations, these findings suggest treatment and prevention programs for American Indian suicide may benefit from addressing issues related to feelings of historical losses, PTSD, and their associated symptomatology.

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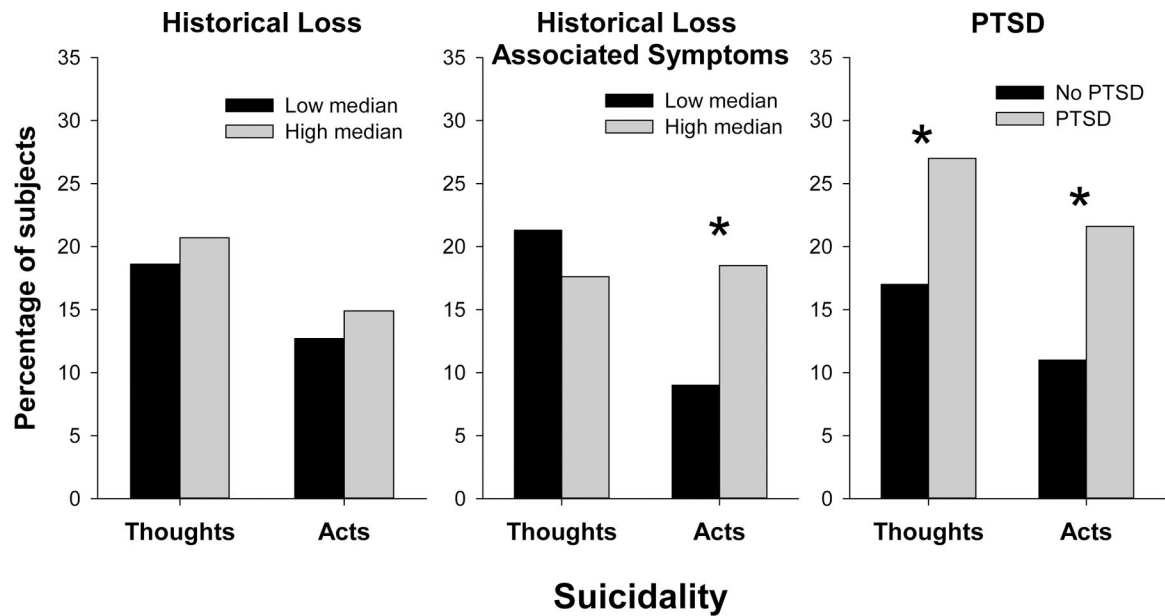


Figure 1.

Percentage of AI participants experiencing suicidal thoughts (ideation and/or plans) and suicidal acts (attempts, deaths) in three different groups. A median split of the data was used to dichotomize responses on the historical loss scale, presented on the left, and the historical loss associated symptom scale presented in the middle, as either below or at or above the median and the two groups were then compared on suicidal thoughts and acts. On the right the percent of subjects with a PTSD diagnosis or not were compared for the presence of suicidal thoughts or acts. *indicates $p < 0.05$ in logistic regression that included gender as outlined in table 2.

Table 1.

Demographics (N=447)

	N	%
Gender		
Female	255	57.0
Income < \$20,000/yr		
Yes	248	62.9
Married		
Yes	74	16.6
Assaultive Trauma		
Yes	306	68.5
Post Traumatic Stress Disorder		
Yes	111	24.8
Suicide		
Thoughts (yes)	87	19.5
Acts (yes)	61	13.6
	Mean	SD
Age	32.5	14.2
Education	11.7	1.57

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Table 2.

logistic regression odds ratios, confidence intervals and suicidality.

	suicidal thoughts (ideation, plans)		suicidal acts (attempts, deaths)	
	unadjusted OR (95% CI)	adjusted OR (95% CI)	unadjusted OR (95% CI)	adjusted OR (95% CI)
gender (male vs. female)	0.59 (0.36, 0.97)	0.63 (0.37, 1.06)	0.88 (0.50, 1.53)	1.01 (0.57, 1.81)
historical loss (median split)	1.19 (0.74, 1.92)	1.36 (0.80, 2.29)	1.25 (0.72, 2.18)	1.02 (0.56, 1.86)
historical loss associated symptoms (median split)	0.90 (0.55, 1.47)	0.71 (0.41, 1.21)	2.23 (1.24, 4.00) *	1.95 (1.05, 3.64) *
post-traumatic stress disorder diagnosis (yes vs. no)	2.24 (1.32, 3.79) *	2.04 (1.17, 3.57) *	2.75 (1.53, 4.97) *	2.31 (1.25, 4.26) *

*
p<0.05

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