

APPENDIX 1. SEARCH STRATEGIES

REPRODUCTIVE (8/4/2010)

DATABASE SEARCHED & TIME PERIOD COVERED:

PubMed – 1966-8/4/2010

LANGUAGE:

English

SEARCH STRATEGY:

reproductive OR reproduction OR pregnan* OR birth* OR fertility OR infertility OR infertile
OR menstrual OR menstruation OR menses OR urinary tract OR sexually transmitted OR hiv
OR cervical OR ovarian OR genital OR gynecologic* OR “Congenital Abnormalities”[Mesh]
AND
veteran*[tiab] OR veteran*[mh] OR military personnel
AND
female* OR women* OR woman OR gender OR women’s health

OEF/OIF (8/2/2010)

DATABASE SEARCHED & TIME PERIOD COVERED:

PubMed – 1990-8/2/2010

LANGUAGE:

English

SEARCH STRATEGY:

veteran*[tiab] OR veteran*[mh] OR military personnel
AND
female* OR women* OR woman OR gender OR women’s health
AND
gulf war OR persian gulf OR “desert storm” OR iraq* OR afghanistan OR OEF OR OIF OR
“enduring freedom” OR afghan

DATABASE SEARCHED & TIME PERIOD COVERED:

PsycINFO – 1990-8/2/2010

LANGUAGE:

English

SEARCH STRATEGY:

veteran* OR military personnel
AND
female* OR women* OR woman OR gender

AND

gulf war OR persian gulf OR “desert storm” OR iraq* OR afghanistan OR OEF OR OIF OR “enduring freedom” OR afghan

Population Group: Female

Search modes - Phrase Searching (Boolean)

DATABASE SEARCHED & TIME PERIOD COVERED:

CINAHL (Cumulative Index to Nursing & Allied Health Literature) – 1990-8/2/2010

LANGUAGE:

English

SEARCH STRATEGY:

veteran* OR military personnel

AND

female* OR women* OR woman OR gender

AND

gulf war OR persian gulf OR “desert storm” OR iraq* OR afghanistan OR OEF OR OIF OR “enduring freedom” OR afghan

Gender: Female

Search modes - Phrase Searching (Boolean)

DATABASE SEARCHED & TIME PERIOD COVERED:

Social Science Abstracts – 1990-8/2/2010

LANGUAGE:

English

SEARCH STRATEGY:

veteran* OR military personnel

AND

female* OR women* OR woman OR gender

AND

gulf war OR persian gulf OR “desert storm” OR iraq* OR afghanistan OR OEF OR OIF OR “enduring freedom” OR afghan

Search modes - Phrase Searching (Boolean)

APPENDIX 2. KEY QUESTION #1 EVIDENCE TABLE

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Araneta; 2000 ¹²	Infants born to Gulf War Veterans (GWV) non-deployed Veterans (NDV) who were registered in Hawaii Birth Defects Program in 1989-1993.	17,187 military infants of GWV and NDV in Hawaii were identified.	Compare prevalence of selected congenital anomalies between: <ol style="list-style-type: none"> 1. GWV and NDV conceived before the war 2. GWV and NDV conceived during or after war 3. Prewar/postwar conceptions of GWV population-based study 	48 major birth defects prevalence among military births in Hawaii through the first year of life	Prevalence of 48 selected birth defects was similar in NDV and GWV groups in conceptions that happened before the war and conceptions during and after the Gulf war. Among GWV infants, the prevalence of 48 selected birth defects did not differ among prewar and postwar conceptions. Limitations: small numbers of case infants with birth defects- not enough statistical power for rare birth defects. Unable to evaluate role of maternal GWV exposure because small numbers of births in female GWV (165 births) in Hawaii.
Araneta; 2003 ⁷	Deployment data and inpatient records from military hospitals.	1,558 females	Compare reproductive outcomes of Gulf War with postwar conceptions of women deployed and non-deployed.	Adverse reproductive outcomes, spontaneous abortions, ectopic pregnancies	Gulf War exposed conceptions and non-deployed conceptions had similar outcomes. However, Gulf War Veterans postwar conceptions were at increased risk of ectopic pregnancies and spontaneous abortions.
Araneta; 2003 ¹³	Infants born to Gulf War Veterans (GWV) non-deployed Veterans (NDV) who were registered in Arkansas, Arizona, California, Georgia, Hawaii and Iowa Birth Defects Program, a population-based birth defect registries, in 1989-1993	11,961 military infants of GWV and 33,052 military infants of NDV registered in Arkansas, Arizona, California, Georgia, Hawaii and Iowa were identified.	Determine prevalence of selected congenital anomalies between: <ol style="list-style-type: none"> 1. GWV and NDV conceived before the war 2. GWV and NDV conceived during or after war 3. Prewar/postwar conceptions of GWV population-based study 	48 major birth defects prevalence among military births in Hawaii through the first year of life	Higher prevalence of tricuspid valve insufficiency, aortic valve stenosis, and renal agenesis or hypoplasia in infants conceived to post war GWV men. Higher prevalence of hypospadias in infants conceived postwar to female GWV. Above persisted after adjustment for known risk factors and population differences. No difference in risk for any of combined 48 selected defects by deployment status.

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Cowan; 1997 ¹⁴	Live births at 135 military hospitals 1991-1993	GWV offspring <ul style="list-style-type: none"> • 30,151 live births born to 29,468 male GWV • 32,638 live births born to 31,646 male NDV • 3,847 live births to 3722 women GWV • 8,825 live births to 8494 women NDVW 	To compare overall risk of birth defects among offspring of GWV to offspring of non deployed Veterans (NDV)	Occurrence of birth defects noted in the medical file. ICD-9-CM code related to congenital malformations	<ul style="list-style-type: none"> • No increase in birth defects among children of GWV. • Prevalence of any birth defect was 7.45% for deployed Veterans and 7.59% for non-deployed Veterans (RR 0.98, 95% CI 0.93-1.03). • No significant association between service in the Gulf War and prevalence of any birth defect for male Veterans (OR 0.97, 95% CI 0.91-1.03) or female Veterans (OR 1.07, 95% CI 0.94-1.22). • The unadjusted OR for having an infant with severe birth defects was 1.03 (95% CI 0.92-1.15) for male active-duty Veterans, 0.92 (95% CI 0.71-1.20) for female active duty Veterans, and 1.00 (95% CI 0.90-1.10) for men and women combined. • Limitation: military facilities only.
Gilhooly; 2001 ¹⁵	Previously deployed female US Persian Gulf Veterans enrolled in New Jersey Persian Gulf War Research Center Study	46 Female	Relationship between sexual dysfunction in female Gulf War Veterans	This study evaluated sexual female dysfunction in Veterans with and without chronic fatigue.	Chronic fatigue is one of the most chronic conditions reported by Gulf War Veterans. Includes 22 healthy subjects and 26 with fatigue. Female sexual dysfunction was reported by 10% of control and by 60% of those with fatigue (p value < .002). 19% vs 81% (p value < .001) decrease in libido.
Kang; 2000 ⁹	U.S. women Veterans in the U.S. military during the period July 4, 1965 through March 28, 1973	8,280 US women Veterans (4140 deployed, 4140 not deployed)	Comparison of self-reported pregnancy outcomes among women Veterans who were deployed to Vietnam and those who were not	Risk of having children with moderate to severe birth defects was significantly elevated among Vietnam Veterans.	The risk of birth defects among index children was significantly associated with mother's military service in Vietnam.
Kang; 2000 ¹⁰	U.S. women Veterans in the U.S. military during the period July 4, 1965 through March 28, 1973	4,140 Female	Structured telephone interview including history of gynecologic cancer	The association between the risk of GYN cancer and military service in Vietnam	Female Vietnam Veterans did not experience a higher prevalence of GYN cancer in the 30 years since the conflict.
Kang; 2001 ¹⁶	Gulf War Veterans	11,441 Gulf War Veterans and 9476 control subjects	Comparison of reproductive outcomes among US Gulf War Veterans and non-Gulf War Veterans	Miscarriages and birth defects	This survey suggests that female Gulf War Veterans report significantly higher rates of birth defects than do military control subjects.

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Langlois; 2009 ¹¹	Population based Case control study – National Birth Defects Prevention Study (NBDPS)	Cases born Oct 1999 to Dec 2003. 150 cases and 3 exposed cases	Population based Case control study- National Birth Defects Prevention Study (NBDPS)	Association between cohorts and active duty birth over 30 major defects	<ul style="list-style-type: none"> • No statistically significant associations between maternal or paternal military service and elevated risk of selected birth defects. • Of the 35 birth defects presented, 5 exhibited adjusted odds ratios above 1.50: hydrocephalus, atrioventricular septal defects, anomalous pulmonary venous return, heterotaxia, and omphalocele – though not statistically significant. <ul style="list-style-type: none"> ↳ None of the odds ratios 1.00 were statistically significant. • Tricuspid atresia exhibited the highest crude odds ratio (2.03), but that decreased to 1.43 after adjustment for maternal age, race/ethnicity, and education.
Murphy; 1997 ¹⁷	Female troops deployed to the Persian Gulf	10,00 Female and 15,000 Male	Literature review and analysis of VA and DoD health registries to determine healthcare use and needs of female Veterans	Diagnoses and symptoms by gender	This article found female health care needs to be similar to those of their male counterparts, with the exception of gynecologic issues. More data is needed, especially for determining long-term health care needs after deployment.
Penman; 1996 ¹⁸	Population based registries used to determine Live born and Stillborn children born after deployment to National Guard personnel in two units in southeast Mississippi from Dec 1993-May 1994	54 children 6 mothers were Veterans (including one family with both parents Veterans)	Data reviewed from 2 population based registries 1. Metropolitan Atlanta Congenital Defects Program 2. Centers for Disease Controls’ Birth Defects Monitoring Program California Birth Defects Monitoring Program	Birth Defects Still Births Deaths	<ul style="list-style-type: none"> • The observed number of birth defects among was not greater than expected on the basis of population-based registries. • 3 cases of major birth defects, 2 cases of minor birth defects, No stillbirths, no deaths.

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Pierce; 1997 ⁸	Female Veterans post Gulf War from the DoD Manpower Data Center	525 Female	Conducted a survey to collect demographic data, as well as physical and mental health data	Multiple statistical analyses were used to describe women’s physical/emotional health the two times point following the GW.	525 women participated in the study following the war and again in a follow up study two years later (sampled from members of the Air Force: active, guard, or reserve). Measures included general physical health, gender specific health, “Gulf War Syndrome,” and PTSD. Multiple statistical analyses were used to describe women’s physical and emotional health at two time points following the war. Deployed female Veterans reported significantly more general and gender specific health problems than did women who were not deployed in that conflict. Findings from this study suggest the need for further study concerning gynecological and reproductive health.
Wells; 2006 ¹⁹	Deployed and non-deployed Gulf War era Veterans	2,233 female, 2,159 male participants	Comparison of deployed and non-deployed Veterans surveyed on self-reported reproductive outcomes	Reproductive outcomes (birth weight, number of pregnancies) Adverse reproductive outcomes (ectopic pregnancies, stillbirths, miscarriages)	<ul style="list-style-type: none"> No difference in number of pregnancies, birth weight of infants. Neither gender of deployed Gulf War Veterans significantly differed from non-deployed Veterans in adverse reproductive outcomes.
Werler; 2004 ²⁰	Cases from craniofacial clinics in 26 cities (US and Canada) and matched to 832 controls by pediatrician and child’s age HFM cases ≤ 3 years old (born 1996-2002)	Birth year of cases to controls were 1996-2002. There were 232 cases and 832 controls. Four mothers and 30 fathers served in the military, and 10 control mothers and 100 control fathers also served in the military	Retrospective Case-control study Describe relationship between Hemifacial microsomia HFM) (Goldenhar syndrome) risk and parental military service (including Gulf War)	Measure Gulf War Service that occurred between 5 and 11 years before pregnancy Odds ratio of risk of multi adjusted odds ratio of HFM in those serving in the Gulf war for five to 11 years before pregnancy. Association of gulf or military service with HFM	<ul style="list-style-type: none"> Mothers of 4 cases and 10 controls reported military service before and after pregnancy. Neither military service overall or Gulf War Service was associated with HFM risk. Odds ratio for any parental military service was elevated- but not statistically significant. Parental army service assoc with 2.4 fold increase of HFM- after adjusting for race, income, twin, and low body mass. (OR 2.4, 95% CI 1.4-4.2), parental GW army service (OR 2.8, 95% CI 0.8-9.6); Association with any parent served in the Gulf War was not increased (OR 0.8, 95% CI 0.3-2.3).
Wittich; 1996 ²¹	Women enrolled in DoD Persian Gulf Illness Comprehensive Clinical Evaluation Program at Tripler Army Medical Center	17 females, 16 served in Gulf War and 1 dependent of Gulf War Veteran	Description of the sample’s treatments during the program and reproductive histories	N/A	Services and histories are described, with 8 Veterans experiencing gynecologic problems while serving in the Gulf, and 43% since returning in 1991. Six patients became pregnant after returning, with 1 patient suffering miscarriages.

APPENDIX 3. KEY QUESTION 2 EVIDENCE TABLE

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Adler; 2005 ⁴⁵	U.S. female and male soldiers in non-combat arms units deployed on a NATO peacekeeping mission to the Bosnia area of operations that included Hungary, Bosnia-Herzegovina, and Croatia	Females 1,225 Males 2,114	Observational; To examine the effects of stressor duration (deployment length) and stressor novelty (no prior deployment experience) on the psychological health of male and female military personnel returning from a peacekeeping deployment	Correlations between demographics, deployment experience, and dependent variables by gender; length of deployment and mean scale score of depressive and posttraumatic stress symptoms by gender; deployment experience and mean scale score of depressive and posttraumatic stress symptoms by gender	Longer deployments and 1 st -time deployments were associated with an increase in distress scores. However, the relationship between deployment length and increased distress was found only for male soldiers.
Baker; 2009 ³³	Newly registered OEF/OIF Veterans and reservists, who consecutively enrolled for general care in the VA San Diego Healthcare System and completed a battery of questionnaires between April and October 2006	339	Observational; To more comprehensively characterize the OEF/OIF mental health concerns, examining the relationship between demographic factors, military service characteristics, combat-related injury, and mental health symptoms	Demographic and military service-related characteristics, mental health caseness, predictors of PTSD	<ul style="list-style-type: none"> • A minority (36%) did not screen positive for mental health symptoms; the remainder met threshold for caseness of PTSD, depression, or substance and alcohol abuse. • Using a hierarchical logistic regression model, gender, age, race, and rank were not significantly related to PTSD caseness, whereas most recent branch of service and report of injury during combat were. • Follow-up analyses revealed that trauma history and combat exposure varied by branch of service.
Bell; 2009 ³⁸	Inpatient admissions to 2 military hospitals over a 5 year period from a closed or penetrating head trauma suffered during combat operations in Iraq	Females 7 Males 401	Observational; To describe a military hospital experience with severe closed and penetrating central nervous system trauma associated with conventional and unconventional warfare	Primary measures include type of injury, mechanisms, initial Glasgow coma scale (GCS), discharge GCS score, admission injury severity score (ISS), total intensive care unit (ICU) days, Glasgow Outcome Scale scores at discharge, 6 months, and 1-2 years	Most head injuries were male (98%), and most sustained penetrating brain injury with explosive blast accounting for the predominant mechanism of injury. The presence of CSF leak, vascular injury, and penetrating trauma resulted in higher ISS levels and ICU stays. (No gender specific results are reported.)

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Benda; 2005 ³⁹	Convenience sample of all homeless female Veterans that entered an inpatient VA domiciliary program for substance abuse in a 3-year period. Systematic random sample of homeless men that entered program during same period.	Females 310 Males 315	Observational; (1) to study gender differences in predictors of readmission to inpatient drug treatment among homeless Veterans because VA medical centers currently do not have services that are designed specifically for women; (2) are abuses at different stages of life span, combat exposure, and recent traumatic events commensurate predictors, do employment, housing, family or friend relationships and spirituality mediate (3) or moderate (4) relationships between trauma and relapse.	Re-admission to inpatient drug treatment in a two-year follow-up	Sexual and physical abuse in childhood or during active duty in the military and during the past 2 years were most potent predictors of readmission for women than men. Women’s readmission was heightened by increases in depression, suicidal thoughts, and traumatic events. Women’s readmission was lessened by greater family, friend, church or other support. -Men’s readmission increased with greater substance abuse, aggression, and cognitive impairment. Men’s readmission decreases with employment stability and job satisfaction.
Chatterjee; 2009 ²⁷	National sample of Veterans with at least 1 outpatient visit in the VHA in FY99 associated with a mental health or substance abuse (SA) diagnosis	782,789	Observational; To compare gender differences in mental health disease burden and outpatient mental health utilization among Veterans utilizing Veterans Health Administration (VHA) mental health services	Odds of utilizing mental health and specialty mental health services by gender, age, and diagnostic category	<ul style="list-style-type: none"> • Younger women Veterans (<35 years old) were significantly less likely and older women (≥35) more likely to use any mental health services in comparison with their male counterparts. • Similar findings were observed for younger women diagnosed with SA or mood and anxiety disorders, but not among Veterans with PTSD or bipolar and psychotic disorders, among whom there were no gender or age differences. • In the case of specialized services for SA or PTSD, women younger than 55 with SA or PTSD were significantly less likely to use services than men. • Women Veterans underutilized specialty mental health services in relation to men but receipt of mental health care overall in FY99 varied by age and diagnosis.

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Cohen; 2009 ²⁸	National sample of Veterans newly utilizing VA healthcare between October 7, 2001 and March 31, 2007, followed until March 31, 2008	249,440	Observational; To compare utilization across three groups of Iraq and Afghanistan Veterans: those without mental disorders, those with mental disorders other than PTSD, and those with PTSD	Variations in utilization of VA non-mental health services by mental health diagnoses	<ul style="list-style-type: none"> • Veterans with mental disorders had 42-146% greater utilization than those without mental disorders, depending on the service category (all $p < 0.001$). • Those with PTSD had the highest utilization in all categories: 71-170% greater utilization than those without mental disorders (all $p < 0.001$). • In adjusted analyses, compared with Veterans without mental disorders, those with mental disorders other than PTSD had 55% higher utilization of all non-mental health outpatient services; those with PTSD had 91% higher utilization. • Female sex and lower rank were also independently associated with greater utilization.
Duggal; 2010 ⁴⁶	Sample of female and male Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) Veterans seeking healthcare services in the VA system	Females 240 Males 1,380	Observational; To examine gender differences in the utilization of VA outpatient health care services	Outpatient VA service use included basic care (e.g., primary care, mental health, or specialty care). Initiation of care was defined as one visit or more to outpatient care after return from deployment and intensity of utilization was defined as the total number of outpatient visits during the study period.	Women were more likely to be younger, single, and non-white compared to men. Women were more likely to use outpatient care services (OR 1.47, 95% CI 1.09, 1.98), but once initiated, frequency of visits over time did not differ by gender (incident rate ratio [IRR] 1.07, 95% CI 0.90, 1.27).
Fitzgerald; 2010 ⁴⁴	Clinical guide to use screening tools for post traumatic stress disorder, traumatic brain injury, and military sexual trauma in the civilian setting	N/A	Clinical Practice Guideline; To provide nurse practitioners with a brief screening tools to be used during routine office visits to assist with accurate identification of post military health concerns	Not applicable	Potential benefits include more effective and comprehensive care to a growing female population with a history of military service seen for routine care. Brief screening instruments can help providers formulate accurate diagnoses of service related conditions with appropriate treatment and referral.

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Fontana; 2008 ⁵⁰	Administrative sample of female and male Veterans in VA Northeast Program of Evaluation Center (NEPEC) database who sought treatment from a VA specialized program for PTSD and served in a war zone during only 1 of 3 recent wars	Total 36,413 (Sex not specified)	Observational; To compare current Iraq/ Afghanistan Veterans with 4 samples of outpatient and inpatient Persian Gulf and Vietnam Veterans	Socio-demographic characteristics, traumatic exposures (i.e., receiving hostile/friendly fire, participating in atrocities, and witnessing atrocities without participating), and clinical status including	Recent Iraq/ Afghanistan Veterans differed most notably from Vietnam Veterans by being younger, more likely to be female, less likely to be married or separated/divorced, more often working, less likely to report exposure to atrocities in military. Iraq/Afghanistan Veterans less often diagnosed with substance abuse disorders, manifested more violent behaviors, and had lower rates of VA disability compensation because of PTSD.
Haskell; 2009 ⁴⁷	National sample of Veterans from OEF/OIF roster from Defense Manpower Data Center containing all personnel discharged from US Military between October 1, 2001 to November 30, 2007 who enrolled for VA services or received VA care before January 1, 2008	Females 18,481 Males 134,731	Observational; To evaluate sex differences in the prevalence, severity, and persistence of pain among OEF/OIF Veterans seen at VA outpatient clinic visits during the year after returning from deployment	Measures included pain numeric rating scores recorded at all outpatient visits, defined moderate to severe pain as ≥ 4 rating, persistent pain defined as 3 or more pain scores ≥ 4 recorded in at least 3 different months, ICD-9 codes for diagnoses of PTSD or depression if codes occurred on two or more outpatient visits, and demographic data	No significant difference was present for the probability of pain assessment by sex in bivariate and regression analysis (RR 0.98, 95%CI 0.96, 1.00). Female Veterans were less likely to report any pain compared to male (RR 0.89, 95%CI 0.86, 0.92). Among those with pain, female Veterans were more likely to report moderate-severe pain (RR 1.05, 95%CI 1.01, 1.09) and less likely to have persistent pain (RR 0.90, 95%CI 0.81, 0.99). When stratified by diagnosis, Veterans with depression or PTSD were more likely to be assessed for pain ($p < .0001$). However, there was no significant difference in the proportion of Veterans assessed for pain by sex in those with PTSD and depression ($p > .05$ in both cases).
Hawkins; 2010 ⁴⁰	National sample of Veterans in VA screened for alcohol use between October 1, 2006, and September 30, 2007, and under age 55	Females 2,009 Males 10,083	Observational; To evaluate the recognition and management of alcohol misuse in OEF/OIF Veterans enrolled in the VA system	Alcohol Use Disorders Identification Test Consumption questions (AUDIT-C 10 question); military service information; documentation of brief intervention, referral, and completed referral for treatment	Age-specific and total prevalence of alcohol misuse was higher for younger OEF/OIF men vs. non OEF/OIF men. Rates of alcohol misuse were lower in both OEF/OIF and non OEF/OIF women. No significant difference was observed in the prevalence of alcohol misuse between OEF/OIF and non OEF/OIF women.
Jacobson; 2009 ⁴⁸	Population based sample of randomly selected military service members on rosters as of October 2000 from Millennium Cohort Study	Total 42,174 (Sex not specified)	Observational; To investigate disordered eating levels before and after deployment to determine the prospective association between stressful life events and the development of eating disorders	Disordered eating from 8 question survey from the Patient Health Questionnaire, weight change from baseline to follow up by self-report, demographics and military data	Women deployed with combat exposures were 1.78 times more likely to develop disordered eating (95%CI 1.02, 3.11) and 2.35 times more likely to lose an extreme amount of weight (95%CI 1.17, 4.70).

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Kaplan; 2009 ²³	Suicide decedents aged 18 years and older from the combined 2003 to 2006 National Violent Death Reporting System	28,534	Observational; To examine the rate, prevalence, and relative odds of firearm use among Veteran suicide decedents in the general population	Total and firearm specific suicide rates by gender, Veteran status, and age groups	<ul style="list-style-type: none"> • Across the age groups, male and female Veterans had higher firearm suicide rates than non-Veterans. • Among males and females, younger Veterans (18-34 years) had the highest firearm and total suicide rates. • The male and female Veteran suicide decedents were, respectively, 1.3 and 1.6 times more likely to use firearms relative to non-Veterans after adjusting for age, marital status, race, and region of residence. • Although violent death and use of firearms are generally associated with men, the results reported here suggest that firearms among female Veterans deserve particular attention among health professional within and outside the Veterans Affairs system.
Katz; 2010 ⁴²	Sample of post-deployed service members from OEF/OIF duty	Females 32 Males 183	Observational; To gather psychometric information on the newly developed Post-Deployment Readjustment Inventory (PDRI); validity testing	PDRI global scale and 6 subscales, General information form, Brief Symptom Inventory (BSI), Posttraumatic Checklist-Military version (PCL-M), demographics, and 5 items assessing exposure to war stressors: MST; being injured; and witnessing others injured or killed	The PDRI was highly correlated with the BSI, the PCL-M, and the items for substance abuse. Exposure to war events, scores of readjustment and symptoms were compared across gender. Overall MANOVA was not significant. However, they differed on type of exposure. Women reported a higher rate of MST than men, and men reported higher rate of witnessing others injured or killed than women.
Kelly; 2008 ⁴⁹	National, cross-sectional sample of female Veterans from the National Registry of Women Veterans stratified by age group, period of service, and race (black and non-black)	Females 1,496	Observational; To investigate the effects of military sexual assault and combat exposure on women Veterans' use of Veterans Health Administration (VHA) services and perceptions of VHA care.	Military sexual assault history, combat exposure, use of VHA services, satisfaction with VHA services	Women Veterans with histories of military sexual assault reported more use of VHA services, but less satisfaction, poorer perceptions of VHA facilities and staff, and more problems with VHA services compared to women Veterans without histories of sexual assault. Combat exposure was related to more problems with VHA staff, although few other differences were observed for women with and without histories of combat exposure.

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
Klausner; 2009 ⁵²	Sample of women referred to a specialized lower urinary tract symptom clinic compared to women in a primary care clinic in a VA medical center	Females 1,298	Observational; To characterize the association of psychiatric co-morbidities and sexual trauma with lower urinary tract symptoms (LUTS)	Survey items completed included the Incontinence Impact Questionnaire-7 to assess quality of life and Urogenital Distress Inventory -6 to assess symptoms, sexual trauma screening, pregnancy and birth histories, and psychiatric co-morbidities.	Women referred for LUTS evaluations had higher rates of psychiatric co-morbidities (64.5% vs. 25.9%, p<.001) and sexual trauma (49.6% vs. 20.1%, p<.001) compared to women in primary care. Stepwise multivariate regression demonstrated that higher UDI-6 scores associated with age<50 and history of miscarriage, while higher IIG-7 scores associated with psychiatric co-morbidities and history of miscarriage.
LaVela; 2006 ⁵³	Female Veteran data from a national cross-sectional survey mailed to Paralyzed Veterans of America (PVA) members for the SCI&D group and data from the CDC 2003 Behavioral Risk Factor Surveillance System (BRFSS) survey for the non-SCI&D comparison group	Females 593	Observational; To compare disease prevalence and preventive service use among female Veterans in general and those with spinal cord injuries and disorders (SCI&D)	Disease/condition prevalence (asthma, diabetes, myocardial infarction, stroke, coronary heart disease, high blood pressure, high cholesterol, tooth decay/gum disease, injuries), health status (general health, physical and mental health), and use of preventive services (cholesterol check, dental care, influenza and pneumonia vaccinations, colon screening, breast and cervical cancer screening) among women Veterans with and without SCI&D	Female Veterans with SCI&D were similar in age and race but were better educated and less likely to be employed than female Veterans in general. Coronary heart disease (CHD) prevalence was higher in those with SCI&D (17% vs. 8%, p < 0.0001). Health status was lower in SCI&D (27%) than in general female Veterans (41%), p = 0.002. Fewer women with SCI&D, than female Veterans in general reported having received recommended dental care (56% vs. 69%, p=0.004), colon screening in prior 5 years (59% vs. 72%, p = 0.023) or prior 10 years (67% vs. 92%, p < 0.0001), mammogram (84% vs. 91%, p = 0.019), and Pap smear (88% vs. 98%, p < 0.0001). There were no differences in receipt of respiratory vaccinations or cholesterol screening.

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
LaVela; 2004 ³⁶	Veterans with spinal cord injuries and disorders (SCI&D) identified with the Spinal Cord Dysfunction Registry (SCD-R) for 2001	Total 8,983 98% male	Observational; To describe inpatient and outpatient health care utilization of Veterans with SCI&D; to determine whether health care utilization patterns differ based on residing longer or shorter distances from sources of care; to determine if VA facility closest to patient is bypassed in order to receive care at another VA facility	Utilization defined as any inpatient or outpatient health care services, history of illness (defined as 1 hospitalization in the prior year), travel distance between the zip code center to the VA facility used, and travel distance to the nearest VA	Patients used OP services less frequently when VA facilities were farther away from their residences. Male Veterans with SCI&D were less likely than females Veterans to utilize OP care (p<.0000). Being male reduced the number of OP visits by 27%.
Loney; 2007 ³⁷	Sample of soldiers with traumatic brain injury (war wounded and non war wounded) admitted to one VA medical center for physical and occupational therapy between January 1, 2004 and December 31, 2005	Females 10 Males 109	Dissertation/ Observational; To identify which variables are most associated with therapy intensity and functional clinical outcomes in war wounded traumatic brain injury soldiers from OEF/OIF	Therapy intensity was measured in terms of duration, functional independent measure (FIM), FIM change and FIM efficiency, Severity of injury and TBI polytrauma/blast co-morbidities	War wounded TBI patients had lower admission FIM scores (M = 77.09, SD = 41.55), admission Mobility FIM scores (M = 21.66, SD = 12.85) and spent longer time between initial injury and admission to rehabilitation (M = 92.81, SD = 110.80) than the non-war wounded admission FIM scores (M = 68.18, SD = 32.23), admission Mobility FIM scores (M = 19.00, SD = 10.78), and shorter time between initial injury and admission to rehabilitation (M = 57.58, SD = 63.91). (No specific findings were given by gender. Gender was used in models.)

Author	Sample Characteristics	Sample Size	Design/Objective	Main Measures	Main Findings
McCarthy; 2009 ²⁴	All Veterans with inpatient or outpatient services utilization in any VHA facility during fiscal year 2000 or fiscal year 2001 using data from the VHA's National Patient Care Database	4,670,968	Observational; To examine suicide rates among VHA patients and compare them with rates in the general population	Mortality ratios for suicide risks among VHA patients for age and gender subgroups compared with those in the general US population	<ul style="list-style-type: none"> • Overall, for men and women combined, suicide risks among VHA patients were 66% higher than those observed in the general US population. • VHA rates were 43.13/100,000 person-years for men and 10.41/100,000 person-years for women. • For male patients, the age-adjusted standardized mortality ratio was 1.66; for females, it was 1.87. • Male patients aged 30-79 years had increased risks relative to men in the general population; standardized mortality ratios ranged from 2.56 (ages 30-39 years) to 1.33 (ages 70-79 years). • Female patients aged 40-59 years had greater risks than did women in the general population, with standardized mortality ratios of 2.15 (ages 40-49) and 2.36 (ages 50-5 years).
Moore; 2009 ⁴³	Cohort of service members who repeated their PDHA from deployments to OIF/OEF in 2004-2005	Females 1,061 Males 7,777	Dissertation/ Observational; To identify the health concerns and symptoms that changed, during and after deployment and predicted repeat PDHA	Post Deployment Health Assessment (PDHA), and demographics	Results yielded significant values for age, gender, service, and length of deployment with changes in health concerns. Females were less likely than males to report health changes (OR 0.542, 95%CI 0.470, 0.626). There was a significant correlation between service members that were female (r=.26, p=.013); had shorter deployments (r=-.050, p=.000); and were older (r=.28, p=.009) for increased changes in their second PDHA. Change in health symptoms occurred for 12 of 19 symptoms measured.
Nunnink; 2010 ⁴¹	Newly enrolling female Veterans in 1 southern California VA Medical Center	Females 36	Observational; To examine the rates of co-morbid PTSD and substance abuse in an all-female OEF/OIF Veteran sample, and to investigate the differences in substance abuse in women screening positive vs. screening negative for PTSD	Alcohol Use Disorders Identification Test (AUDIT 10) for alcohol screening, Drug Abuse Screening Test (DAST), the Davidson Trauma Scale (DTS) to measure PTSD symptomatology, demographics, discharge type, and screening items for exposure to combat and problems with alcohol	Thirty-one percent (11) of this small sample of OEF/OIF female Veterans screened positive for PTSD symptoms, 47% (17) screened positive for high-risk drinking and 6% (2) screened positive for drug abuse. Alcohol and drug misuse were both good predictors of PTSD symptoms. Increase awareness and screening for both PTSD and alcohol problems in female Veterans is paramount.

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Owens; 2009 ²⁶	Female Veterans of Iraq and Afghanistan who completed an online survey for the study	50	Observational; To examine the mental health needs and barriers to mental health service use specifically for female Veterans of the wars in Iraq and Afghanistan	Combat exposure and mental health symptoms, mental health services utilization, comparisons between treatment seeker and non-treatment seekers, barriers to seeking mental health services in the VA system	<ul style="list-style-type: none"> • The most frequently reported concerns for which participants indicated they needed counseling were depression, relationship issues, anxiety, and anger management. • Although 78% of respondents reported that they felt they needed treatment in the past year, 42% of these individuals indicated that they did not seek counseling. • Two commonly reported barriers to seeking mental health services in the VA were long waiting periods for appointments and prior bad experiences. • Mental health concerns and symptoms of returning female Veterans indicate the need for treatment, but a significant gap remains in the self-reported need for assistance and seeking of services.
Rundell; 2006 ³¹	Records of consecutive OEF/OIF patients who were medially evacuated to the Landstuhl Regional Medical Center (LRMC) in Germany from the theater of operations for primarily psychiatric reasons between November 4, 2001, and July 30, 2004	1,264	Descriptive; To characterize the demographic and clinical information of OEF and OIF military personnel who were psychiatrically evacuated from the theater of operations	Demographic and administrative characteristics, psychiatric diagnoses	<ul style="list-style-type: none"> • When compared with all returned OEF/OIF Veterans, psychiatric evacuees were more likely to be: female, under the age of 31 years, African-American or Hispanic, enlisted and National Guard/Reserve. • Over 80% of patients were evacuated during the first 6 months, compared with 17% during the second 6 months of deployment. • The most common diagnostic categories were adjustment disorders (37.6%), mood disorders (22.1%), personality disorders (15.7%) and anxiety disorders (15.4%); 16.5 % received no psychiatric diagnosis. • Only 5% of evacuees returned to OEF/OIF duty. • Almost half of evacuated patients received no diagnosis or no adjustment disorder diagnosis, suggesting clinical improvement since a decision for evacuation was made.

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Seal; 2009 ³²	OIF and OEF Veterans who were first-time users of VA health care after their OIF and OEF military service from April 1, 2002 through March 31, 2008	289,328	Observational; To investigate longitudinal trends and risk factors for mental health diagnoses among Iraq and Afghanistan Veterans	Prevalence of mental health diagnoses	<ul style="list-style-type: none"> • Of 289,328 Iraq and Afghanistan Veterans, 106,726 (36.9%) received mental health diagnoses; 62,929 (21.8%) were diagnosed with PTSD and 50,432 (17.4%) with depression. • Adjusted 2-year prevalence rates of PTSD increased 4 to 7 times after the invasion of Iraq. • Active duty Veterans younger than 25 years had higher rates of PTSD and alcohol and drug use disorder diagnoses compared with active duty Veterans older than 40 years (adjusted relative risk = 2.0 and 4.9, respectively). • Women were at higher risk for depression than were men, but men had over twice the risk for drug use disorders. • Greater combat exposure was associated with higher risk for PTSD.
Seal; 2010 ³⁵	National subgroup of OEF and OIF Veterans who received VA health care services between April 1, 2002 and March 31, 2008	84,972	Observational; To evaluate OEF and OIF Veterans' utilization of VA mental health services, looking at 3 main factors: predisposing, enabling, and need factors	VA mental health services utilization and the intensity of VA mental health services utilization	<ul style="list-style-type: none"> • Of 49,425 Veterans with newly diagnosed PTSD, only 9.5% attended 9 or more VA mental health sessions in 15 weeks or less in the first year of diagnosis. • Engagement in 9 or more VA treatment sessions for PTSD within 15 weeks varied by predisposing variables (age and gender), enabling variables (clinic of first mental health diagnosis and distance from VA facility), and need (type and complexity of mental health diagnoses). • Only a minority of Iraq and Afghanistan Veterans with new PTSD diagnoses received a recommended number and intensity of VA mental health treatment sessions within the first year of diagnosis.
Sherman; 2005 ⁵⁴	Sample Veterans (and their female partners) who served in the Vietnam War, had a diagnosis of PTSD and service-connected disability for PTSD, participated in the PTSD program, and current cohabitation with a female partner recruited from two VA medical centers	Females 72	Observational; To perform an initial needs assessment of partners of Vietnam Veterans with combat-related post-traumatic stress disorder (PTSD) and to assess the partners' current rates of treatment use.	Partner treatment experiences and ratings of treatment needs; partners' assessment of her need for individual treatment and the partner's appraisal of family treatment being extremely important (yes/no).	Although large majorities of partners rated individual (64%) and family therapy (78%) to help cope with PTSD in the family as extremely or very important, only 28% had received any mental health care in the previous six months. Significant predictors of desire for individual treatment included partner's anxiety and patient-partner contact, and partner's age and severity of the patient's PTSD symptoms were significant predictors of family treatment. The most commonly requested service was a women-only group.

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Stecker; 2007 ⁵⁵	VA national databases were used to identify Veterans receiving IOP substance use treatment, and Veterans with substance use disorders attending primary care but not in treatment.	Females 247 Males 8,082	Observational; To investigate gender differences among Veterans receiving intensive outpatient (IOP) substance use treatment in a national VA sample and to compare women attending IOP with women with substance use disorders in VA primary care.	Psychiatric and medical conditions that co-occur with substance use disorder	Stigma was portrayed as a major disadvantage to treatment seeking. Yet most participants indicated that people would be supportive of treatment seeking. Reducing symptoms was a major advantage to care. Barriers included pride, not being able to ask for help, and not being able to admit to having a problem.
Street; 2009 ³⁴	Literature review on gender-relevant issues among OEF/OIF female Veterans	N/A	Systematic review/meta-analysis; To highlight emerging issues relevant to the development of PTSD among women deployed to Iraq and Afghanistan	Combat experiences in Iraq and Afghanistan, sexual assault and sexual harassment, exposure to other interpersonal stressors, the role of premilitary and postmilitary interpersonal trauma, homecoming readjustment	Women are approximately twice as likely as their male counterparts to be diagnosed with PTSD. However, there are also indications that the gender-specific risk of PTSD differs substantially by type of traumatic event.
Wells; 2010 ²⁵	Participants in the first panel of Millennium Cohort Study 2001-2006 who completed baseline and follow-up questionnaires and met inclusion criteria	40,219	Observational; To investigate relations between deployment and new-onset depression among US service members recently deployed	Comparison of new-onset depression by deployment status and gender	<ul style="list-style-type: none"> • Deployed men and women with combat exposures had the highest onset of depression, followed by those not deployed and those deployed without combat exposure. • Combat –deployed men and women were at increased risk for new-onset depression compared with nondeployed men and women (men: adjusted odds ratio [AOR]=1.32; 95% CI=1.13, 1.54; women: AOR=2.13; 95% CI=1.70, 2.65). • Conversely, deployment without combat exposures led to decreased risk for new-onset depression compared with those who did not deploy (men: AOR=0.66; 95% CI=0.53, 0.83; women: AOR=0.65; 95% CI=0.47, 0.89).

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Wojcik; 2010 ³⁰	All U.S. Army soldiers deployed from September 2001 (OEF) and September 2002 (OEF) through December 2004	473,964	Observational; To examine the magnitude and characteristics of mental disorder hospitalizations among U.S. Army soldiers deployed in Iraq and Afghanistan through December 2004	Relative risks of mental disorder admissions in OIF and in OEF, attempted suicide/self-inflicted-related admissions	<ul style="list-style-type: none"> • There were a total of 1,948 psychiatric hospitalizations of deployed soldiers. • The most common mental problems were mood, adjustment, anxiety disorders (including PTSD). • Relative risk (RR) of mental disorders ranged from 1.6 to 3 for females and 2 to 6 for enlisted soldiers compared to their counterparts. • Younger soldiers had 30-60% higher substance abuse disorders. • Combat units in Iraq demonstrated higher risk of any mental disorder and anxiety problems compared to combat support units. • Younger women had the highest incidence of attempted suicide/self-inflicted injuries.
Zivin; 2007 ²²	National sample from the VA's National Registry for Depression (NARDEP) from April 1, 1999 to September 30, 2004	807,694	Observational; To report clinical and demographic factors associated with suicide among depressed Veterans in an attempt to determine what characteristics identified Veterans at high risk for suicide	Suicide, and association with patient age, race, gender, substance abuse diagnosis, diagnosis of PTSD, Hispanic ethnicity, treatment location, prior VA hospitalization, service connection, and baseline medical comorbidity.	<ul style="list-style-type: none"> • Of 807,694 Veterans meeting study criteria, 1683 (0.21%) committed suicide during follow-up. • Increased suicide risks were observed among male, younger, and non-Hispanic White patients. • Veterans without service-connected disabilities, with inpatient psychiatric hospitalizations in the year prior to their qualifying depression diagnosis, with comorbid substance use, and living in the southern or western United States were also at higher risk. • Posttraumatic stress disorder (PTSD) with comorbid depression was associated with lower suicide rates, and younger depressed Veterans with PTSD had a higher suicide rate than did older depressed Veterans with PTSD. • Unlike the general population, older and younger Veterans are more prone to suicide than are middle-aged Veterans.

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Zouris; 2008 ⁵¹	Review of hospitalization data from OIF for casualties monitored by TRANSCOM Regulating and Command and Control Evacuation system (TRAC2ES) and Joint Patient Tracking Application (JPTA) that monitors all branches of the US Armed Forces in theatre of operations	Females 1,305 Males 11,766	Observational; To describe the distribution of evacuated wounded in action (WIA) and Disease and Nonbattle Injury (DNBI) casualties sustained during the Major Combat Phase (OIF-1) and the Support and Stability Phase (OIF-2) of OIF involving the US Army and Marines	Primary ICD-9 diagnoses, gender, service were obtained, and casualties were classified as WIA or DNBI, subcategories of ICD-9 diagnoses were also created	The majority of casualties were DNBI (75%), Army personnel (83.5%) and were male (90%). Disease and nonbattle injury ICD-9 distributions differed by gender. The proportion of nonbattle injuries was significantly higher among men. Subcategories more common among women than men included neoplasms, mental disorders, diseases of the blood, respiratory, and genitourinary symptoms.