SUPPORTING STATEMENT – PART B

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

If the collection of information employs statistical methods, the following information should be provided in this Supporting Statement:

1. Description of the Activity

Goal: Identify barriers and facilitators of accessing PTSD treatment that are most important to the Special Operations Forces (SOF) community (potential respondent universe) via an online confidential survey of all relevant stakeholders in the healthcare delivery process (N = 1,536). Stakeholders will include operators/enablers, healthcare providers, leadership, and policy makers from all SOF commands (Army, Air Force, Naval Special Warfare, Marine).

Data Analysis for Survey:
Demographics. We will calculate descriptive statistics for variables of interest and identify the proportion of the components that represents each strata (SOF role and career level).

Main Outcome: Greatest Barriers and Most Helpful Facilitators. Barriers and facilitators from the Barriers and Facilitators of Mental Health Treatment for SOF measure and the PSBC will be examined in two ways: 1.) The proportion of the SOF community that endorses each barrier and facilitator (item scores of ≥ 4 on either measure), and 2.) The barriers and facilitators that are rated most severe by the SOF community (i.e. items with the highest mean scores). While a barrier might be frequently endorsed, it may be easy to overcome. Therefore, the five barriers and five facilitators with the highest mean scores will be the main outcome variables.

We will use ANCOVA to determine if the subgroups (USASOC, USAFSOC, NSW, MARSOC; operator/enabler vs. other SOF personnel) have different mean scores on the top five barriers and five facilitators. With a minimum sample size of 384 participants per command and a model with 4 covariates (e.g. career level, number of deployments, etc.), we will have 85% power to detect a variation in means of 0.10. This is assuming a standard deviation of 1.0 within groups and a Bonferroni adjusted significance level of 0.005 (0.05 alpha level/10 barriers and facilitators). If SOF operators/enablers identify different barriers and facilitators than those in other SOF roles, it would suggest that current outreach efforts may not be targeting the most salient concerns that influence operators/enablers. Understanding any subgroups differences in endorsed barriers and facilitators will allow us to generate more realistic policy recommendations.

Exploratory Subgroup Analysis: Previous Mental Health Care. PTSD treatment is inconsistently utilized among symptomatic SOF personnel.[2] We want to better understand which barriers, facilitators, and psychological variables (e.g. PCL-5, ISI, DAR-5, etc.) are statistically related to engagement in past or current mental health care as these can guide future implementation research. After identifying those who have engaged in mental health care, we will use multivariable logistic regression to determine the association between barriers and facilitators (binary independent variables) and the engagement in mental health care (binary dependent variable), which is consistent with studies that examined determinates of service utilization in

other populations.[27,69] We will adjust analysis for potential confounders including age and years in service.

Data Analysis for Interviews:
Interviews will be analyzed using thematic content analysis, including the steps below:

1. *Familiarization:* Two coders will immerse themselves in the interviews by reading each transcript after the interviews are conducted. This will allow for themes to emerge and the coders to provide feedback to the interviewer if s/he is missing topics or could be asking more probing questions.
2. *Initial coding:* Open coding (or a brief description) at the sentence level will be used first and then a list of codes (forced coding) will be organized into categories.[75]
3. *Generating themes:* The categories above will be grouped into themes or patterns among the data. The research team and current members of the Command Advisory Group will review the preliminary themes identified by the coders. This will ensure that subject matter experts provide guidance about language and culture before themes are set and compared against interview content.
4. *Review themes:* Coders will return to the data set and compare the themes to the interview content. This will allow coders to determine if the themes need to be refined.
5. *Naming themes:* Themes will be named with succinct and understandable names. The study team and Command Advisory Group again will be involved in this process as names should match culture and care provided to SOF.
6. *Write up:* Results of the interviews will be written up, summarized, and presented (see Deliverables below).

2. Procedures for the Collection of Information

Sample Size for Survey. To collect a representative sample, we plan to recruit a minimum of 64 survey responders per strata [3 career levels (early, middle, late) X 2 SOF roles (operator/enabler vs. all other roles)] in each component to allow for sufficiently narrow confidence intervals around estimates. This equates to a minimum n = 64 personnel X 6 strata = 384 surveys needed per component.[46] This will ensure that the margin of error is no greater than 5%, using a 95% confidence interval for each component. The overall margin of error across commands will be no greater than 2.5%. Other SOF population studies have achieved a 20% response rate.[7]

Table 1. Distribution of Unique SOF Community Members and Sample Needed from 4 Four SOF Components

Command	Size of Command	% of SOF Population	Minimum Surveys Needed	Minimum % of Command Needed	Margin of Error with Minimum Surveys
USASOC	35,000	50%	384	1%	5%
USAFSOC	16,800	24%	384	2%	4.9%
NSW	10,500	15%	384	4%	4.9%
MARSOC	3,500	5%	384	11%	4.7%
Total	**65,800**	**100**	**1,536**	**2%**	**2.5%**

Sample Selection and Size for Qualitative Interviews. We will conduct qualitative interviews with a nested sample of 24 SOF operators and enablers who completed the survey from Aim 1. It

is important to sample personnel from across the career span, as a study that examined Army SF within an average of 4 years of serving in SOF found lower rates of probable PTSD (2.2%), than studies that examined the entire SOF cohort with personnel in later stages of their careers (8%).[7] Thus we will stratify our sample by career level [early / middle career from 1-15 years (n=12); late career / veteran ≥16 years (n=12)]. We will also recruit SOF operators/enablers who have overcome barriers and accessed mental health care (~50% accessed mental health care). Finally, we will aim to have at least two personnel from all the components (USASOC, USAFSOC NSW, MARSOC). While the sample will be representative in terms of previous mental health treatment and different SOF components, we will stratify our data analyses only by career level.

3. Maximization of Response Rates, Non-response, and Reliability

Our method of partnering with stakeholders is of upmost importance to accomplish the study within the DoD environment. The Command Advisory Group members are subject matter experts on PTSD and currently work within the DoD system. They will provide guidance on DoD infrastructure and access to the email listservs which we will use for recruitment at the commands. Additionally, the study team has active research and clinical collaborations with USSOCOM headquarters and other SOF commands via TBI Center of Excellence, which will provide expertise on DoD culture and policy.

The study team provides clinical care to SOF personnel from around the country via the James A. Haley Veterans' Hospital polytrauma clinic. The team has demonstrated the ability to recruit SOF into longitudinal research studies (LIMBIC and TBI Model Systems). Additionally, the team is integrated with providers who treat SOF at San Diego and Ft. Bragg via the TBI Center of Excellence.

We will check the percentages of each command that complete the survey. If we are not receiving a representative sample in terms the different commands after we email the survey we will post study flyers in the clinics. We will also reach out to leadership and psychologists at each command who can post study flyers. The early partnership with command leadership and psychologists are designed to increase support for the study which will assist with recruitment.

4. Tests of Procedures

The PI has conducted similar studies in the conventional forces and tested out the procedures including the electronic data collection method and survey measures. See publication for more details:

Miles SR, Sayer NA, Belanger HG, Venkatachalam HH, Kozel FA, Toyinbo PA, McCart JA, Luther SL. Comparing Outcomes of the Veterans Health Administration's Traumatic Brain Injury and Mental Health Screening Programs: Types and Frequency of Specialty Services Used. Journal of Neurotrauma. 2023 Jan 1; 40(1-2):102-111.
https://pubmed.ncbi.nlm.nih.gov/35898115/

5. Statistical Consultation and Information Analysis

a. Name and telephone number of individual(s) consulted on statistical aspects of the design.
Tea Reljic, MPH, M.S. (Co-I) Ms. Reljic is a biostatistician in the Morsani College of Medicine in the Research Methodology and Biostatistics Core at USF and a without compensation employee at the James A. Haley Veterans' Hospital (JAHVH). Ms. Reljic will be the lead biostatistician on the project. She will be responsible for monitoring data accuracy, meeting with the study team, and providing regular reports regarding cleaning and preparation of data, implementing the statistical analysis plan, and aid in interpretation and dissemination of study findings. Cell: 813-974-7806.

b. Names and organization of person(s) who will actually collect and analyze the collected information.
Lead statistician: Tea Reljic, MPH, M.S. See contact information above.

Data manager: Hari Venkatachalam, MPH. Mr. Venkatachalam is a data manager and statistician that has experience managing data for single and multi-site VA research studies. He was the data manager for Dr. Miles' previous study that used Qualtrics to survey a national sample of veterans with traumatic brain injury and mental health disorders. Mr. Venkatachalam's responsibilities include development of the survey in Qualtrics and overseeing data quality. Personal cell: 813-344-9702. Work cell: 813-614-6998.

Primary Investigator: Shannon Miles, PhD. Dr. Miles is a staff clinical psychologist in the Mental Health Research Service at the James A. Haley Veterans' Hospital (JAHVH) and assistant professor in the Department of Psychiatry & Behavioral Neurosciences, Morsani College of Medicine, University of South Florida (USF). She is an expert on measuring and treating PTSD and comorbidities including TBI and aggression. She has conducted studies on national samples of veterans, and both treats and conducts research on Special Operations Forces (SOF). Cell: 256-348-9962.