

The Mental Health of Female Service Members: Findings From a 2010 – 2016 Literature Review

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Project Aim

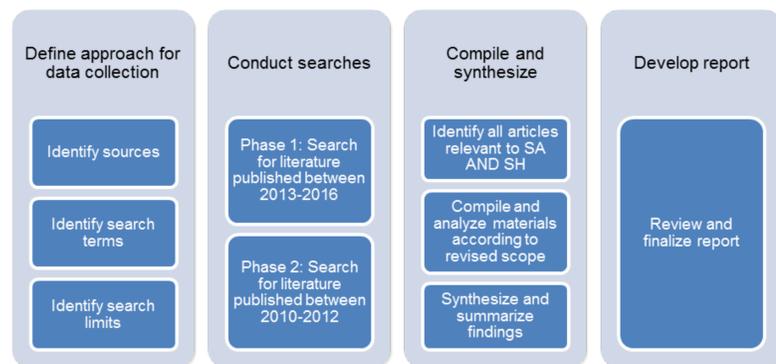
The Psychological Health Center of Excellence (PHCoE) within the Defense Health Agency (DHA) sought to better understand the current state of the science of the unique mental health (MH) and abuse/dependence needs of female service members, both active duty and veterans, as well as gender differences and disparities in the delivery, effectiveness, barriers and access to mental health treatment and prevention services.

The current report builds upon prior work completed in 2013 by the Department of Defense/Veterans Affairs Integrated Mental Health Strategy (IMHS) Strategic Action #28 Task Group.

Literature Search Methodology

A broad literature search was performed to identify studies that examined the mental health and substance use/abuse needs of women service members between 2010 and 2016:

- 354 publications met initial inclusion criteria
- 179 publications were included in this report following review of full text and validation of the primary focus of the papers
- 120 studies were exclusively active duty or veteran women and were emphasized
- 59 additional studies on both male and female service members and veterans that reported results by gender were included to augment the findings



Number of Military Female-specific Studies

- The number of studies focused on female service members has increased since the IMHS Strategic Action #28 literature review, particularly on the topics of depressive disorders, posttraumatic stress disorder (PTSD) and substance use disorder (SUD)
- The majority of research on female service members meeting the search criteria focused on female veterans

Study Topic	Female Active Duty Only	Female Veterans Only	Female Active Duty & Veterans
Incidence & Prevalence	3	2	1
Screening	3	3	-
Depression (not specified)	4	9	-
PTSD	5	14	2
Other Anxiety	3	3	-
Psychotic, Bi-polar, Personality Disorders	3	4	-
Suicide, Suicidal Ideation	0	1	1
SUD	6	15	-
Additional Mental & Physical Health	6	5	-
Intimate & Family Relationship	1	6	-
Treatment & Utilization	1	6	-
Access & Barriers to Care	1	6	2
Prevention	2	2	-

High Level Literature Review Findings

- A study by the Armed Forces Health Surveillance Center assessed gender differences in prevalence rates of MH diagnosis in active duty service members (N: 936,283). Overall, MH diagnoses were more frequently diagnosed in female active duty service members than male active duty service members (AFHSC, 2012b)
 - Adjustment and personality disorders were more than twice as common and anxiety and depressive disorders were 1.4 to 1.9 times as common in active duty service women compared to active duty men (AFHSC, 2012b)
 - The prevalence of depression among female service members was estimated to range from 4.3 percent (Seelig et al., 2012) to 7.5 percent (Ursano, Wang, et al., 2016)
 - The incidence of perinatal depression (PND), which includes both the prenatal and postpartum periods, is estimated to be as high as 24 percent in female service members. Similar civilian studies provided incidence rates ranging from 5 to 25 percent (Klaman & Turner, 2016).
 - The highest prevalence of PND symptoms (16.6 percent) was found in female service members who had deployed after childbirth and who experienced combat exposure (Nguyen, 2013; Klaman & Turner, 2016).
 - As the level of combat exposure increases, the risk of depression in female service members increases (Adams, Nikitin, Wooten, Williams, & Larson, 2016)
 - A large cross-sectional study of female Army enlisted (N = 42,397) concluded that combat exposure is a risk factor for post-deployment PTSD, with cumulative exposures having greater odds for MH problems (Adams et al., 2016), suggesting that males and females respond similarly to experiencing combat trauma
 - Results from studies that examine gender differences and PTSD suggest that female service members are at a higher risk for post-deployment PTSD than male service members (Crumb-Cianflone & Jacobson, 2014; Jacobson, Donoho, Crum-Cianflone & Maguen, 2015)
 - Results from female veteran studies show a significant predictive relationship between deployment-related traumatic stressor, most notably combat experiences and sexual assault and sexual harassment, and PTSD outcomes (Cobb Scott et al., 2013; Kelly, Skelton, Patel, & Bradely, 2011; Kintzle et al., 2015; Klingensmith, Tsai, Mota, Southwick, & Pietrzak, 2014; Maguen, Cohen, Ren, et al., 2012; Street et al., 2013)
 - Stressors that are high in a military population, such as combat and deployment, increase the rates of both substance use disorder and alcohol use disorder in both men and women service members (Gobin, Green, & Iverson, 2015; Hoggatt, Jamison, et al., 2015)
 - From 2000 to 2010, the number of completed suicides in women veterans increased by 40 percent as reported in a cross-sectional study of the VA suicide database (Hoffmire, Kemp, & Bossarte, 2015)
 - Only one article discussing suicidal ideation and suicide in an entirely female military population met the criteria for this literature review (Blosnich, Brenner, & Bossarte, 2016)
 - The incidence rate of eating disorders (ED) is over 20 times higher in female active duty service members than in male service members (AFHSC, 2014). Overall, among female service members, EDs were highest for younger service members, Caucasian service members and members of the Marine Corps
 - Of the 16 studies that addressed access or barriers to MH care, only one study exclusively included female active duty service members (Elnitsky et al., 2013)
- *The use of the term "female service members" refers to both active duty and veterans

Future Research Needs

Topic	Identified Gaps & Future Areas for Research Specific to Female Service Members
Prevalence and Incidence	<ul style="list-style-type: none"> Specific MH condition prevalence rates with full demographic information Explicit adjustment disorder and personality disorder diagnoses prevalence rates
MH and SUD Screening	<ul style="list-style-type: none"> Effectiveness of current screening instruments Optimal timing of the administration of screening for MH conditions
Depression	<ul style="list-style-type: none"> Specific depression subtype prevalence rates Relationship between deployment and/or combat experiences and depression Treatment outcomes and preferences including use of anti-depressant medications Relationship between deployment, exposure to trauma including sexual assault, and perinatal depression
PTSD	<ul style="list-style-type: none"> Gender-specific risk factors for PTSD Gender-specific treatment outcomes and preferences
Anxiety Disorders	<ul style="list-style-type: none"> Specific anxiety subtype prevalence rates Gender-specific treatment outcomes and preferences
Suicide	<ul style="list-style-type: none"> Relationship between suicidal ideation or suicide attempts and the experience of sexual assault or sexual harassment while serving in the military Gender-specific treatment outcomes for suicidal ideation
SUD	<ul style="list-style-type: none"> Gender-specific treatment outcomes and preferences including medication assisted therapy (MAT)
Additional MH and Physical Conditions	<ul style="list-style-type: none"> Incidence of eating disorders and their co-morbidities Sleep-wake disorder prevalence and treatment
Intimate Partner Violence (IPV)	<ul style="list-style-type: none"> IPV and MH correlates IPV and MH treatment outcomes and preferences
MH and SUD Treatment Utilization	<ul style="list-style-type: none"> Gender-specific utilization, preferences and retention
Access and Barriers to Care	<ul style="list-style-type: none"> Barriers to care for deployed and non-deployed service women
Prevention & Resilience	<ul style="list-style-type: none"> Effectiveness of military prevention and/or education programs Effectiveness of gender-specific/gender-sensitive resilience programs

Other Research Contributions

DoD Military Operational Medical Research Program (MOMRP)

Two current MOMRP MH/SUD research investigations specific to female active duty service members are:

- Mentors Offering Maternal Support (MOMS) (Lt Col Jacqueline Killian)
- How Maternity Leave Policies Impact Service Members' Leave Use and Postpartum Health Outcomes (Dr. Stacy Hawkins)

There are also several research efforts that include both male and female service members that will provide valuable information related to MH/SUD prevalence, correlates and treatment and efficacy of treatments for PTSD related to sexual trauma.

Military Women's Health Database

- An online database of 979 articles and subject matter expert reviews related to military women's health, including mental health and readiness, is available at www.triservicenursing.org.
- Military women's health: A scoping review and gap analysis: 2000-2015* (Yablonsky, A. M., Rychnovsky, J., Martin, R., Highfill-McRoy, R. M., & McAnany, J.; 2017) is also available at <http://www.dtic.mil/docs/citations/AD1050800>