

Annual Technical Progress Report

Front Cover

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TITLE:	Improving universal suicide prevention screening in primary care by reducing false negatives
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14. ABSTRACT The primary aim of the proposed project is to develop a shortened version of the Suicide Cognitions Scale (SCS) and to evaluate its efficacy as a universal suicide prevention screen for use in military primary care clinics. We propose to achieve this aim by accomplishing the following objectives: (a) to develop a brief alert algorithm that can be used by primary care providers to accurately identify high-risk patients; (b) to improve the accuracy of universal suicide prevention screening methods by reducing false negative rates; and (c) to systematically quantify false negative rates across various patient subgroups (e.g., gender, race, age, deployment history, etc.) to identify those patient subgroups for whom the screening algorithm is most useful and accurate. Data collection is still in progress. There are no research findings to report at this time.					
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Table of Contents

1. INTRODUCTION.....	4
2. KEYWORDS.....	4
3. ACCOMPLISHMENTS.....	4
3.1. What were the major goals of the project?.....	4
3.2. What was accomplished under these goals?.....	5
3.3. What opportunities for training and professional development has the project provided?.....	6
3.4. How were the results disseminated to communities of interest?.....	6
3.5. What do you plan to do during the next reporting period to accomplish the goals?.....	7
4. IMPACT.....	7
4.1. What was the impact on the development of the principal discipline(s) of the project?.....	7
4.2. What was the impact on other disciplines?.....	7
4.3. What as the impact on technology transfer?.....	7
4.4. What as the impact on society beyond science and technology?.....	7
5. PROBLEMS/ISSUES:.....	7
5.1. Changes in approach and reasons for change.....	7
5.2. Actual or anticipated problems or delays and actions or plans to resolve them.....	7
5.3. Changes that had a significant impact on expenditures.....	7
5.4. Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents.....	7
6. PRODUCTS:.....	7
6.1. Publications, conference papers, and presentations.....	7
6.2. Website(s) or other Internet site(s).....	8
6.3. Technologies or techniques.....	8
6.4. Inventions, patent applications, and/or licenses.....	8
6.5. Other products.....	8
7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS.....	8
7.1. What individuals have worked on the project?.....	8
7.2. Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?.....	9
7.3. What other organizations were involved as partners?.....	9

1. Introduction

The primary aim of the proposed project is to develop a shortened version of the Suicide Cognitions Scale (SCS) and to evaluate its efficacy as a universal suicide prevention screen for use in military primary care clinics. We propose to achieve this aim by accomplishing the following objectives: (a) to develop a brief alert algorithm that can be used by primary care providers to accurately identify high-risk patients; (b) to improve the accuracy of universal suicide prevention screening methods by reducing false negative rates; and (c) to systematically quantify false negative rates across various patient subgroups (e.g., gender, race, age, deployment history, etc.) to identify those patient subgroups for whom the screening algorithm is most useful and accurate.

2. Keywords

Suicide prevention, primary care, suicide screening

3. Accomplishments

3.1. What were the major goals of the project?

Task 1: Obtain IRB approvals

- 1a. Initiate IRB proposals (months 1-3)
- 1b. Complete quarterly and annual reports to all IRBs (months 1-48)
- 1c. Complete final report to IRB (month 48)

Task 2: Hire and train staff

- 2a. Hire and train research manager at University of Utah (months 1-3)
- 2b. Hire and train site evaluators (months 6-20)

Task 3: Begin and complete baseline data collection

- 3a. Begin enrollment and baseline data collection (months 12-26)
- 3b. Continue baseline data collection (months 13-42)
- 3c. Complete baseline data collection (month 42)

Task 4: Begin and complete longitudinal tracking and follow-up assessments

- 4a. Begin longitudinal tracking and follow-up assessments (month 18)
- 4b. Continue longitudinal tracking and follow-up assessments (months 19-48)
- 4c. Complete longitudinal tracking and follow-up assessments (month 48)

Task 5: Data analysis, manuscript writing, report writing

- 5a. Complete data analyses (months 26-48)
- 5b. Manuscript and report writing (months 28-48)

Completion of tasks:

- 1a. Complete
- 1b. Ongoing
- 1c. Not yet started
- 2a. Complete
- 2b. Complete
- 3a. Complete
- 3b. Complete
- 3c. Complete
- 4a. Complete
- 4b. Ongoing
- 4c. Not yet started
- 5a. Ongoing
- 5b. Not yet started

3.2. What was accomplished under these goals?

Major activities:

1. As of 30-SEPT-2017 new Research Assistant Tim Hope hired, trained and added to IRB
2. On 30-NOV-2017 approval was received to add Naval Medical Center Lejeune as a site.
3. As of 21-DEC-2017 all study staff IRB documentation updated.
4. New follow up interviewer, Kim Arne and new research assistant, Johnnie Young, hired, trained and added to the IRB as of 24-JAN-2018.
5. Enrollment started at NMCL on 07-MAR-2018.
6. Enrollment concluded at MAFB on 27-APR-2018
7. On 11-JUN-2018 received IRB approval to provide compensation for 6 and 12 month follow up interviews.
8. Enrollment concluded at NMCP on 30-JUL-2018
9. A 12 month no-cost extension was approved on 27-AUG-2018.
10. Enrollment concluded at Ft Carson and NMCL on 31-AUG-2018
11. Task 3 had been completed and Task 4 is ongoing. Enrollment at all sites has concluded. Follow-up assessments (1-week, 6-months, 12-months) for all study participants are ongoing.
12. Baseline data collection: 2,676 subjects have been enrolled since the study's start (1,339 new enrollees in FY17-18). Overall, 330 are from Hill AFB, 1,643 are from NMCP, 374 are from Ft Carson, 56 are from MAFB and 273 are from Naval Medical Center Lejeune.
13. Longitudinal tracking and follow-up assessments: A total of 163/2676 (6%) participants have withdrawn from the study thus far.
 - a. Overall follow-up rate: 836/1290 (65%) participants due for a 12-month interview have completed either a 6 or 12 month follow up interview.
 - i. A total of 1418/2676 1-week follow up calls have been completed thus far (53% completion rate).
 - ii. A total of 1016/1947 6-month follow up calls have been completed thus far (52% completion rate).
 - iii. A total of 719/1290 12-month follow up calls have been completed thus far (56% completion rate)
14. Thus far, outcome events (e.g., suicidal behaviors during follow up) have occurred at the expected rate and in line with power calculations.

Specific objectives:

1. Continue follow up assessments for Naval Medical Center Portsmouth, Fort Carson, McConnell AFB, Naval Medical Center Lejeune, and Hill AFB.
2. Complete data cleaning and begin data analysis.

Objective 1 is in progress. Progress on Objective 2 is beginning now that baseline data collection is complete.

Findings

Initial Results from baseline data collection were presented at 2 conferences:

May, A. M., Bryan, C. J., Allen, M., Harris, J., Bryan, A., Storms, M., Enright, B., Taylor, K., & Wine, M. (2018, April). *Screening for suicide risk in primary care: Limitations of the PHQ-2 and PHQ-9*. Paper presented at the 51st annual meeting of the American Association of Suicidology (AAS), Washington, DC.

The Patient Health Questionnaire-2 (PHQ-2) and the Patient Health Questionnaire-9 (PHQ-9) are commonly used instruments to screen for suicide risk or further evaluation in primary care settings, however it is unknown how well they perform against other measures in detecting current suicidal thoughts. This project examined this question among a sample of active duty service members, retirees, and dependents attending military primary care clinics. Participant include 1,461 individuals attending 4 military primary care clinics. Participants completed self-report measures,

including the PHQ-2, PHQ-9, Suicide Cognitions Scale, and a self-report version of the Self Injurious Thoughts and Behaviors Interview. A history of suicidal thoughts was reported by 36% of participants, while 10% reported a history of suicide attempt. Eight percent of participants reported past month suicide ideation. Of the participants who endorsed suicide ideation in the past month, 50% were missed by the PHQ-2 cut-off. Further, 40% of participants who endorsed past month ideation on the SITBI, denied ideation on the PHQ-9 suicide ideation item. Finally, future episodes of suicide ideation were forecast by 22% of participants, while 7% anticipated they would make a suicide attempt in the future. Of these participants, only 35% screened positive on the PHQ-2. These results suggest significant limitation to current screening tools in detecting current and future suicide risk. Note that data collection is ongoing and results are preliminary.

May, A. M., Bryan, C. J., Thomsen, C., Allen, M., Harris, J., Bryan, A., Clemans, T., Storms, M., Fullerton, C., Enright, B., Taylor, K. (2017, November). *Characteristics of nonsuicidal self-injury among military personnel and their dependents*. In A. Brausch (Chair). Self-harm Behavior Does Not Discriminate: Nonsuicidal Self-Injury and Suicide Across Diverse Populations. Symposium presented at the 51th annual meeting of the Association for Behavioral and Cognitive Therapies (ABCT), San Diego, CA.

Participants include 804 service members and dependents recruited from primary care clinics at two military installations. The prevalence, methods, onset, duration, recency, and future likelihood of NSSI, as well as suicidal thoughts and behaviors were compared across three groups: the Navy, the Air Force, and dependents. Due to widely found sex differences in NSSI and sex disparities across participant groups, analyses were separated by sex. NSSI was more common among women (22%), than men (9%) and more common among Active Duty women (27%) compared to Dependent women (13%). Cutting (75%) and hitting (57%) were the most common methods used across groups and sex. There were no differences by group in age of NSSI onset nor duration of NSSI. However, women had a younger age of onset, with 75% reporting first NSSI before age 17, compared to 46% of men, and a longer duration of NSSI behavior than men. Nineteen percent of those with lifetime NSSI reported past-year NSSI. There were no differences by sex or group in recency of NSSI nor in the predicted likelihood of future NSSI behavior. Regarding the relationship between suicide and NSSI, results were consistent across groups; 81% of those reporting NSSI also reported suicide ideation, regardless of sex. Across groups, 33% of injurers reported a suicide attempt. There was a non-significant trend ($p = .09$) that more men (42%) reported attempts than women (26%). Results suggest that characteristics of NSSI are more similar than different across the Navy and Air Force. Additionally, many of the gendered NSSI patterns found in civilian samples were mirrored in this military sample. Note that data collection is ongoing and results are preliminary.

3.3. What opportunities for training and professional development has the project provided?

One postdoctoral fellow involved in PRISM presented her work at academic conferences, specifically the American Association of Suicidology and the Association for Behavioral and Cognitive Therapies. These activities contributed to her professional development. This postdoctoral fellow accepted a faculty appointment within the past few months as an assistant professor of psychology. One graduate student was involved in project management and completing follow up interviews, contributing to her training. One research associate attended a national conference on suicide research.

3.4. How were the results disseminated to communities of interest?

Initial findings from analyses of baseline data were presented at the American Association of Suicidology annual meeting (April 2018) and the Association for Behavioral and Cognitive Therapies Conference (November 2017).

3.5. What do you plan to do during the next reporting period to accomplish the goals?

During the next reporting period we plan to complete follow up interviews, data cleaning and data analysis.

We began to provide incentives for follow up interviews on June 15, 2018. Since that time completion rates of 6 month interviews have evidenced a 20% increase (from approximately 50% to 60%). Many participants are still in the process of being contact, thus we anticipate that participation rates will only continue to improve. Additionally, evaluators report that participants reply to requests for interviews more rapidly and are more likely to provide updated contact information.

4. Impact

4.1. What was the impact on the development of the principal discipline(s) of the project?

Nothing to Report.

4.2. What was the impact on other disciplines?

Nothing to Report.

4.3. What as the impact on technology transfer?

Nothing to Report.

4.4. What as the impact on society beyond science and technology?

Nothing to Report.

5. Problems/Issues:

5.1. Changes in approach and reasons for change

Nothing to Report.

5.2. Actual or anticipated problems or delays and actions or plans to resolve them

There are no anticipated problems or delays at this time.

5.3. Changes that had a significant impact on expenditures

Nothing to Report.

5.4. Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents

Nothing to Report.

6. Products:

6.1. Publications, conference papers, and presentations

May, A. M., Bryan, C. J., Allen, M., Harris, J., Bryan, A., Storms, M., Enright, B., Taylor, K., & Wine, M. (2018, April). *Screening for suicide risk in primary care: Limitations of the PHQ-2 and*

PHQ-9. Paper presented at the 51st annual meeting of the American Association of Suicidology (AAS), Washington, DC.

May, A. M., Bryan, C. J., Thomsen, C., Allen, M., Harris, J., Bryan, A., Clemans, T., Storms, M., Fullerton, C., Enright, B., Taylor, K. (2017, November). *Characteristics of nonsuicidal self-injury among military personnel and their dependents*. In A. Brausch (Chair). *Self-harm Behavior Does Not Discriminate: Nonsuicidal Self-Injury and Suicide Across Diverse Populations*. Symposium presented at the 51th annual meeting of the Association for Behavioral and Cognitive Therapies (ABCT), San Diego, CA.

6.2. Website(s) or other Internet site(s)

Nothing to Report.

6.3. Technologies or techniques

Nothing to Report.

6.4. Inventions, patent applications, and/or licenses

Nothing to Report.

6.5. Other products

Nothing to Report.

7. Participants & Other Collaborating Organizations

7.1. What individuals have worked on the project?

Personnel	Role	Percent Effort
Bryan, Craig	Principal Investigator	0.17
Allen, Michael	Co-Investigator	0.10
May, Alexis	Postdoctoral Research Coordinator	1.00
Harris, Julia	Research Manager	1.00
Bryan, AnnaBelle	Evaluator	0.10
Williams, Sean	Evaluator	1.00
Theriault, Jacqueline	Evaluator	1.00
Cheney, Tyler	Evaluator	1.00
Arne, Kim	Evaluator	1.00
Brady, Jerry	Research assistant	1.00
Young, Johnnie	Research assistant	1.00
Larson, Cole	Research assistant	1.00
Smith, Logan	Research assistant	1.00
Hope, Tim	Research assistant	1.00
Russell, William	Research assistant	1.00

7.2. Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

The PI (Bryan) has received several new grants during the past year. Updated effort distributions have been submitted to the Scientific Officer as a part of those grant awards. These new grants do not impact the PI's commitment or work effort on the present project.

7.3. What other organizations were involved as partners?

Naval Health Research Center
Navy Bureau of Medicine

Improving universal suicide prevention screening in primary care by reducing false negatives

1304600 / Universal suicide prevention screens

W81XWH-14-1-0272



PI: Craig J. Bryan, PsyD, ABPP

Org: University of Utah

Award Amount: \$3,441,421

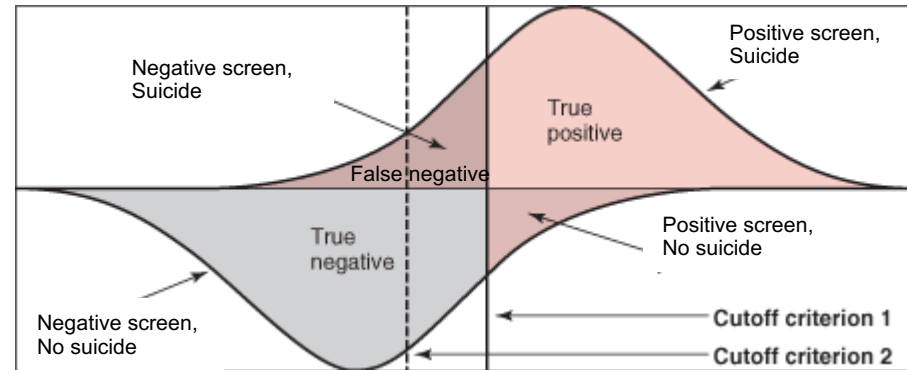
Study/Product Aim(s)

•Objective: To improve the accurate detection of individuals at risk of suicidal behavior by assessing chronic as well as acute suicide risk.

•Aim: To reduce current high rates of false negatives resulting from universal suicide prevention screening in military primary care clinics

Approach

Patients at military primary care clinics (n > 5000) will complete several self-report measures, including the SCS and current screening tools used in the military (i.e., PHQ2 and PHQ9). Follow-up assessments will be conducted at 6 and 12 months to determine the incidence of suicide attempts. Analyses will determine which screening items best predict suicide attempts in the full sample and in patient subgroups.



Accomplishments in FY 17-18: 1,339 participants were enrolled (NMCP:1643; MAFB:56; Ft Carson:374; NMCL:273) for a total of 2,676 participants. Thus far, 1,418 completed 1 week follow ups, 1,016 completed 6 month follow ups, and 719 completed 12-month follow ups. Enrollment completed. Approval for compensation for follow up interviews obtained.

Timeline and Cost

Activities FY	14	15	16	17	18
IRB approvals, database construction, staff hiring & training	█				
Participant enrollment, completion of baseline surveys, follow-up interview		█	█	█	█
Data analyses, manuscript and report writing, dissemination of results				█	█
Estimated Budget (\$K)	\$896	\$824	\$848	\$873	NCE

Goals/Milestones

CY14 Goal – IRB approval

Obtain IRB approval

CY15 Goal – Initiate data collection

Hire research staff

Begin participant enrollment

Begin 6-month follow-up assessments

CY16 Goal – Continue participant enrollment

Continue enrollment

Continue 6 and 12-month follow-up assessments

CY17 Goal – Continue follow-up assessments

Continue enrollment

Continue 6 and 12-month follow-up assessments

Analyze data and disseminate results

CY18 Goal – Complete follow-up assessments

Complete enrollment

Continue 6 and 12-month follow-up assessments

Analyze data and disseminate results

Comments/Challenges/Issues/Concerns

• A no cost extension was obtained to complete follow up interviews

Budget Expenditure to Date

Projected Expenditure: \$3,441,421.00

Actual Expenditure: \$2,695,743.95

Updated: 31 Aug 2018