

# Epidemiology of PTSD

Presented by

National Center for PTSD

U.S. Department of  
Veterans Affairs

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National  
Center for  
**PTSD**  
Posttraumatic  
Stress Disorder

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## **Paula P. Schnurr, PhD**

Deputy Executive Director, National Center  
for PTSD

Research Professor, Dartmouth Medical  
School



## **Jaimie L. Gradus, DSc, MPH**

Epidemiologist, National Center for PTSD,  
VA Boston Healthcare System

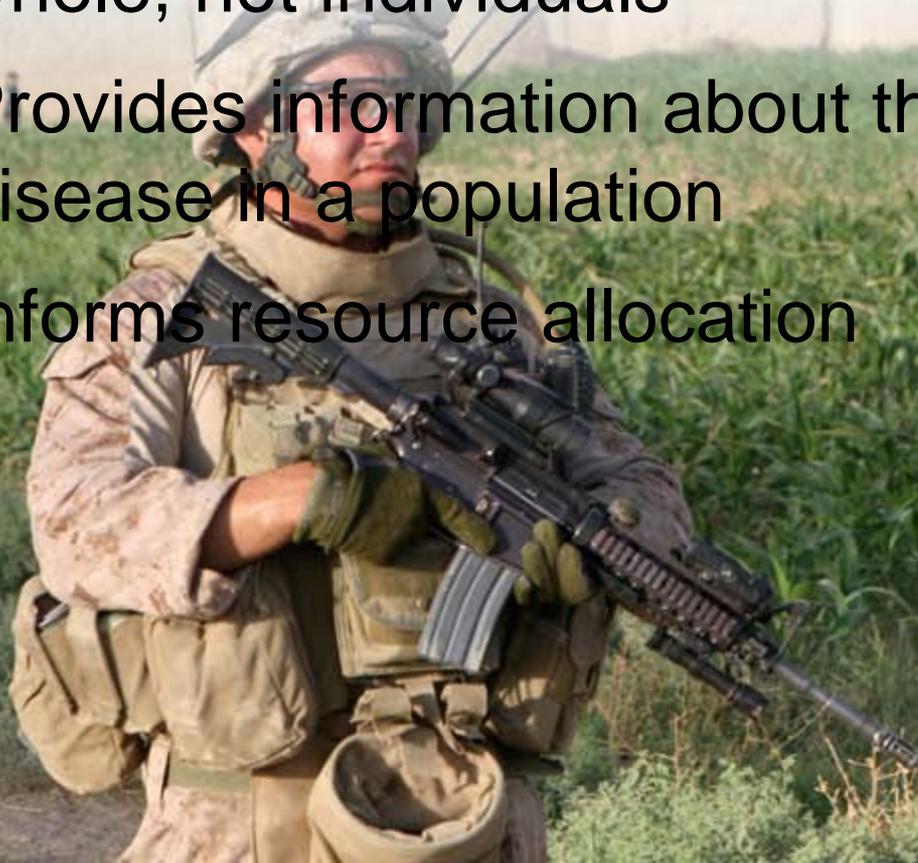
Assistant Professor, Boston University  
Schools of Medicine and Public Health

# Learning Objectives

- 1.** Understand key epidemiologic concepts
- 2.** Describe factors that influence prevalence estimates in a given sample
- 3.** Evaluate prevalence estimates for PTSD in civilian and Veteran populations

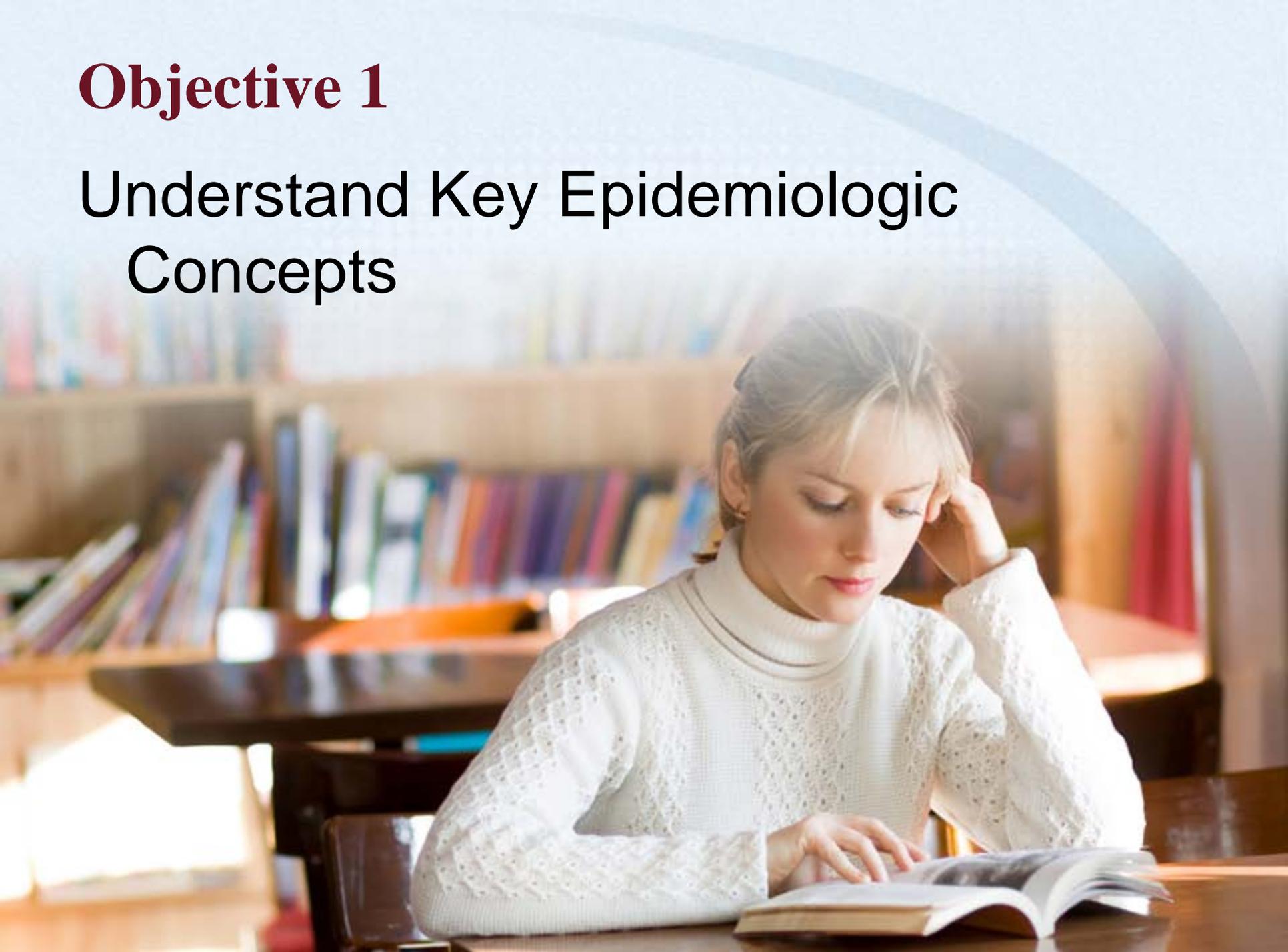
# Why Is Epidemiology Important?

- ▶ The science of public health
- ▶ Follows the health status of populations as a whole, not individuals
- ▶ Provides information about the extent of disease in a population
- ▶ Informs resource allocation



# Objective 1

## Understand Key Epidemiologic Concepts



# Population and Sample

- Population – a group of people with a common characteristic such as place of residence, age, gender, or experience
- Sample – a subset of a population



# Sampling

## ► Representative vs. Biased Sample

- Representative samples are ideal but sometimes not possible
- Convenience samples (e.g., clinic samples) are usually biased because they oversample certain types of people



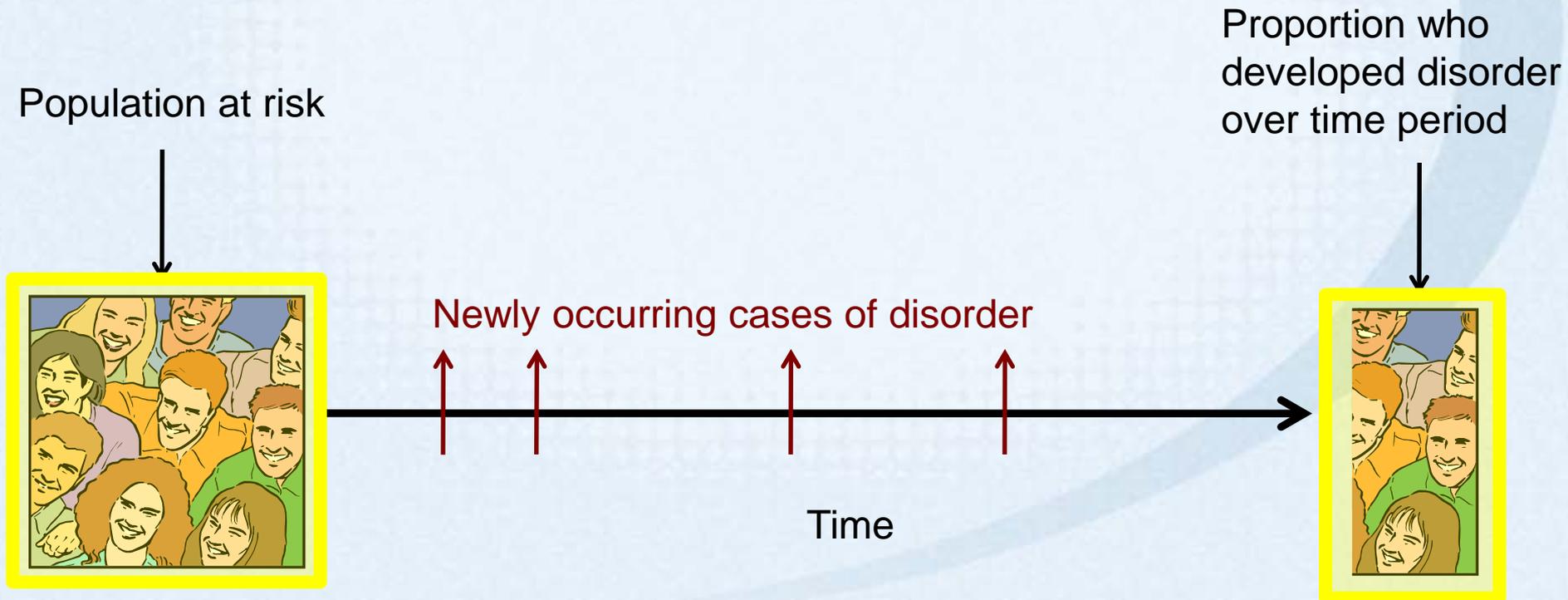
# Incidence and Prevalence

- ▶ Different measures of disorder frequency in a population
- ▶ Not interchangeable



# Incidence

- ▶ New cases of a disorder over a given amount of time among a population at risk
  - Represented as a proportion or a rate



# Prevalence

- ▶ Proportion of people in a population that have a given disorder at a specific time
  - Not a rate



← Proportion of people with disorder at a given point in time

Time



← Entire population

# Current and Lifetime Prevalence

- ▶ Current prevalence – proportion of people in a population who have a disorder at or near the time of assessment (e.g., past month or year)
- ▶ Lifetime prevalence – proportion of people who have ever had the disorder

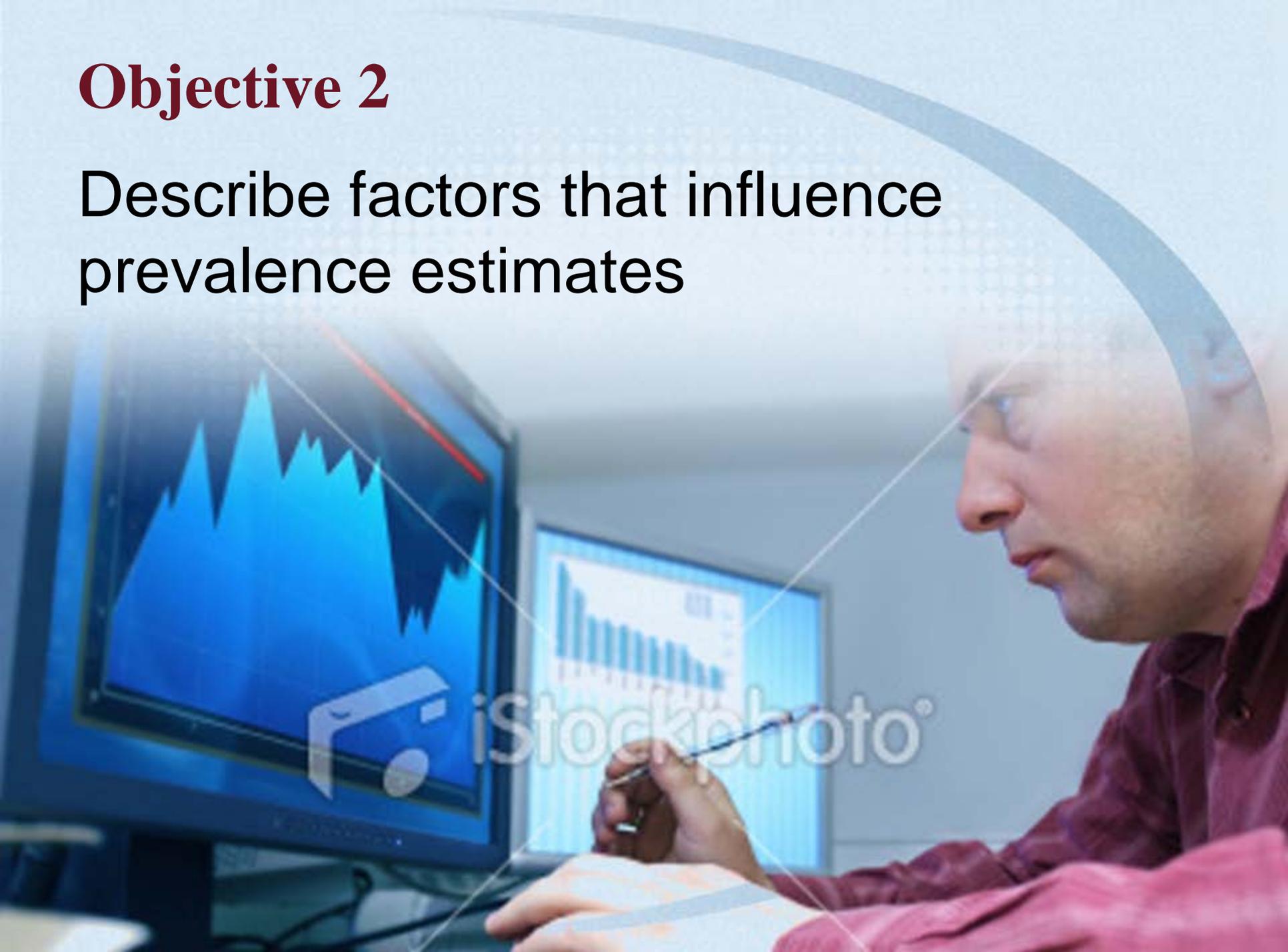
# Risk and Protective Factors

- ▶ Risk and protective factors - characteristics associated with a particular disorder
- ▶ Risk and protective factors are not necessarily causal
  - Sometimes the term “risk marker” is used to specify that a risk factor is not a cause



## Objective 2

Describe factors that influence prevalence estimates



# Factors that Influence Prevalence

Prevalence varies as a function of:

- How often a disorder occurs
- Characteristics of a study sample
- How information about the disorder is obtained in the study
- When and where the study sample is obtained

# Question

What is the prevalence of PTSD among Veterans who served in Iraq and Afghanistan?

- ▶ Look to Hoge et al., (2004) for estimate



# Disorder Occurrence

	Study Group			
	Army: <b>Before</b> Deployment to Iraq	Army: <b>After</b> Deployment to Afghanistan	Army: <b>After</b> Deployment to Iraq	Marines: <b>After</b> Deployment to Iraq
PTSD	5.0%	6.2%	12.9%	12.2%

- ▶ Example: Prevalence of PTSD increased after deployment (Hoge et al., 2004)
- ▶ Increases in prevalence estimates should follow true increases in disorder occurrence

# Question

What is the prevalence of PTSD among Veterans who served in Iraq and Afghanistan?

- ▶ Hoge et al., (2004)
  - Differs between pre- and post-deployment



# Sample Characteristics

	Study Group			
	Army: Before Deployment to Iraq	Army: After Deployment to Afghanistan	Army: After Deployment to Iraq	Marines: After Deployment to Iraq
PTSD	5.0%	6.2%	12.9%	12.2%

- Prevalence varies as a function of sample characteristics, such as race, gender, military branch
  - Example: Prevalence of PTSD varied across service branch and deployment location

# Question

What is the prevalence of PTSD among Veterans who served in Iraq and Afghanistan?

► Hoge et al., (2004)

- Differs between pre- and post-deployment
- Differs by deployment location, branch of service, and other factors



# Assessment Method

- ▶ Prevalence varies by how the disorder is assessed or defined
  - Method/Instrument: self-report, lay interview, or structured diagnostic interview



# Assessment Method

Example: Prevalence varied by PTSD definition

	Study Group			
Prevalence	Army: Before Deployment to Iraq	Army: After Deployment to Afghanistan	Army: After Deployment to Iraq	Marines: After Deployment to Iraq
<b>Broadly Defined PTSD</b>	9.4%	11.5%	18%	19.9%
<b>Strictly Defined PTSD</b>	5.0%	6.2%	12.9%	12.2%

# Question

- ▶ What is the prevalence of PTSD among Veterans who served in Iraq and Afghanistan?
- ▶ Hoge et al., (2004)
  - Differs between pre- and post-deployment
  - Differs by branch of service and deployment location
  - Differs by assessment method/instrument used



# Sampling Method

- ▶ The ideal sample represents the population
- ▶ If it does not, prevalence may be inaccurate
  - Sample estimates should be generalized with caution



# Question

What is the prevalence of PTSD among Veterans who served in Iraq and Afghanistan?

## • Hoge et al., (2004)

- Differs between pre- and post-deployment
- Differs by branch of service and deployment location
- Differs by assessment method/instrument used
- Estimates from nonrepresentative samples may be biased
- Estimates are only generalizable to the population represented by the study sample

# Question

What is the prevalence of PTSD among Veterans who served in Iraq and Afghanistan?

- ▶ Difficult to answer
- ▶ Estimates impacted by many factors
- ▶ Important to consider these factors when interpreting estimates

# What to Look For

Studies that have:

- ▶ Large sample size
- ▶ Representative sample
- ▶ Standardized, validated measures
- ▶ Complete descriptions of the sample from which prevalence estimates were obtained

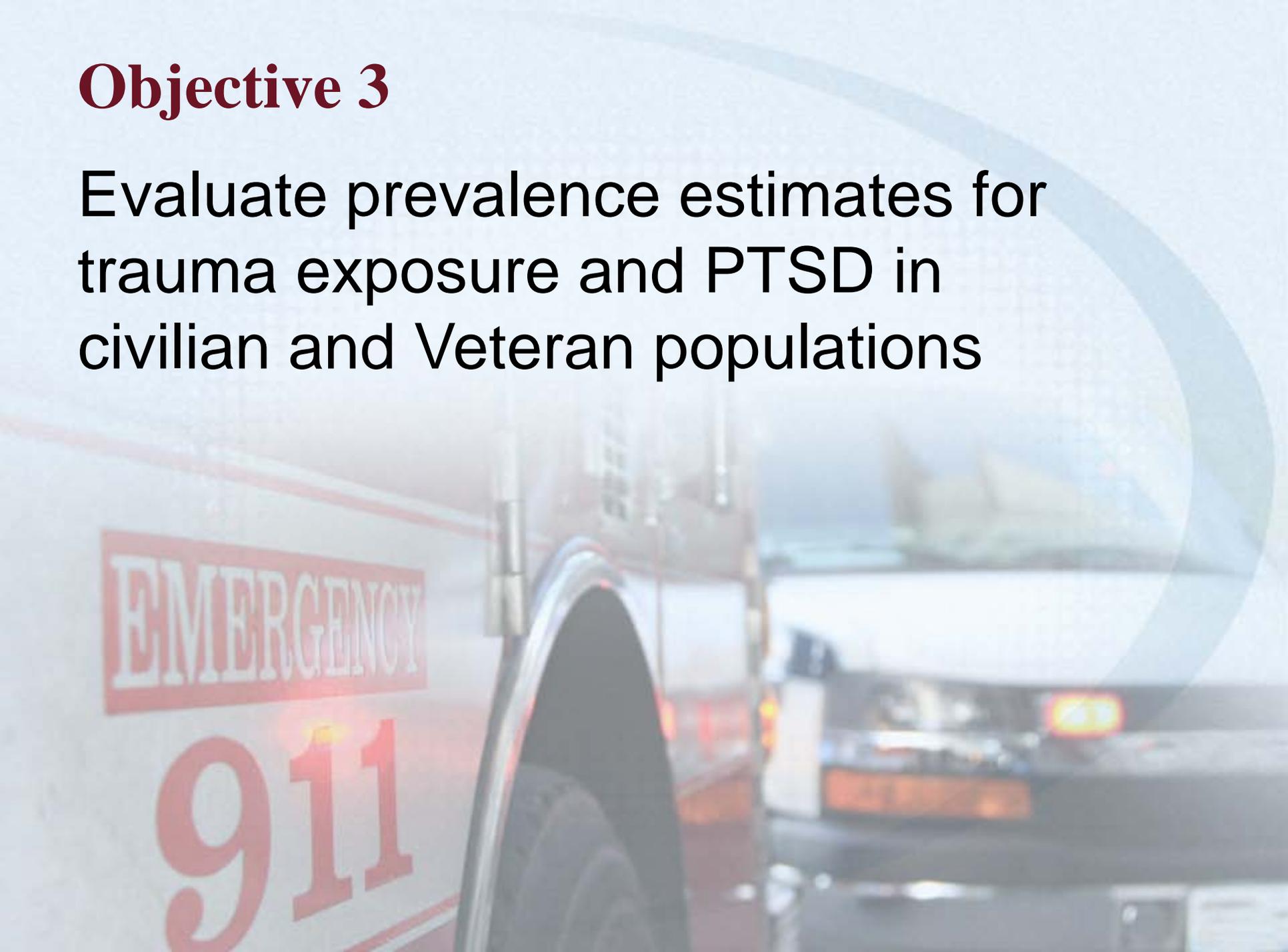


# Section Summary

1. Prevalence is the *proportion* of people with a disorder in a population at a specific time
2. Prevalence estimates are dynamic and can change over time
3. Estimates are influenced by disorder occurrence, sample characteristics, sampling method, and how the disorder is assessed

## **Objective 3**

Evaluate prevalence estimates for trauma exposure and PTSD in civilian and Veteran populations



EMERGENCY

911

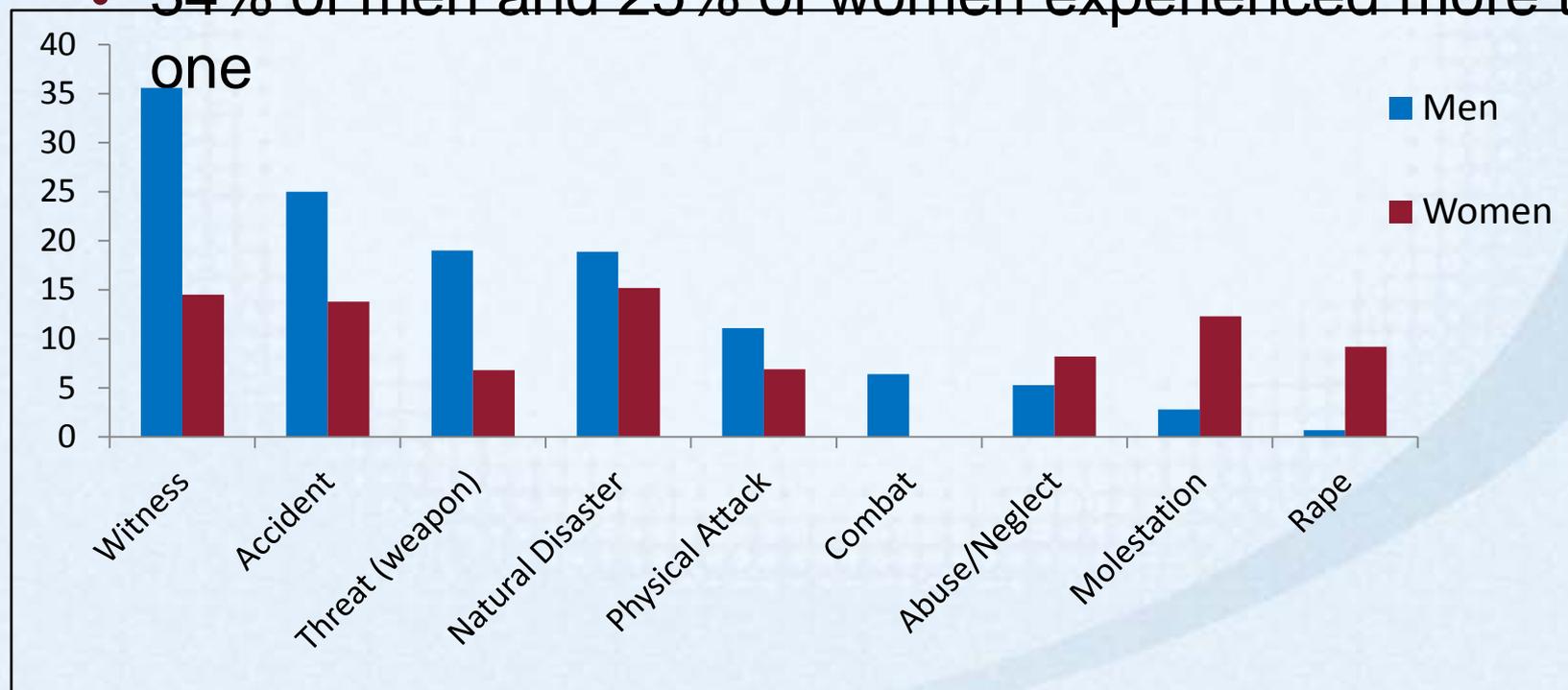
# Understanding Trauma and PTSD in the General Population

- ▶ Best estimates come from the National Comorbidity Survey (NCS) and Replication (NCS-R)
  - NCS: 1990-1992, N = 5,877, ages 15-54 years
  - NCS-R: 2001-2003, N = 5,692, ages 18+ years
- ▶ Rigorous scientific methods
  - Large, nationally representative samples
  - Structured lay interview, Composite International Diagnostic Interview (CIDI)

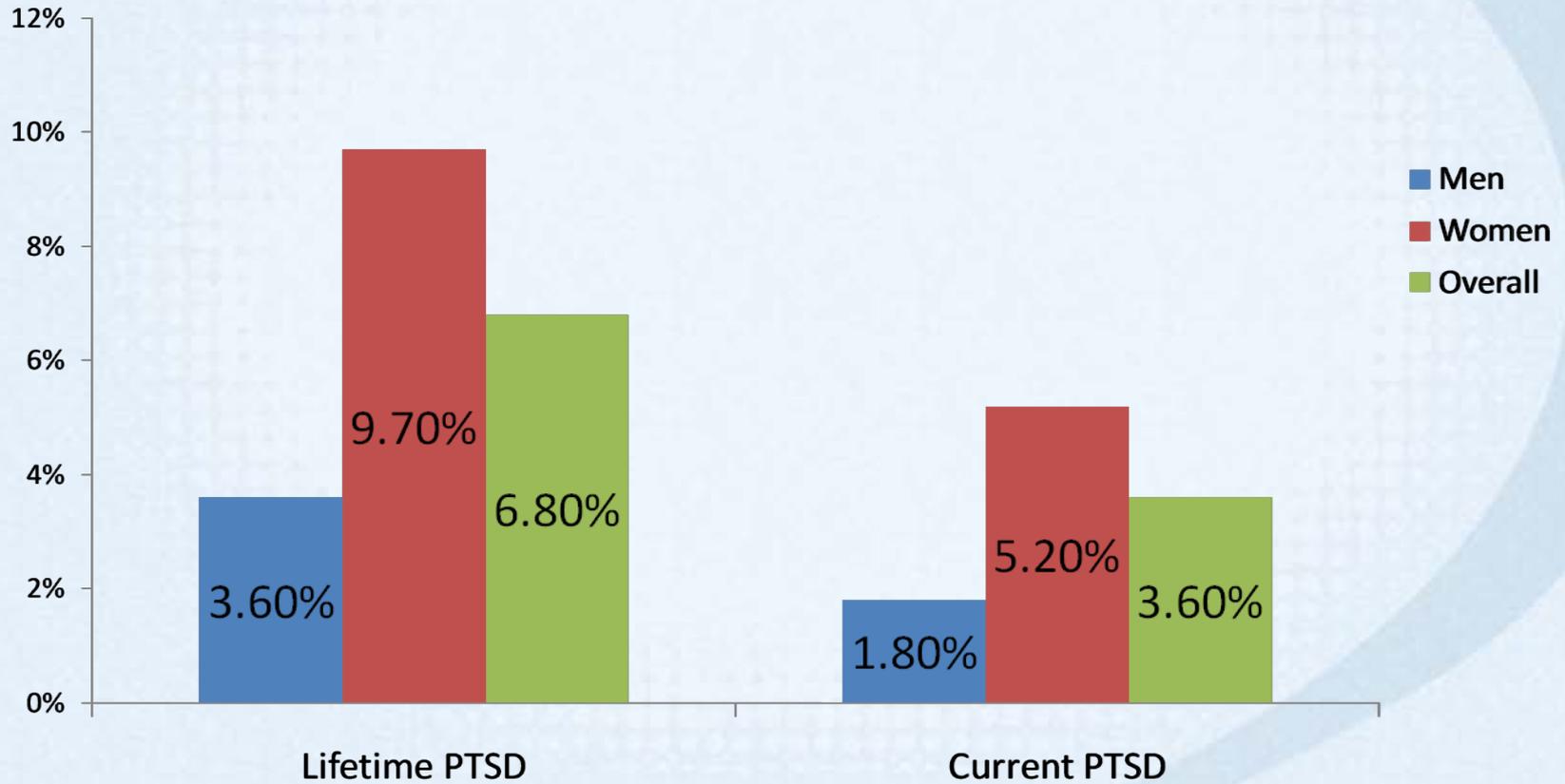
# Trauma Exposure is Common

- 61% of men and 51% of women in the US experience at least one traumatic event in their lifetime

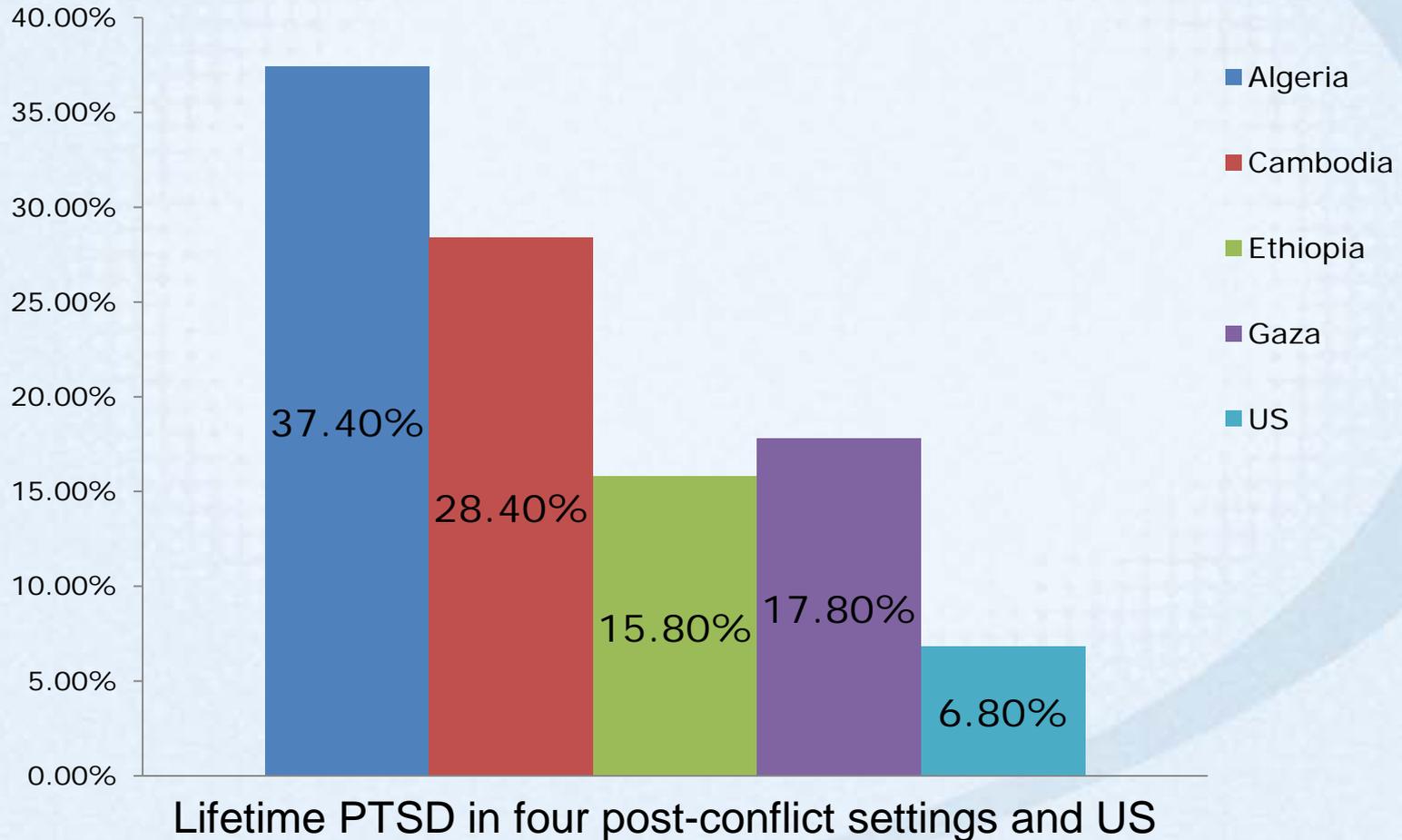
- 34% of men and 25% of women experienced more than one



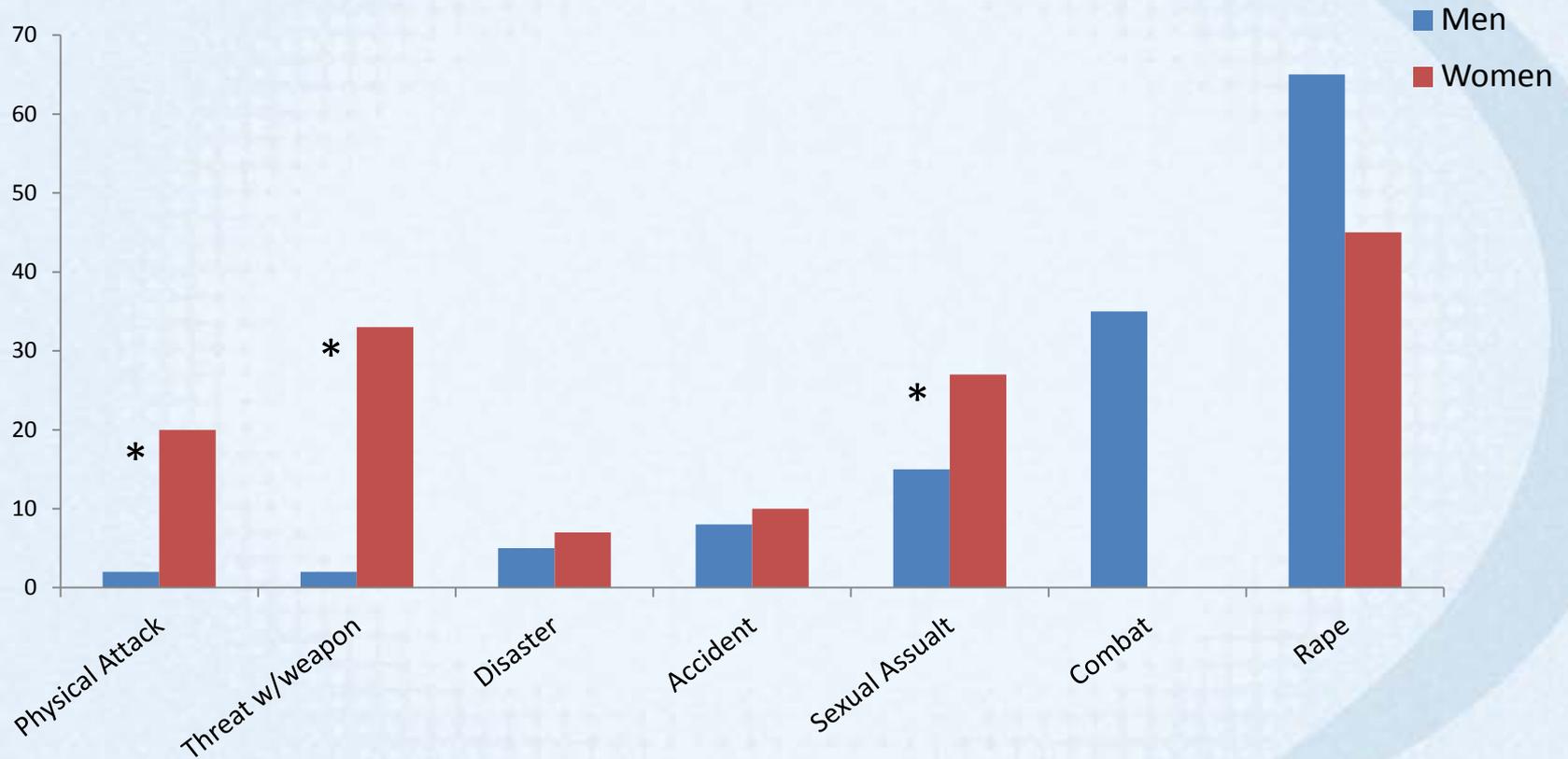
# But Most People Do not Develop PTSD



# PTSD Prevalence is Higher in Populations with More Trauma Exposure



# PTSD Varies as a Function of Type of Trauma



\* Significant gender difference in prevalence

# PTSD Varies as a Function of Many Other Risk Factors

- ▶ Sociodemographic characteristics
  - female gender, younger age, minority race, lower education
- ▶ Historical factors
  - prior trauma exposure, other prior adversity, history of psychiatric disorder
- ▶ Characteristics of trauma exposure
  - type, amount, age at exposure
- ▶ Characteristics of the recovery environment
  - low social support, stressful life events, and new traumatic events

# But Risk Factors Don't Necessarily Explain Anything

- ▶ For example, the elevated prevalence in minorities is largely due to a greater amount of trauma exposure
- ▶ Care must be taken when interpreting why factors affect risk

# Understanding PTSD in Veterans: War Zone Exposure Varies by Era



# Understanding PTSD in Veterans: Other Key Facts

- ▶ No single study is applicable to all Veterans
  - Estimates based on results of various studies
- ▶ Information on some cohorts is limited
  - No studies used validated measures in a representative sample of WWII or Korean War Veterans
  - No recent studies based on a representative sample of Vietnam Veterans
- ▶ PTSD diagnosis was not formalized until 1980
  - Difficult to know the prevalence before then

# PTSD in Veterans of the Wars in Iraq and Afghanistan

- ▶ OEF/OIF Veterans
  - ▶ Operation Enduring Freedom
  - ▶ Operation Iraqi Freedom
- ▶ Cohort offers best opportunity to understand the effects of war zone exposure
- ▶ Active research efforts to study PTSD before, during, and after deployment



# OEF/OIF: Millennium Cohort Study

- ▶ Longitudinal cohort study of over 150,000 male and female military personnel
- ▶ Began in 2001; participants surveyed periodically through 2022
- ▶ Wars in Iraq and Afghanistan provide an opportunity to study effects of deployment



# OEF/OIF: Millennium Cohort Study

- ▶ PTSD at Baseline
  - 2.2% in men
  - 3.3% in women
- ▶ New onset/no PTSD at baseline
  - Non-deployed = **3.0%**
  - Deployed without combat = **2.1%**
  - Deployed with combat = **8.7%**



# PTSD in OEF/OIF Veterans

- ▶ Good estimates come from several sources, e.g., the Invisible Wounds of War (RAND, 2008)
  - Representative sample of almost 2,000 men and women from all service branches in 2007-2008
  - Current PTSD prevalence = 13.8%
- ▶ Overall, studies suggest that approximately 15% of OEF/OIF Veterans have PTSD
- ▶ Prevalence is higher in VA users, almost 25%

# OEF/OIF as a Context for Studying Gender Differences in War Zone-Related PTSD

- ▶ OEF/OIF cohort offers best opportunity to understand the effects of war zone exposure on women
  - In prior conflicts, few women had direct exposure to combat
- ▶ Many studies find comparable prevalence in men and women

# Understanding (the Lack of) Gender Differences in PTSD Among OEF/OIF Veterans

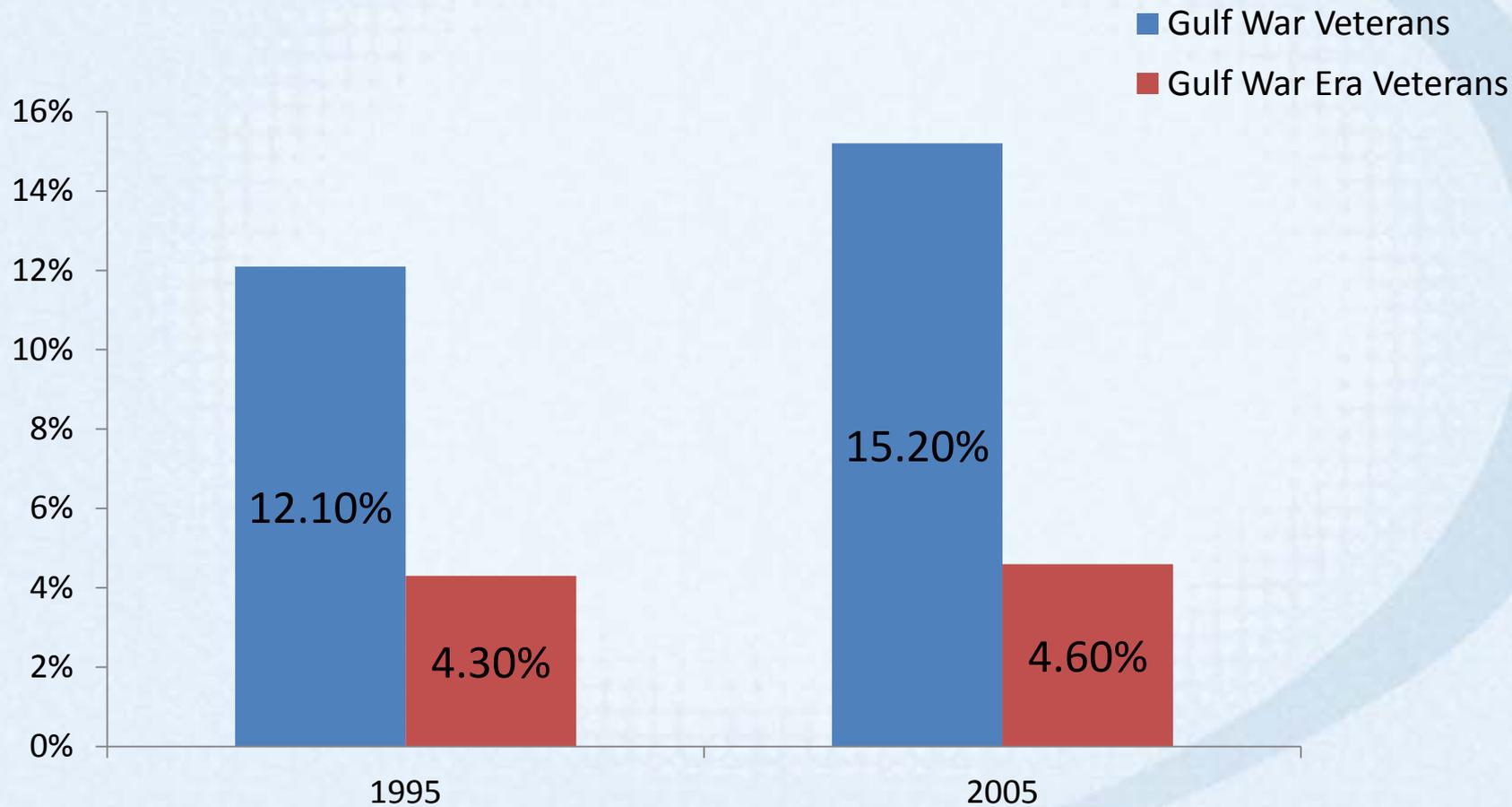
- ▶ Caution is needed when interpreting the lack of difference, e.g., in the 2008 RAND study:
  - Women and men did not differ in prevalence
  - But women were 70% more likely than men to have PTSD according to analyses that accounted for types of war zone exposure and other factors
- ▶ Despite increased exposure to combat, women may differ from men in amount and type of war zone exposure and other ways that affect risk

# PTSD in Gulf War Veterans

- ▶ Best estimate comes from the National Health Survey of Gulf War Era Veterans and Their Families
  - Representative sample of over 20,000 Gulf War and Gulf War Era Veterans
  - Initial data collected 1995-1997
  - Follow-up conducted in 2005



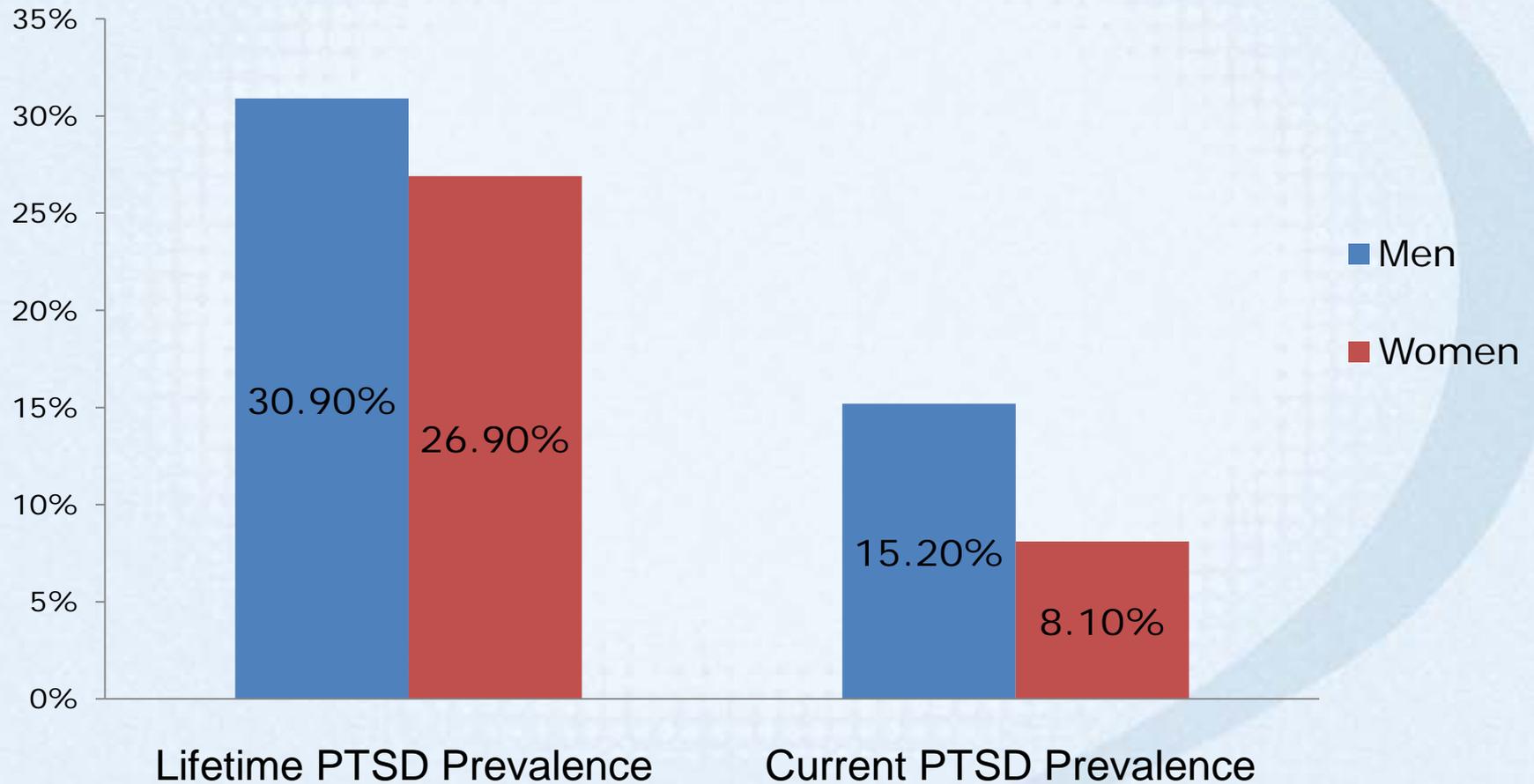
# Current PTSD in Gulf War Veterans, 1995 and 2005



# PTSD in Vietnam Veterans



# Current and Lifetime PTSD Among Vietnam Veterans in the NVVRS



# PTSD in WWII and Korean War Veterans



# Summary

- 1.** The NCS-R gives the best estimate of PTSD prevalence in the US general population
  - Current PTSD = 3.6%
  - Lifetime PTSD = 6.8%
- 2.** Prevalence varies as a function of type of trauma exposure
  - Sexual and other interpersonal traumas are especially likely to lead to PTSD
  - Prevalence also varies as a function of numerous risk factors related to the person, the trauma, and the recovery environment

# Summary (continued)

## 3. No single study provides information about PTSD prevalence in all Veterans

- Lifetime prevalence is especially difficult to compare across cohorts
- Current prevalence is lower among older Veterans deployed to a war zone
  - WWII and Korean War: ~1-3%
  - Vietnam (current in mid-80s): ~15%
  - Gulf War (current in 2005): ~15%
  - OEF/OIF: ~15%

# Conclusion

Understanding the epidemiology of PTSD is important for:

- ▶ Researchers
- ▶ Clinicians
- ▶ Administrators and policy makers



# Conclusion

**Q:** How many people have PTSD?

**A:** It depends

15%

Veterans of Iraq  
and Afghanistan



6.8%

General population

