RUNNING TITLE:Veteran and Nonveteran Suicidality

**SUPPLEMENTAL DIGITAL CONTENT (SDC): CHAI METHODS**

1. **CHAI Background**
   1. **Objective and Study Design.** The primary objective of CHAI was to examine the effect of military service, deployment and combat on the health and well-being of post-9/11 veterans. CHAI utilized a cross-sectional design to compare veterans and nonveterans. Survey data collection occurred between April and August 2018. A total n=20,380 participants completed the CHAI survey, including 15,170 veterans and 5,210 nonveterans). The analytic sample for this study included 19,720 participants (96.8%) with complete data on the study domains of interest. Survey data collection occurred online or by interviewer-administered computer-assisted telephone interviews (CATI). On average, the veteran survey took 62 minutes to complete, while the civilian survey took 39 minutes to complete. Follow-up neurocognitive assessments were conducted among a subsample of survey respondents (n=304). The CHAI survey assessed domains across physical and mental health and wellbeing and demographics for all participants as well as military service characteristics and experiences for the veteran group.
   2. **Veteran sampling frame.** The Fiscal Year (FY) 2015 U.S. Veterans Eligibility Trends and Statistics (USVETS) Database was used to construct the veteran sampling frame. USVETS is managed by the VA Office of Enterprise Integration (OEI), National Center for Veterans Analysis and Statistics1 and provides the most complete data available on all living US veterans by compiling information from various VA and Department of Defense (DoD) sources. Data sources which contribute to the USVETS file include, but are not limited to, the VA-DoD Identity Repository, Veterans Benefit Association (VBA) data, and Veterans Health Administration (VHA) administrative and healthcare data.2 A complex sampling design was used to select Iraq/Afghanistan-deployed and Iraq/Afghanistan era non-deployed veterans. The deployed group was sampled using stratification by branch (Army, Air Force, Marines, Navy) and component (Active Duty, Reserves/National Guard), and pre- vs. post-9/11 first activation. Women veterans were oversampled to 30% to allow assessment of gender differences across study aims. Non-deployed veterans were sampled using the same proportions across strata. Contact information for selected was updated just prior to CHAI survey recruitment to improve response rates. Incentives for participants included a $1 pre-incentive included with invitation mailing and a $50 post-incentive following survey completion. The response rate achieved (40%) was consistent with, if not higher than, what has been typically observed in other post-9/11 veteran studies (20%-30%.).3,4
   3. **Nonveteran sampling frame.** KnowledgePanel is a nationally representative online panel of the general U.S. population.5 At the time of CHAI data collection, KnowledgePanel was run by GfK, but it is now run by Ipsos. KnowledgePanel members are randomly recruited through probability-based sampling. The full panel contains about 55,000 adult panelists. The panel has been recruited by landline random digit dial (RDD) telephone methodology from 2000 to 2009, and since then by address-based sampling including oversampling of hard-to-reach populations less likely to participate in surveys, including Hispanics and young adults 18-24 years old. KnowledgePanel chosen for CHAI because of the panel’s proven success in obtaining high response rates to web-based surveys. The panel is also well characterized on many variables and characteristics of interest allowing for satisfaction of sample construction to meet the requirements initially identified for the veteran sampling frame. For CHAI, the specific requirements included age and gender quotas to match the frame distribution for these variables in the deployed veteran sample. Active panel members (N=7895) were initially sampled to participate; to achieve recruitment targets for 18-39-year-olds, an additional sample was drawn from inactive panel members (N=8,948). The latter represents panel members characterized as inactive because of waning engagement with solicitation for survey participation. KnowledgePanel members received incentives for participation equivalent in value to those provided to veterans: $1 with invitation and $50 for a completed survey. The KnowledgePanel administrator has a proprietary method for awarding points (equivalent to cash value) that can be used in exchange for goods or cash equivalent payments. CHAI achieved a response rates of 56.5% for active panelists and 8.4% for inactive panelists. The lower response rate for inactive panelist was expected given how those panelists are characterized.
2. **Analytic Details**
   1. **Computing time at risk.** As described in the manuscript, time was an important covariate in this analysis, allowing meaningful comparisons to be made regarding prevalence of SI and SA across study groups and time periods even though participants spent variable amounts of time in the majority of the time periods assessed. Time at risk was computed for all participants based on age groups (<18 and ≥18) and on military service for veterans (before, during, after). For childhood/adolescent SI and SA (<18 years), all individuals were considered at risk for 9 years (i.e., from age 10 to age 18), due to the low likelihood of experiencing SI or SA before 10 years of age. For adulthood SI and SA (≥18 years) years at risk was computed as age at survey completion minus 18. Among veterans, years at risk during the pre-military time period was calculated similar to that for childhood/adolescent SI and SA, as age at entry into military service minus 9. Years at risk during service was computed as the years between entering and separating from military service; and years at risk post-military service was computed as the time from separation to survey completion.
   2. **Weighting.** The dataset included *main population weights* that accounted for probability sampling design and stratification, non-response bias adjustment, and population calibration. In addition, 200 rescaling bootstrap replicate weights were created.6 An additional set of *standardization weights* (and 200 replicates) was created for the nonveteran sample using iterative proportional raking in R v3.6.0 with the “survey” package.7 These weights standardized nonveterans to the age-/sex-/race-ethnic-/education distribution of veterans and were used in models comparing veterans and nonveterans. Main population weights were used for all other within-group analyses and comparisons.
3. **References**
4. VA National Center for Veterans Analysis and Statistics. Available at: https://www.va.gov/vetdata/ Accessed: August 13, 2020.
5. Hauser, G. United States Veterans Eligibility Trends and Statistics (USVETS): A New Data Source with Socioeconomic Variables. VA HSR&D VIReC Database and Methods Seminar. May 6, 2019. Available at: <https://www.hsrd.research.va.gov/for_researchers/cyber_seminars/archives/video_archive.cfm?SessionID=3626>
6. Coughlin SS, Aliaga P, Barth S, et al. The effectiveness of a monetary incentive on response rates in a survey of recent U.S. veterans. Surv Pract 2011;4(1):1–8.
7. Defense Manpower Data Center (DMDC), Research, Surveys, and Statistics Center (RSSC). Status of forces surveys of active duty members (2013 & 2014SOFS-A): briefing on leading indicators, Military One-Source, financial health, family life, access to technology, impact of deployments, and permanent change of station (PCS) moves. 2016. Available at: https://download.militaryonesource.mil/12038/MOS/Reports/SOFS-A\_Briefing\_ 20160311.pdf. Accessed February 29, 2020.
8. Ipsos. KnowledgePanel. Available at: https://www.ipsos.com/en-us/solutions/public-affairs/knowledgepanel Accessed: August 13, 2020.
9. Rao JK, Wu CJ, Yue K. Some recent work on re-sampling methods for complex surveys. Survey Methodology 1992;18:209-217.
10. Lumley T. Survey: analysis of complex survey samples. R package version 3.35-1. 2019.