

# Gender Differences and Prevalence of Pain in OEF/OIF Veterans

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# A project of The Women Veteran's Cohort Study

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# Background

- Pain is frequently reported by Veterans of war
- Operation Desert Shield/Desert Storm
- Operation Enduring Freedom/Iraqi Freedom

# Pain is more common in women

- In civilian populations women more commonly report specific pain syndromes:
  - Migraines
  - Oral-facial pain
  - Fibromyalgia
  - Abdominal pain
  - More severe and longer lasting pain

# Gender Differences in Pain among Veterans

- VA CT study of pain in female Veteran primary care patients found a higher prevalence of pain (75%) than a similar study in male veterans (50%).
- Another study of health related quality of life in over 18,000 veterans with mental illness found females had lower scores on the SF-36 physical component summary (indicating worse symptoms), were more likely to report that they were limited "a lot" in activities of daily living, and had more pain than males

## **The proportion of women in the military, and using VA, is increasing**

- At present, 15% of Active Military, 17% of National Guard/Reserves, and 20% of new recruits are women
- OEF/OIF women are using the VHA in record numbers.
- Women are now among the fastest growing segments of new VHA users with as many as 44% of women returning from Iraq and Afghanistan electing to use the VHA compared to 11% in prior eras.

# **OEF/OIF Women at risk for pain.**

- OEF/OIF female Veterans are younger,
  - More likely to identify as racial minorities,
  - Less likely to be married than male counterparts.
- 
- High prevalence of mental health disorders.
  - High rates of exposure to combat trauma.
  - High rates of exposure to sexual trauma.

# **Pain screening part of routine health assessment at VA**

- Previous studies have not assessed whether pain varies by sex.
- No study has reported whether women returning from war have more severe or persistent pain than their male counterparts.
- Understanding the epidemiology of pain in female Veterans will be essential as the VA plans pain treatment services.

# Hypothesis:

- Our study was designed to assess the prevalence of pain by gender in Veterans seen in the VA in the first year after deployment to OEF-OIF.
- We hypothesized that Female Veterans will have more overall pain, more moderate-severe pain, and more persistent pain than their male counterparts.

# Methods

- Study population from VA's OEF/OIF roster
  - Roster contains information on U.S. Military personnel discharged from 10/1/2001-11/30/2007
  - Who enrolled for VA services before January 1, 2008.
  - N=406,802 at the time of this analysis
- Analytic sample limited to:
  - Veterans who had at least 1 visit to a VA clinic likely to obtain pain scores (e.g. primary care, women's clinic)
  - And at least one year of observation after enrollment.

# Data Sources

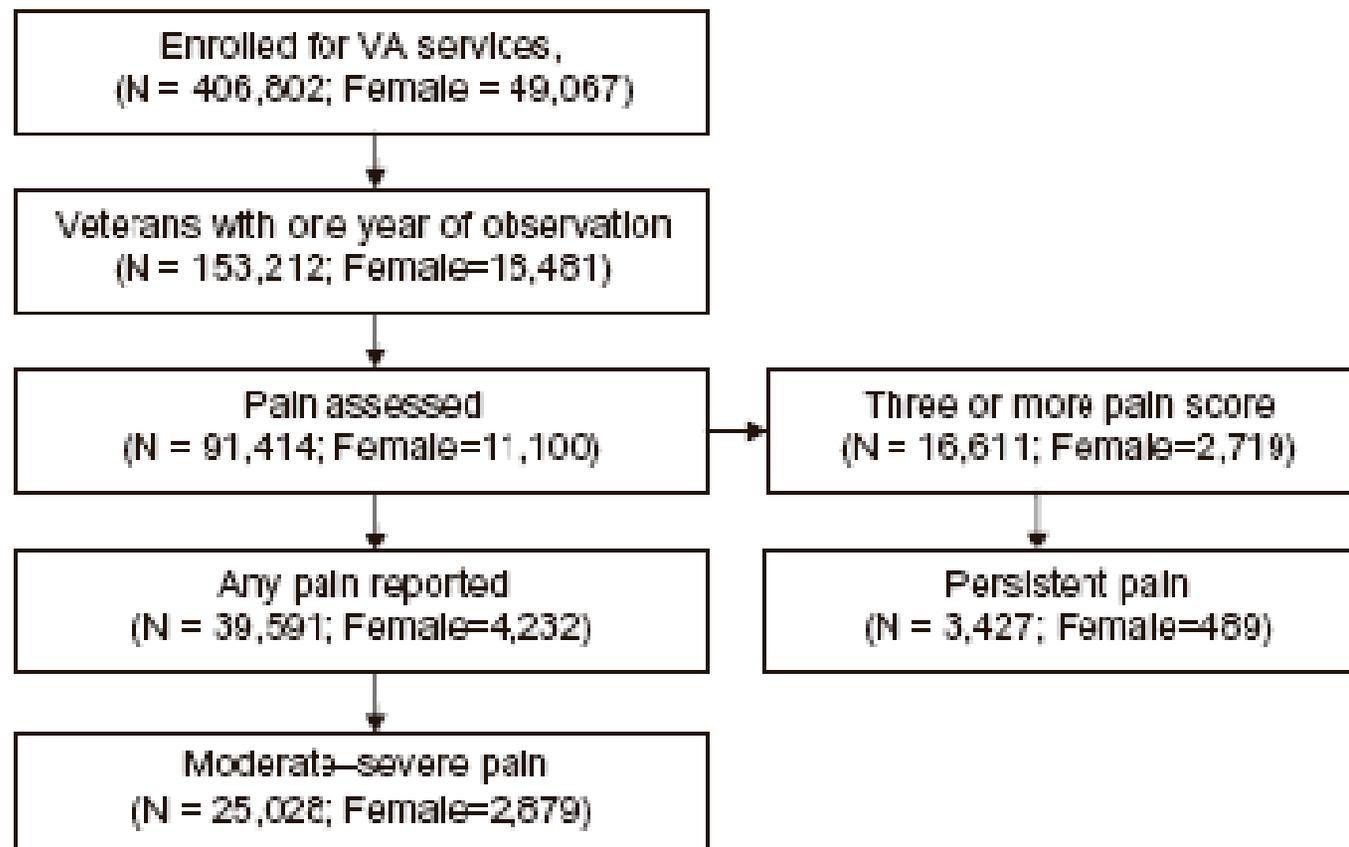
- Roster includes information on Veteran's sex, DOB, race, education, marital status, rank, branch of service, and deployment start and end dates.
- Data on eligible visits, ICD-9 codes, and pain scores ascertained from VA Corporate Data Warehouse (CDW).

# Pain numeric rating scale

- At each visit, Veterans are asked to rate their current pain intensity on a scale of 0–10, where 0 is no pain and 10 is the worst possible pain
- The score is recorded along with vital signs.
- We retained only scores recorded at outpatient visits.
- We retained the highest scores on a day.

# Definitions

- Pain was defined as assessed if the Veteran had a valid pain score in the 1 year observation period.
- Among Veterans who were assessed, Any Pain was defined as a score  $\geq 1$ .
- Among those with Any Pain, Moderate-Severe pain was defined as a score  $\geq 4$ .
- Persistent pain was defined as 3 or more scores  $\geq 4$  recorded in at least 3 different months.



**Figure 1** Flow diagram of pain assessment, moderate-severe pain, and persistent pain among Veterans of Operations Enduring Freedom and Iraqi Freedom (OEF/OIF) seen at VA outpatient clinics.

Haskell SG, Brandt C, Krebs EE, Skanderson M, Kerns R, Goulet JL. Pain among Veterans of Operations Enduring Freedom and Iraqi Freedom: Do Women and Men Differ? *Pain Med.* 2009 Oct;10(7):1167-73 .

# Statistical analyses

- Chi square to examine bivariate relationships.
- T-tests or nonparametric tests as appropriate for continuous variables.
- Poisson regression to calculate relative risks and 95% confidence intervals.
  - demographic variables significant in bivariate analysis were entered into the multivariable model as covariates.

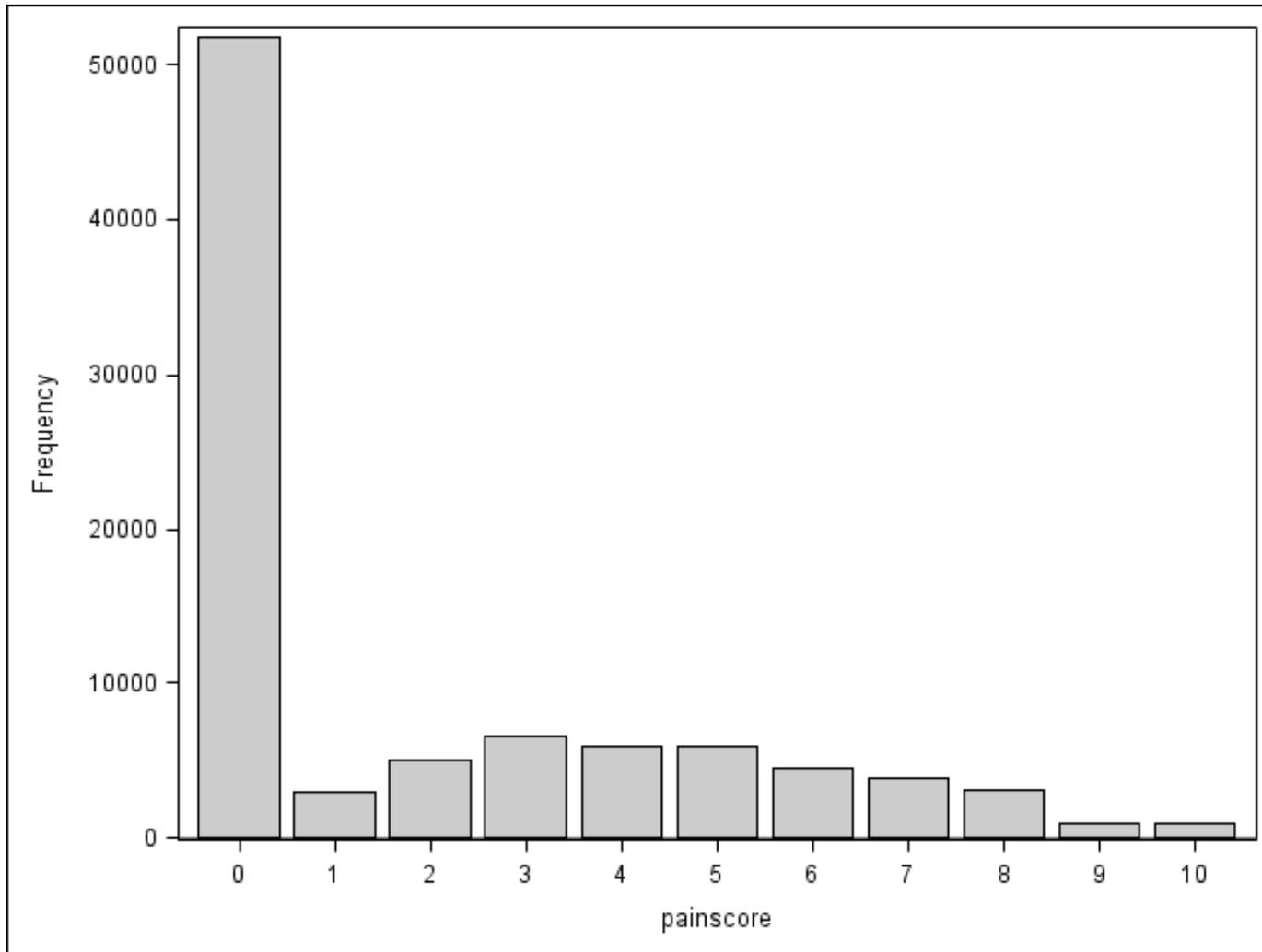
## Demographics of OEF/OIF Veterans using VA in first year post deployment

N=153,212	Female n=18,481	Male n=134,731	P value
Age mean (SD)	30.2 (8.8)	32.6 (9.8)	<0.0001
<b>Race</b>			
Black	30.3%	14.2%	<0.0001
Hispanic	10.8%	11.8%	
White	52.9%	68.8%	
Other	3.3%	2.6%	
unknown	2.7%	2.5%	
<b>Education</b>			
Less than HS	1.4%	1.5%	<0.0001
High School	69.6%	74.6%	
College	28.7%	24.0%	
<b>Marital Status</b>			<0.0001
Married	31.8%	50.1%	
Never married	57.9%	44.5%	

# Service Characteristics

	Female n=18,481	Male n=134,731	P value
<b>Branch</b>			<0.0001
Army	78.9%	76.1%	
Air Force	10.3%	6.6%	
Marines	2.9%	11.2%	
Navy	7.8%	6.1%	
<b>Rank</b>			<0.0001
Enlisted	91.4%	91.8%	
Officer	8.0%	7.0%	
Warrant	0.6%	1.2%	

# Distribution of Pain scores



# Results

- The analytic sample consisted of 153,212 Veterans
- Pain was assessed in 59.7% of sample
  - Among those assessed, 43.3% reported any pain.
    - Among those with any pain, 63.2% reported moderate-severe pain.
- 20.6% met our definition of persistent pain.

# Pain Assessment and Pain Characteristics by Sex

	Female n=18,481	Male n=134,731	P value
Pain Assessment	60.1%	59.6%	0.247
Any pain	38.1%	44.0%	<0.0001
Moderate pain	68.0%	62.6%	<0.0001
Persistent pain	18.0%	21.2%	<0.0001

# Results of regression models (relative risks)

Variable	Assessed RR 95% CI)	Any pain RR (95%CI)	Moderate Pain RR (95%CI)	Persistent Pain RR(95%CI)
Female	0.98 (0.96, 1.00)	0.89 (0.86, 0.92)	1.05 (1.01, 1.09)	0.90 (0.81, 0.99)
Male	Ref.	Ref.	Ref.	Ref.
Age	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)
Divorced	1.05 (1.02, 1.08)	1.00 (0.96, 1.04)	1.00 (0.95, 1.06)	0.99 (0.87, 1.12)
Never married	1.10 (1.08, 1.12)	0.88 (0.86, 0.90)	0.98 (0.95, 1.01)	0.80 (0.73, 0.87)
Married	Ref.	Ref.	Ref.	Ref.
Black	1.00 (.098, 1.02)	0.97 (0.94, 1.00)	1.22 (1.18, 1.26)	1.10 (1.01, 1.20)
Hispanic	1.07 (1.05, 1.10)	0.92 (0.90, 0.95)	1.01 (0.97, 1.05)	0.68 (0.61, 0.76)
Other	1.05 (1.01, 1.09)	0.97 (0.91, 1.03)	1.09 (1.01, 1.17)	0.70 (0.56, 0.89)
Unknown	0.92 (0.88, 0.96)	0.97 (0.90, 1.03)	1.16 (1.07, 1.25)	1.17 (0.93, 1.46)
White	Ref.	Ref.	Ref.	Ref.

Also controlled for education, branch, and rank

# Summary

- Our findings document a lower prevalence of reported pain in women compared with men in the first year post-deployment, after adjusting for other demographic factors.
- In those with pain, women were more likely to report moderate-severe pain
  - But women had a lower prevalence of moderate-severe pain overall.
- Persistent pain was also less common in women.

# Unexpected findings

- Lower prevalence of pain in women is an unexpected finding.
- Does this reflect gender differences in exposure to combat trauma and injury?
- Does OEF-OIF training/service change usual gender differences in pain outcomes?
- Are OEF-OIF women less likely to complain of pain?
- Are barriers to VA care different for women/men Veterans with pain?

# Limitations

1. Accuracy of pain numeric rating scale.
2. Evaluation is limited to patients seen in VA Clinics.

# Conclusions

- Among OEF/OIF Veterans seen in VA outpatient clinics within 1 year of last deployment, we found that women Veterans had a lower prevalence of pain.
- Understanding gender differences in pain is an important step in VA Pain research and will help guide planning, resource allocation, and policy for women Veterans and OEF/OIF Veterans of both sexes.

# Next Steps

- What is the trajectory of pain in OEF/OIF women/men Veterans over time?
- What are the specific pain related diagnoses in women compared to men?
- Is there a difference in complexity of pain syndromes in women/men?
- What about the co-occurrence of MST and its association with chronic pain?
- Are there gender specific differences in pain treatment?

# Thank you

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