

AWARD NUMBER: W81XWH-16-1-0507

TITLE: Risk and Resiliency for Dementia: Comparison of Male and Female Veterans

PRINCIPAL INVESTIGATOR: Kristine Yaffe, MD

RECIPIENT: Northern California Institute for Research and Education
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13. SUPPLEMENTARY NOTES

14. ABSTRACT The goal of this project is to identify key factors associated with risk and resiliency for cognitive impairment and dementia in older Veterans, which we carried out in Year 2 by planning and conducting analyses for AIMS 1-3. For AIM 1, we finished an analysis among female Veterans aged 65+ on prevalence of dementia and medical and psychiatric conditions. We found that about half of female Veterans with dementia had ≥ 1 medical comorbidity and about one quarter had ≥ 1 psychiatric condition. These results were presented at the 2018 Alzheimer's Association International Conference and were submitted for publication and are under review. For AIM 2, we finished an analysis in a cohort of 109,140 female Veterans on whether PTSD, TBI, and depression alone or in combination, increases dementia risk. We found females with these military-related risk factors had 70-90% increase in dementia risk; multiple risk factors increased dementia risk two-fold. These results were submitted for publication and are in press. For AIM 2, we also completed an analysis in a cohort of 70,864 female Veterans aged 55+ to describe effects of military sexual trauma (MST) with related factors and found that women Veterans with a positive MST screen were more likely to have chronic pain, back pain, and sleep disorders. We wrote up these findings for a presentation at the 2018 International Society for Traumatic Stress Studies Annual Meeting and plan submit a manuscript for publication in the next few months. For AIM 3, we will further examine whether differences in risk factors and mortality exist in older Veterans with dementia. Findings highlight the importance of identifying risk and resiliency factors for dementia, particularly in older female Veterans.

15. SUBJECT TERMS
Dementia, Women, aging, cognitive impairment (CI), Alzheimer's Disease (AD), Traumatic brain injury (TBI), Post-Traumatic Stress Disorder (PTSD)

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1. **INTRODUCTION:** Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.

Cognitive impairment and dementia are major contributors to declines in functional independence. To date, however, prior work has primarily focused on male Veterans, despite that the overall number of female Veterans is increasing with a related rise in the population of older female Veterans at risk for dementia. To further our knowledge of effects between dementia, gender, and risk factors of cognitive impairment, our goal is to identify and examine key health and military-related factors linked with risk and resiliency for cognitive impairment in older Veterans. We hypothesize that older female Veterans have unique risks for cognitive impairment and dementia, with additive increases in risk for factors that are related to military service, such as post-traumatic stress disorder and traumatic brain injury. We will capitalize on our prior work with the Veterans Health Administration National Patient Care Database, by using data from this well-defined, existing cohort of Veterans age 55+ to gain key insights into risk factors that are associated with cognitive impairment and dementia in older female Veterans.

2. **KEYWORDS:** Provide a brief list of keywords (limit to 20 words).

Dementia, Women, aging, cognitive impairment (CI), Alzheimer’s Disease (AD), Traumatic brain injury (TBI), Post-Traumatic Stress Disorder (PTSD)

3. **ACCOMPLISHMENTS:** The PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency Grants Officer whenever there are significant changes in the project or its direction.

What were the major goals of the project?

List the major goals of the project as stated in the approved SOW. If the application listed milestones/target dates for important activities or phases of the project, identify these dates and show actual completion dates or the percentage of completion.

1. Planning and regulatory approval: Months 1-5
 - Study IRB protocols were approved by UCSF IRB and by HRPO in Year 1 Quarter 1.
 - We submitted and received approval to receive data from the VHA NPCD.
2. Obtain data from the VHA NPCD: Months 6-12.
 - In Year 1 Quarter 2, we submitted and received approval to receive data from the VHA NPCD.
 - In Year 1 Quarter 3, we cleaned and prepared the data for analysis.
3. Specific AIM 1: Months 12-19.
 - We completed one analysis: We presented the results at a conference. We also completed a manuscript and submitted it for publication.
4. Specific AIM 2: Months 20-26
 - We completed two analyses: (1) For the first analysis, we presented the results at a conference and we also submitted a manuscript for publication. (2) For the second analysis, we presented the results at a conference and we are currently writing up the results for publication.
5. Specific AIM 3: Months 27-33
 - Nothing to report.

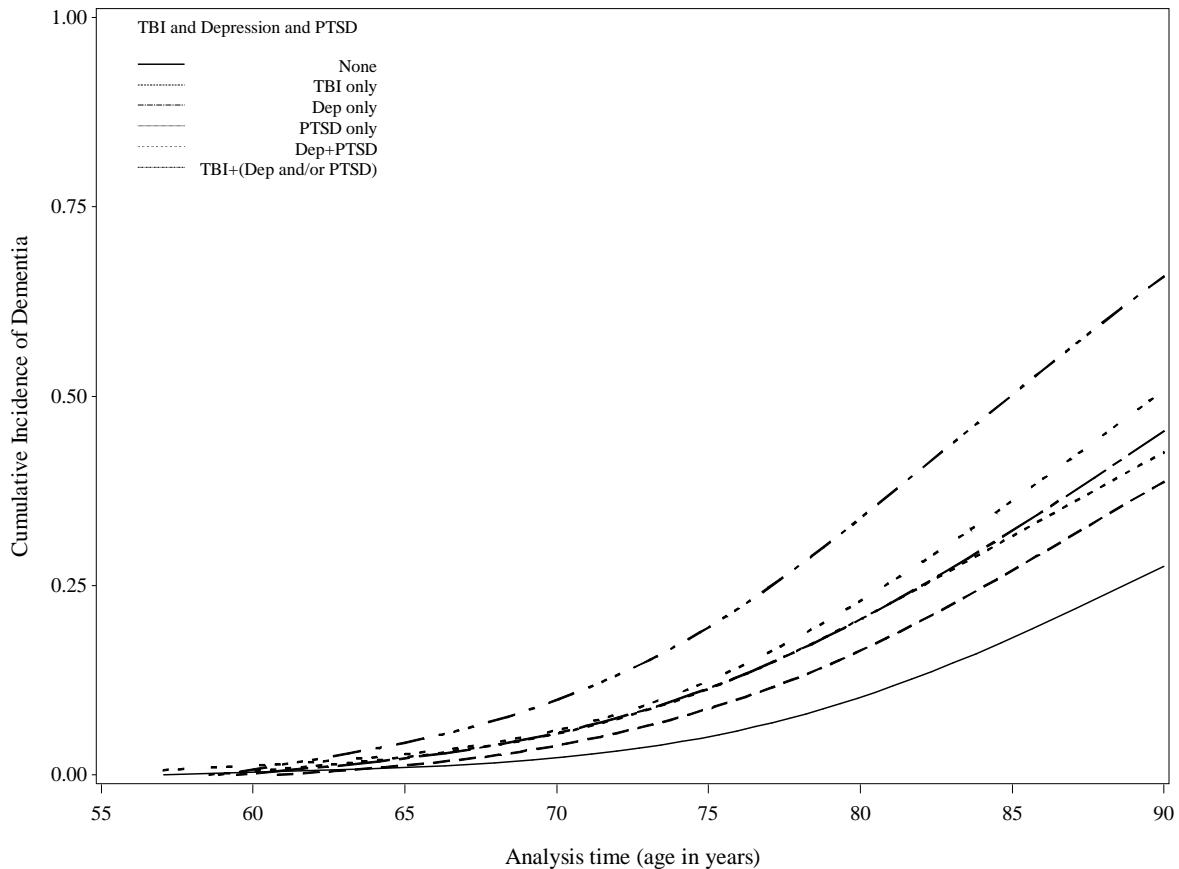
What was accomplished under these goals?

For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results or key outcomes, including major findings, developments, or conclusions (both positive and negative); and/or 4) other achievements. Include a discussion of stated goals not met.

Description shall include pertinent data and graphs in sufficient detail to explain any significant results achieved. A succinct description of the methodology used shall be provided. As the project progresses to completion, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.

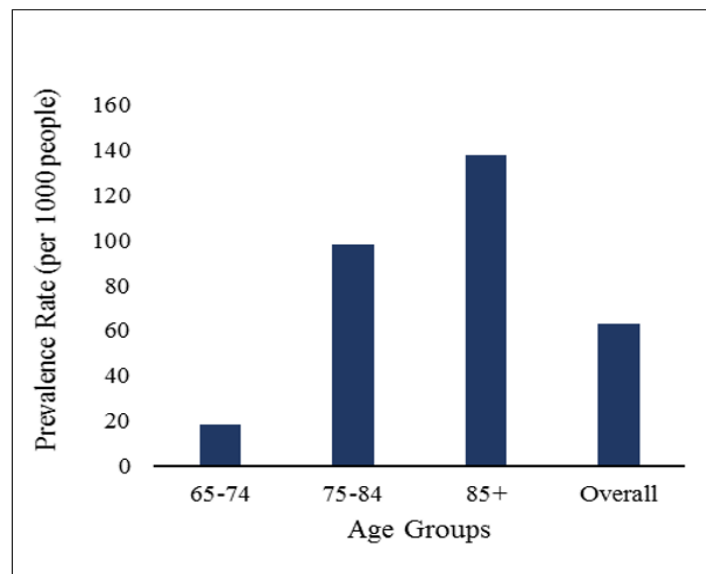
In the past year, we finalized an analysis investigating the relationship between TBI, PTSD, and depression on dementia risk among veteran women, and found that 4% of female veterans (n=4,125) developed dementia during the follow-up (mean=4.0 years, SD=2.3). After adjustment for demographics and medical conditions, women with TBI, PTSD, and depression had a significant increase in risk of developing dementia compared to women without these diagnoses (TBI adjusted hazard ratio (aHR)=1.68, 95% CI: 1.16-2.44; PTSD aHR=1.93, 95% CI: 1.47-2.55; and depression aHR=1.84, 95% CI: 1.71-1.99), while women with more than one diagnosis had the highest risk for dementia (aHR=2.35, 95% CI: 2.01-2.74). Cumulative incidence of dementia across the six groups (None, depression only, PTSD only, TBI only, depression plus PTSD, and TBI plus depression and/or PTSD) is shown below. We wrote up the results of this analysis and submitted a paper entitled “Military-Related Risk Factors in Female Veterans and the Impact on Dementia Risk” for publication in Neurology (in press).

Cumulative Incidence of Dementia Among Older Women Veterans by TBI and Depression and PTSD



In the past year we also completed an analysis from extracting VHA medical records of 165,825 female Veterans aged 65+ and examined dementia diagnoses and associated medical and psychiatric conditions. Our results showed 10,430 (6.3%) female Veterans had dementia diagnoses. As shown below, dementia prevalence increased from 1.8% at age 65 to 13.8% by age 85. A total of 41% had dementia subtype diagnoses, with Alzheimer’s disease being the most prevalent (72%). The most prevalent medical conditions were hypertension, pain, and depression. These results were presented at the 2018 Alzheimer’s Association International Conference. We wrote up these results and submitted a paper: “Prevalence of Dementia and Associated Medical and Psychiatric Conditions in a National Cohort of Older Female Veterans” for publication (under review).

Prevalence Rates (per 1000 people) for female veterans with dementia, stratified by age group



Lastly, we finished an analysis on military sexual trauma (MST) and related risks and medical conditions among 70,844 female Veterans aged 55+. We found that 9,514 (13.4%) females screened positive for MST (+MST), while 61,350 screened negative (-MST). In logistic regression models adjusted for age, race, and marital status, +MST was associated with higher odds of TIA/ stroke (AOR = 1.12, 95% CI 1.04-1.21), back pain (AOR=1.34, 95% CI 1.34-1.47), chronic pain (AOR = 1.58 95% CI 1.50-1.67), obesity (AOR=1.15, 95% CI 1.10-1.21), congestive heart failure (AOR = 1.14, 95% CI 1.03-1.25), insomnia (AOR=1.61 95% CI 1.43-1.82), and sleep apnea (AOR=1.37 95% CI 1.37-1.61) in older female Veterans. In fully adjusted models that also included PTSD, anxiety, depression, alcohol use disorder, substance use disorder, and suicidal ideation, having +MST remained significantly associated with chronic pain (AOR=1.16 95% CI 1.09-1.23), back pain (AOR=1.10 95% CI 1.05-1.16) and sleep apnea (AOR=1.10 95% CI 1.01-1.20). The results were written up into an abstract presented the 2018 Traumatic Stress Studies Annual Meeting. We are currently working to write up these results and plan to submit the manuscript for publication in the Year 3.

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

If the project was not intended to provide training and professional development opportunities or there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe opportunities for training and professional development provided to anyone who worked on the project or anyone who was involved in the activities supported by the project. “Training” activities are those in which individuals with advanced professional skills and experience assist others in attaining greater proficiency. Training activities may include, for example, courses or one-on-one work with a mentor. “Professional development” activities result in increased knowledge or skill in one’s area of expertise and may include workshops, conferences, seminars, study groups, and individual study. Include participation in conferences, workshops, and seminars not listed under major activities.

1. Training Opportunities

- In Year 2, Dr. Kristine Yaffe MD with Dr. Deborah Barnes PhD held ongoing training and mentorship meetings with postdoctoral fellow Dr. Sandy Lwi PhD, focused on the epidemiology of cognitive aging, biostatistics, and Veteran’s health. Dr. Lwi’s work on this project led to a conference presentation and two papers (one first author).
- In Year 2, Dr. Shira Magen PhD with Kristine Yaffe MD met with postdoctoral fellow Dr. Carolyn Gibson to provide training and mentorship related to administrative data uses and military-related risk factors. Dr. Gibson’s work with this project has produced one completed analysis with female Veteran’s with military sexual trauma, which she now taking a lead role in writing up to submit for publication in the next few months.

2. Professional Development

- Nothing to report.

How were the results disseminated to communities of interest?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe how the results were disseminated to communities of interest. Include any outreach activities that were undertaken to reach members of communities who are not usually aware of these project activities, for the purpose of enhancing public understanding and increasing interest in learning and careers in science, technology, and the humanities.

For projects focused on AIMS 1 and 2, we selected national and international meetings to disseminate our work through poster and oral presentations in which a broad range of multidisciplinary researchers and clinicians invested in reducing the effects of cognitive aging and improving Veteran’s health would be present.

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

If this is the final report, state “Nothing to Report.”

Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.

In Year 3, we will finalize writing up the results from the MST and medical comorbidities manuscript and will submit it for publication. In addition, we will continue to use the dataset that we created for all women Veterans aged 55+ and investigate whether differences in risk factors and mortality and dementia exist in this cohort for AIM 3. We will continue to develop plans for future analyses and to write up results for conference presentations and publication. We continue to hold regular meetings with all study investigators and study personnel to discuss goals and objectives and to plan for the immediate dissemination of results.

- 4. IMPACT:** Describe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to:

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

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe how findings, results, techniques that were developed or extended, or other products from the project made an impact or are likely to make an impact on the base of knowledge, theory, and research in the principal disciplinary field(s) of the project. Summarize using language that an intelligent lay audience can understand (Scientific American style).

Very few studies have critically explored the unique set of military and health related risk factors facing older Veterans today. Unfortunately, even less is known about older female Veterans, who may be at an increased risk of dementia relative to the general population and male Veterans. We were one of the first research groups to leverage administrative VHA data to extract all female Veterans aged 55+ and explore these factors to increase our understanding of risk and resiliency in this population. We found dementia prevalence among female Veterans is lower than the general population, and is also somewhat lower than male Veterans. Our results also highlighted very important medical and psychiatric conditions to be very prevalent in female Veterans, which emphasize a unique population with specific healthcare burdens. In another study of female Veterans, military-related risk factors, including PTSD, TBI, and depression increase dementia risk by 70-90% when occurring alone, and two-fold when occurring together. Because little is still known about the long-term health and cognitive consequences of female Veterans, the implications from these studies suggest a need for more comprehensive studies into the prevention, treatment and care of dementia and also highlight the potential role of military-related risk factor screening and treatment to reduce dementia risk.

What was the impact on other disciplines?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.

Nothing to report

What was the impact on technology transfer?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe ways in which the project made an impact, or is likely to make an impact, on commercial technology or public use, including:

- *transfer of results to entities in government or industry;*
- *instances where the research has led to the initiation of a start-up company; or*
- *adoption of new practices.*

Nothing to report

What was the impact on society beyond science and technology?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world on areas such as:

- *improving public knowledge, attitudes, skills, and abilities;*
- *changing behavior, practices, decision making, policies (including regulatory policies), or social actions; or*
- *improving social, economic, civic, or environmental conditions.*

Nothing to report

5. CHANGES/PROBLEMS: The Project Director/Principal Investigator (PD/PI) is reminded that the recipient organization is required to obtain prior written approval from the awarding agency Grants Officer whenever there are significant changes in the project or its direction. If not previously reported in writing, provide the following additional information or state, “Nothing to Report,” if applicable:

Changes in approach and reasons for change

Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the agency.

Nothing to report

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

Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

Nothing to report

Changes that had a significant impact on expenditures

Describe changes during the reporting period that may have had a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.

Although, we were awarded the grant on 15-AUG-2016, due to delays from first level UCSF IRB, VA ACOS/R&D, and second level HRPO approval, we were delayed in initiating spending. Per our institutional rules, we are required to have approvals in place before we can begin to spend. In Year 1 Quarter 2, two investigators were added to the project; however, they are unable to take their level of effort detailed in the budget until the Year 1 Quarter 4 due to unforeseen prior commitments. We added all staff and investigators Year 1 Quarter 4 as detailed in the budget.

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

Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, biohazards, and/or select agents during the reporting period. If required, were these changes approved by the applicable institution committee (or equivalent) and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.

Significant changes in use or care of human subjects

Nothing to report

Significant changes in use or care of vertebrate animals.

Nothing to report

Significant changes in use of biohazards and/or select agent

Nothing to report

6. PRODUCTS: List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state "Nothing to Report."

Nothing to report

- **Publications, conference papers, and presentations**
Report only the major publication(s) resulting from the work under this award.

Journal publications. *List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

Publications

1. Yaffe K, Lwi SJ, Hoang TJ, Xia F, Barnes DE, Maguen S, Peltz CB. Military-Related Risk Factors in Female Veterans and the Impact on Dementia Risk. Neurology, **In press**; acknowledgement of federal support/ yes.

Books or other non-periodical, one-time publications. *Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like. Identify for each one-time publication: Author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (e.g., book, thesis or dissertation); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

Nothing to report

Other publications, conference papers, and presentations. *Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above. List presentations made during the last year (international, national, local societies, military meetings, etc.). Use an asterisk (*) if presentation produced a manuscript.*

1. Lwi S, Peltz CB, Hoang TD, Xia F, Barnes DE, Yaffe K. Prevalence of Dementia and Associated Medical and Psychiatric Conditions in a National Cohort of Older Female Veterans. **Publication under review**; acknowledgement of federal support/ yes.
2. *Barnes D, Hoang T, Lwi S, Peltz C, Xia F, Yaffe K. Prevalence of Dementia and Associated Conditions in a National Cohort of Older Female Veterans. (abstract) presented as a poster presentation at the 2018 Alzheimer's Association International Conference. Chicago IL
3. Gibson CJ, Maguen S, Barnes D, Peltz C, Yaffe K. Military Sexual Trauma and Chronic Pain among Older Women Veterans. (abstract) presented as a poster at the 2018 International Society for Traumatic Stress Studies Annual Meeting. Washington DC
4. Peltz C, Byers A, Barnes D, Xia F, Yaffe K. Common Psychiatric Conditions in Female Military Veterans and Risk of Dementia (abstract) presented as a platform presentation at the 2017 Alzheimer's Association International Conference. London UK

List the URL for any Internet site(s) that disseminates the results of the research activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.

Nothing to report

- **Technologies or techniques**

Identify technologies or techniques that resulted from the research activities. In addition to a description of the technologies or techniques, describe how they will be shared.

Nothing to report

- **Inventions, patent applications, and/or licenses**

Identify inventions, patent applications with date, and/or licenses that have resulted from the research. State whether an application is provisional or non-provisional and indicate the application number. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award.

Nothing to report

- **Other Products**

Identify any other reportable outcomes that were developed under this project. Reportable outcomes are defined as a research result that is or relates to a product, scientific advance, or research tool that makes a meaningful contribution toward the understanding, prevention, diagnosis, prognosis, treatment, and/or rehabilitation of a disease, injury or condition, or to improve the quality of life. Examples include:

- *data or databases;*
- *biospecimen collections;*
- *audio or video products;*
- *software;*
- *models;*
- *educational aids or curricula;*
- *instruments or equipment;*
- *research material (e.g., Germplasm; cell lines, DNA probes, animal models);*
- *clinical interventions;*
- *new business creation; and*
- *other.*

We created a database containing demographic, psychiatric, medical information, etc., for all women age 55 and over who received healthcare in the VA from 2005-2015. We have used this database for all of our analyses, have selected subsamples, and created variables as appropriate for each project.

Name:	<i>Kristine Yaffe</i>
Project Role:	<i>Principal Investigator</i>
Researcher Identifier (e.g. ORCID ID):	<i>KYAFFE</i>
Nearest person month worked:	<i>1</i>
Contribution to Project:	<i>Dr. Yaffe provides leadership and oversees research activities.</i>
Funding Support:	<i>n/a</i>

Name:	<i>Deborah Barnes</i>
Project Role:	<i>Co-Investigator</i>
Researcher Identifier (e.g. ORCID ID):	<i>BARNESD</i>
Nearest person month worked:	<i>1</i>
Contribution to Project:	<i>Dr. Barnes provides expertise on dataset creation, data analysis, and is involved in manuscript publication.</i>
Funding Support:	<i>n/a</i>

Name:	<i>Shira Maguen</i>
Project Role:	<i>Co-Investigator</i>
Researcher Identifier (e.g. ORCID ID):	<i>SMAGUEN</i>
Nearest person month worked:	<i>1</i>
Contribution to Project:	<i>Dr. Maguen provides expertise in women's mental health and is involved in manuscript publication.</i>
Funding Support:	<i>n/a</i>

Name:	<i>Carrie Peltz</i>
Project Role:	<i>Project Coordinator</i>
Researcher Identifier (e.g. ORCID ID):	<i>n/a</i>
Nearest person month worked:	<i>2</i>
Contribution to Project:	<i>Dr. Peltz coordinates the project and assists with data analysis and publication.</i>
Funding Support:	<i>n/a</i>

Name:	<i>Feng Xia</i>
Project Role:	<i>Programmer</i>
Researcher Identifier (e.g. ORCID ID):	<i>n/a</i>
Nearest person month worked:	<i>2</i>
Contribution to Project:	<i>Ms. Xia performs the data analyses for this project.</i>
Funding Support:	<i>n/a</i>

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

What individuals have worked on the project?

Provide the following information for: (1) PDs/PIs; and (2) each person who has worked at least one person month per year on the project during the reporting period, regardless of the source of compensation (a person month equals approximately 160 hours of effort). If information is unchanged from a previous submission, provide the name only and indicate “no change.”

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

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

If the active support has changed for the PD/PI(s) or senior/key personnel, then describe what the change has been. Changes may occur, for example, if a previously active grant has closed and/or if a previously pending grant is now active. Annotate this information so it is clear what has changed from the previous submission. Submission of other support information is not necessary for pending changes or for changes in the level of effort for active support reported previously. The awarding agency may require prior written approval if a change in active other support significantly impacts the effort on the project that is the subject of the project report.

Dr. Yaffe: Summary: Dr. Yaffe had two grants end and four grants begin in the past year.

Title: Cognitive Decline in Chronic Renal Insufficiency
(Yaffe: Multiple-PI)
Time Commitment: 1.68 calendar months
Supporting Agency: NIDDK
Performance Period: 09/11–05/17
Level of Funding: \$2,867,726 TDC

Title: Study of Osteoporotic Fractures
Core (Yaffe: Multiple-PI)
Time Commitment: 0.24 calendar months
Supporting Agency: NIA
Performance Period: 09/11–05/18
Level of Funding: \$3,706,144 TDC

Title: Cognitive Decline in Chronic Renal Insufficiency
(Yaffe: Multiple-PI)
Time Commitment: 0.48 calendar months
Supporting Agency: Global Brain Health Institute
Performance Period: 06/15/2018 – 6/14/2020
Level of Funding: \$248,217 TDC

Title: Connection Between Depressive Symptoms and Dementia: When Best to Intervene?
Core (Yaffe: Multiple-PI)
Time Commitment: 0.48 calendar months
Supporting Agency: Alzheimer Drug Discovery Foundation
Performance Period: 06/01/2018 - 5/31/2020
Level of Funding: \$100,000 TDC

Title: Health Disparities in Alzheimer's Disease and Mild Cognitive Impairment among Mexican Americans
(Yaffe: Multiple-PI)
Time Commitment: 1.2 calendar months
Supporting Agency: NIA
Performance Period: 06/15/2018 – 6/14/2020
Level of Funding: \$5,169,465 TDC

Title: Multi-domain Alzheimer's Risk Reduction Study (SMARRT)
Core (Yaffe: Multiple-PI)
Time Commitment: 1.2 calendar months
Supporting Agency: NIA
Performance Period: 09/17 – 04/21
Level of Funding: \$5,169,465 TDC

Dr. Barnes: Summary: Dr. Barnes had one grant begin in the past year.

Title: Multi-domain Alzheimer's Risk Reduction Study (SMARRT)
Core (Barnes: Co-Investigator)
Time Commitment: 1.2 calendar months
Supporting Agency: NIA
Performance Period: 09/17 – 04/21
Level of Funding: \$5,169,465 TDC

Dr. Maguen: Summary: Dr. Maguen had two grants begin in the past year.

Title: Implementation of a Pragmatic Trial of Whole Health Team vs. Primary Care Group Education to Promote Non-Pharmacological Strategies to Improve Pain, Functioning, and Quality of Life in Veterans (PI: Seal, Co-I: Maguen)
Time Commitment: 2.4 calendar months
Supporting Agency: NIH
Performance Period: 01/18-12/23
Level of Funding: \$4,999,775

Title: Improving Frontal Emotion Regulation in PTSD by Targeting Sleep
(PI: Neylan, Co-I: Maguen)
Time Commitment: 0.6 calendar months
Supporting Agency: NIH
Performance Period: 10/01/16 – 09/30/18
Level of Funding: \$499,643

8. SPECIAL REPORTING REQUIREMENTS

COLLABORATIVE AWARDS: For collaborative awards, independent reports are required from BOTH the Initiating PI and the Collaborating/Partnering PI. A duplicative report is acceptable; however, tasks shall be clearly marked with the responsible PI and research site. A report shall be submitted to <https://ers.amedd.army.mil> for each unique award.

QUAD CHARTS: If applicable, the Quad Chart (available on <https://www.usamraa.army.mil>) should be updated and submitted with attachments.

9. **APPENDICES:** Attach all appendices that contain information that supplements, clarifies or supports the text. Examples include original copies of journal articles, reprints of manuscripts and abstracts, a curriculum vitae, patent applications, study questionnaires, and surveys, etc.

Risk and Resiliency for Dementia: Comparison of Male and Female Veterans

(#AZ150046)

W81XWH-16-1-0507



PI: Dr. Kristine Yaffe **Org:** Northern California Institute for Research and Education **Award Amount:** \$418,886 (directs)

Study/Product Aim(s)

- **Aim 1.** Compare prevalence of mild cognitive impairment and dementia among male and female veterans receiving VHA healthcare and identify key health-related risk factors for developing cognitive impairment
- **Aim 2.** Examine the associations between key military related factors and diagnoses of mild cognitive impairment and dementia among older female and male veterans
- **Aim 3.** Determine whether the risk of nursing home placement and mortality differs between older female and male veterans with a documented diagnosis of dementia, and examine whether there are gender specific associations between military and health-related factors and nursing home placement and mortality

Approach

We propose a series of specific aims that capitalize on existing national databases to further our understanding of the association between dementia, gender, and risk factors for cognitive impairment.



Accomplishments: One manuscript in press, another under review, a third in progress, four conference presentations, and planned future analyses.

Timeline and Cost

Activities	Year 1	Year 2	Year 3
Planning and regulatory approval			
Conduct Analyses			
Manuscript Prep & Submission			
Dissemination			
Estimated Budget (\$K)	\$127	\$164	\$127

Goals/Milestones

Year 1 Goal

- Obtain all necessary regulatory approvals
- Clean and prepare data

Year 2 Goals

- Conduct Analyses for Aims 1-3

Year 3 Goal –

- Write Manuscripts
- Dissemination and Publication

Comments/Challenges/Issues/Concerns

- We have received IRB and HRPO approval, as well as approval and access to VHA databases
- We encountered budgetary delays due to a slower start-up than anticipated and plan to use the unspent funds for the same purpose as proposed and awarded

Year 2, Quarter 4 Budget Expenditure

Projected Expenditure: \$291,000 (directs)

Actual Expenditure: \$57,139 (directs)

Updated: (8/31/18)