

Town & Country Ballroom B

Chair

Erin Sullivan-Baca
Private Practice, Dallas, USA
Rachael Ellison
Illinois Institute of Technology, Chicago, USA

Summary Abstract:

A longstanding trend of underrepresentation of women in pre-clinical and clinical research limits our understanding of women's issues across several scientific fields, including neuropsychology and related disciplines. Highlighting this trend is the fact that only 2-6% of studies across major neuroscience journals over the last decade were conducted exclusively in women/females. This pattern of research limits our understanding of how women's unique physiological, hormonal, psychiatric, and psychosocial presentations contribute to their brain health. Inclusion efforts aimed at increasing the study of more diverse populations have resulted in a nascent understanding of sex differences across several neuropsychological conditions, with implications for identification, prevention, and intervention efforts unique to women.

In this seminar, we highlight current efforts by neuropsychologists to expand research of women in order to enhance our understanding and clinical care of this population. Of note, we use the standardized term "women" to describe a biological category (females) and/or a self-identified gender trait, which varies depending on the scope of the research and data availability. We highlight five lines of women's-focused research spanning epilepsy/seizure disorders, traumatic brain injury (TBI), Alzheimer's Disease (AD), and neurotoxicant exposure. In Dr. Sullivan-Baca's presentation, ongoing lines of research into the clinical presentations of women with epilepsy are discussed. Findings highlight substantial psychiatric burden and unique medical factors to consider in women within this population. Dr. Jak's presentation expands on concussion outcomes in women using the national FITBIR database and highlights a sex difference in post-

concussive outcomes, with increased cognitive and somatic symptoms in women compared to men. Dr. Rapport and colleagues focus on the experience of menopause after TBI and discuss validation of a menopause symptom survey for TBI survivors. Dr. Sundermann's presentation covers findings on women's unique preclinical Alzheimer's Disease trajectories. Dr. Kregel focuses on health trajectories for women Veterans exposed to neurotoxicants during the Gulf War and underlines sex differences in neuropsychological test performance.

Through these presentations, our goal is both to inform and to inspire. Overall, we seek to orient members of our field to current directions in women's research so they can better understand how women are differentially affected by neurological conditions. Clinically, we hope this knowledge will encourage neuropsychologists to understand how their women patients' unique experiences of sex and gender contribute to their brain health. For researchers, we hope that attending this symposium will encourage pursuit of women's-focused lines of inquiry. Furthermore, we hope to inspire training institutions to integrate this type of research more systematically into graduate student didactics and training, particularly for those students in neuropsychology-focused training.

Keyword 1: inclusion

1 Significant Psychiatric Burden Exists in Women Veterans with Drug-Resistant Epilepsy

Erin Sullivan-Baca¹, Rizwana Rehman^{2,3}, Brian I Miller⁴, Zulfi Haneef^{4,5}

¹DR Associates of North Texas, Plano, TX, USA.

²Durham VA Medical Center, Durham, NC, USA.

³Epilepsy Centers of Excellence, Veteran's Health Administration, Durham, NC, USA.

⁴Michael E. DeBakey VA Medical Center, Houston, TX, USA. ⁵Baylor College of Medicine, Houston, TX, USA

Objective: Epilepsy, and specifically drug-resistant epilepsy (DRE), is associated with an increased risk of psychiatric dysfunction, likely due to a combination of physiological mechanisms, emotional reactions to disease

burden, and bi-directional influences. Women with epilepsy warrant special consideration due to many factors, including hormonal influences on seizure susceptibility, reproductive health considerations, and unique psychiatric and clinical profiles. However, there is yet to be large-scale research characterizing women with DRE. The present study characterized psychiatric conditions, treatment, and hospitalization data in a Veterans Health Administration (VHA)-wide sample of women Veterans and then compared results to a male Veteran sample to explore sex differences.

Participants and Methods: Data from 52,579 Veterans enrolled in VHA care between FY2014 and 2nd Quarter FY2020 were gathered from the VHA Corporate Data Warehouse administrative data. The sample was comprised of 5,983 women (11.4%) and 46,596 men (88.6%). Demographics, psychiatric diagnoses, psychiatric medications, ER visits, and hospitalizations were characterized. Chi-square analyses were used to examine group differences between men and women.

Results: The vast majority of the women Veteran sample had at least one psychiatric diagnosis (86.1%), with over half of the sample diagnosed with depression (68.3%), PTSD (54.1%), and/or anxiety disorders (57.7%). When compared to men, women Veterans were more likely to have a psychiatric diagnosis (86.1% vs. 68.1%), evidenced a higher number of co-morbid psychiatric conditions (2.4 vs. 1.6), and were prescribed more psychiatric medications (3.4 vs. 2.3; all significant at $p < 0.001$). All individual psychiatric diagnoses were more prevalent in women than men and, notably, suicidality was also higher in women (13.5% vs. 10.0%; $p < 0.001$). Women Veterans also had a higher number of ER visits (6.9 vs. 5.5; $p < 0.001$) and psychiatric hospitalizations than men (.4 vs. .3, $p < 0.001$).

Conclusions: The present study represents the largest known investigation to date of women with DRE and is also the largest study of women Veterans with any form of epilepsy. It highlights a vast psychiatric burden in this subset of women Veterans, with high rates of psychiatric comorbidity, lending to downstream effects on psychiatric medication burden and risk for emergency care usage and psychiatric hospitalization. Comparisons to men emphasize that women are differentially impacted by the psychiatric toll of DRE and warrant special consideration. The markedly higher rates of depressive disorders and suicidality in women

Veterans with DRE is especially notable when considering risk of harm and mortality. Overall, the present work adds to the paucity of literature of women Veterans with seizures and gaps in the broader DRE research base, with implications for specialized screening and maximizing treatment interventions in this population.

Categories: Epilepsy/Seizures

Keyword 1: epilepsy / seizure disorders

Keyword 2: emotional processes

Correspondence: Erin Sullivan-Baca, DR Associates of North Texas, erinsullivanbaca@gmail.com

2 1991 Gulf War Women Veterans: Neurotoxicant Exposures and Cognitive Outcomes

Maxine H Kregel^{1,2}, Kimberly Sullivan³

¹VA Boston Healthcare System, Boston, MA, USA. ²Boston University School of Medicine, Department of Neurology, Boston, MA, USA.

³Boston University School of Public Health, Boston, MA, USA

Objective: The women who served in the 1990-1991 Persian Gulf War (GW) are unique in that they were the first group to have fewer restrictions in terms of military occupations and exposure to combat. Of the nearly 41,000 US troops who were women deployed to the GW, many were serving in frontline positions and were exposed to the same toxicants as their male counterparts. Toxicant exposures such as pesticide sprays and creams, oil well fires, diesel fuels, chemical and biological warfare (CBW) agents and anti-nerve gas (PB) pills have been found to result in cognitive impairments across a range of neuropsychological tests. Our research team has been following cohorts of women who were deployed to the GW and correlated exposures with neuropsychological outcomes. Overall, in small cohorts of women veterans we found that higher levels of exposures to pesticide sprays and creams and CBW are correlated with short-term memory, mood, and motor deficits. These findings were different from those of their male counterparts. In a recently developed data-repository we have compiled larger groups of women veterans to validate our prior findings.