



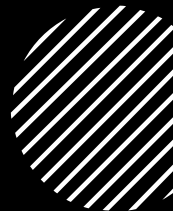
Suicide Mortality in Vietnam War-Era Veterans: 41 Years of Follow Up

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Disclosures



No conflicts of interest to disclose.

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Learning Objectives

Objective One

- Be able to characterize suicide risk of male and female Vietnam war era Veterans by theater status.

Objective Two

- Be able to characterize frequency of suicide method by sex and theater status.

Objective Three

- Be able to characterize suicide risk of male and female Vietnam war era Veterans by theater status relative to the U.S. general population.

Lexicon

In-theater

- Deployed to the Vietnam/surrounding territory war zone.
- Sometimes referred to (inaccurately) as “deployed.”
- Sometimes referred to as Vietnam War Veterans.

Not In-Theater

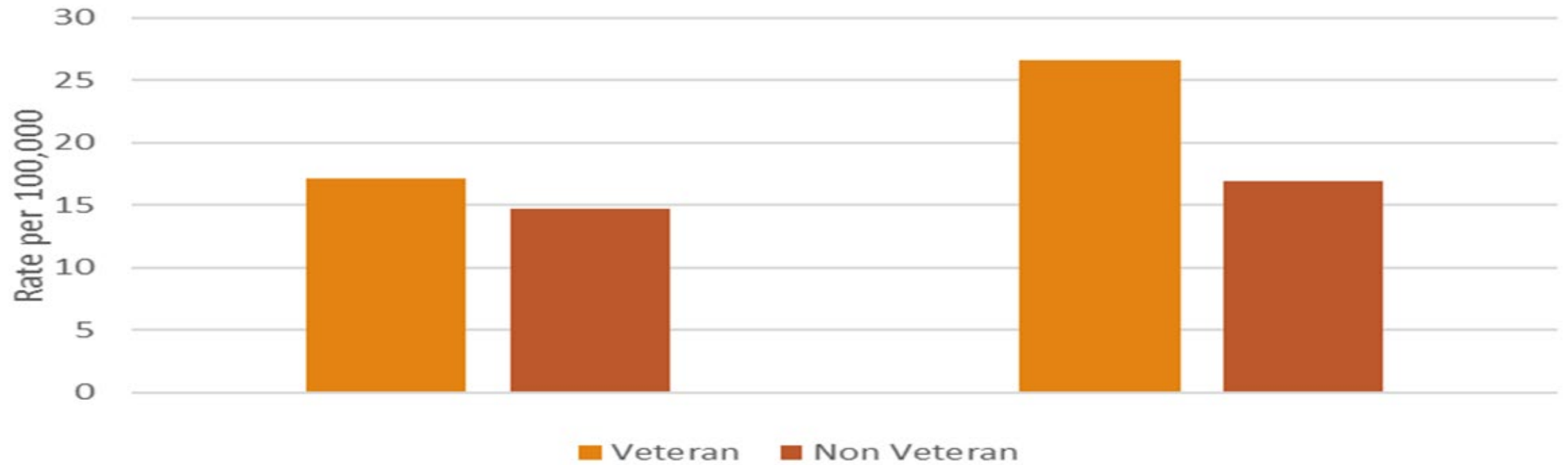
- Not deployed to the Vietnam/surrounding territory war zone.
- Sometimes referred to as “non-deployed.” This is technically incorrect as they may have been deployed elsewhere around the world.
- Sometimes referred to as Vietnam era Veterans.



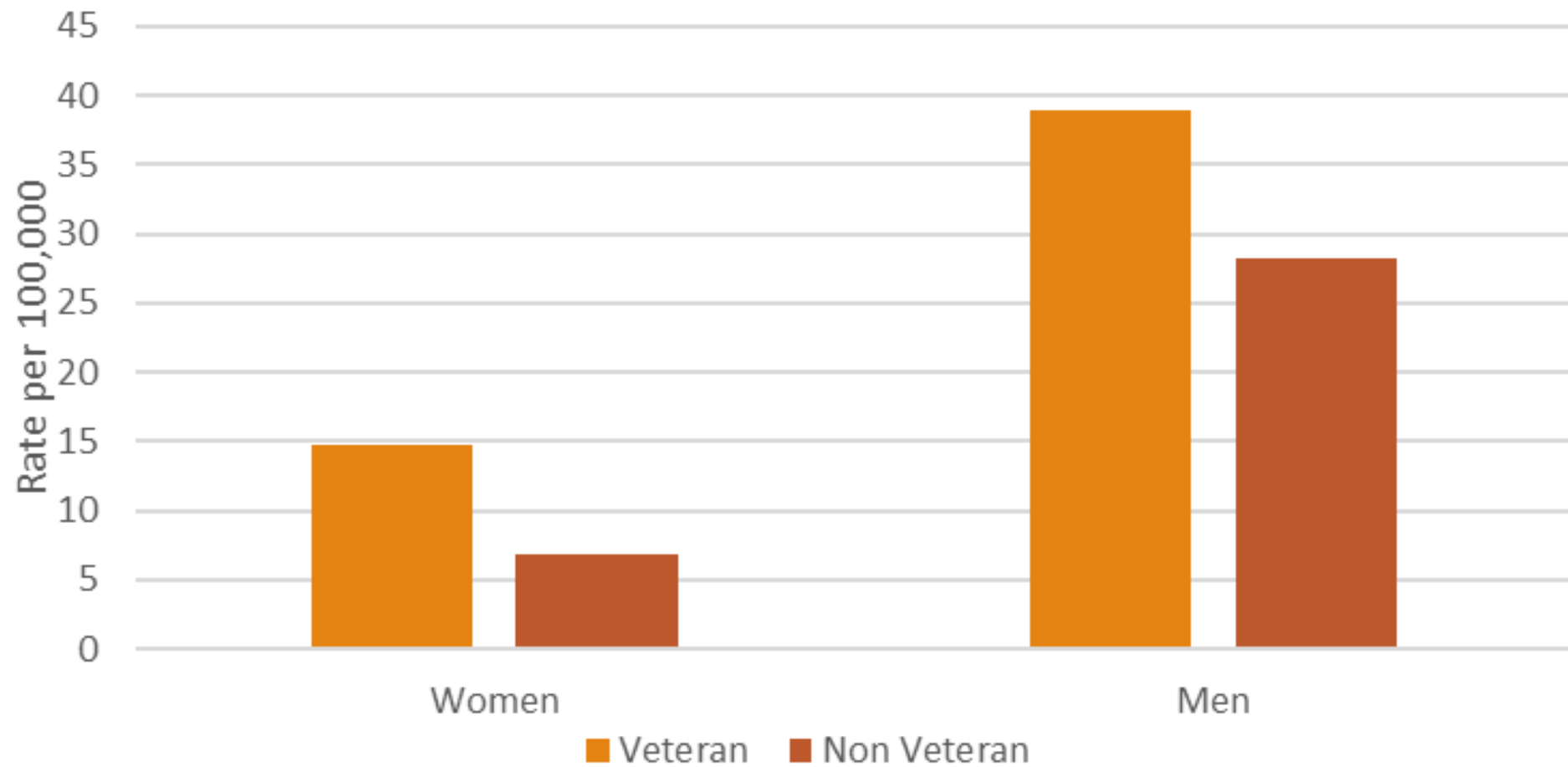
Suicide and U.S. Veterans

- **Suicide is a leading cause of death in the U.S.**
 - Nearly 50,000 suicide deaths annually.
- **While Veterans represent 7.6% of the U.S. population, they accounted for almost 14% of all suicides in the U.S. (2022).**
- **Annual rates of suicide have been consistently higher among U.S. Veterans relative to non-Veterans in the U.S. for the past 20 years.**

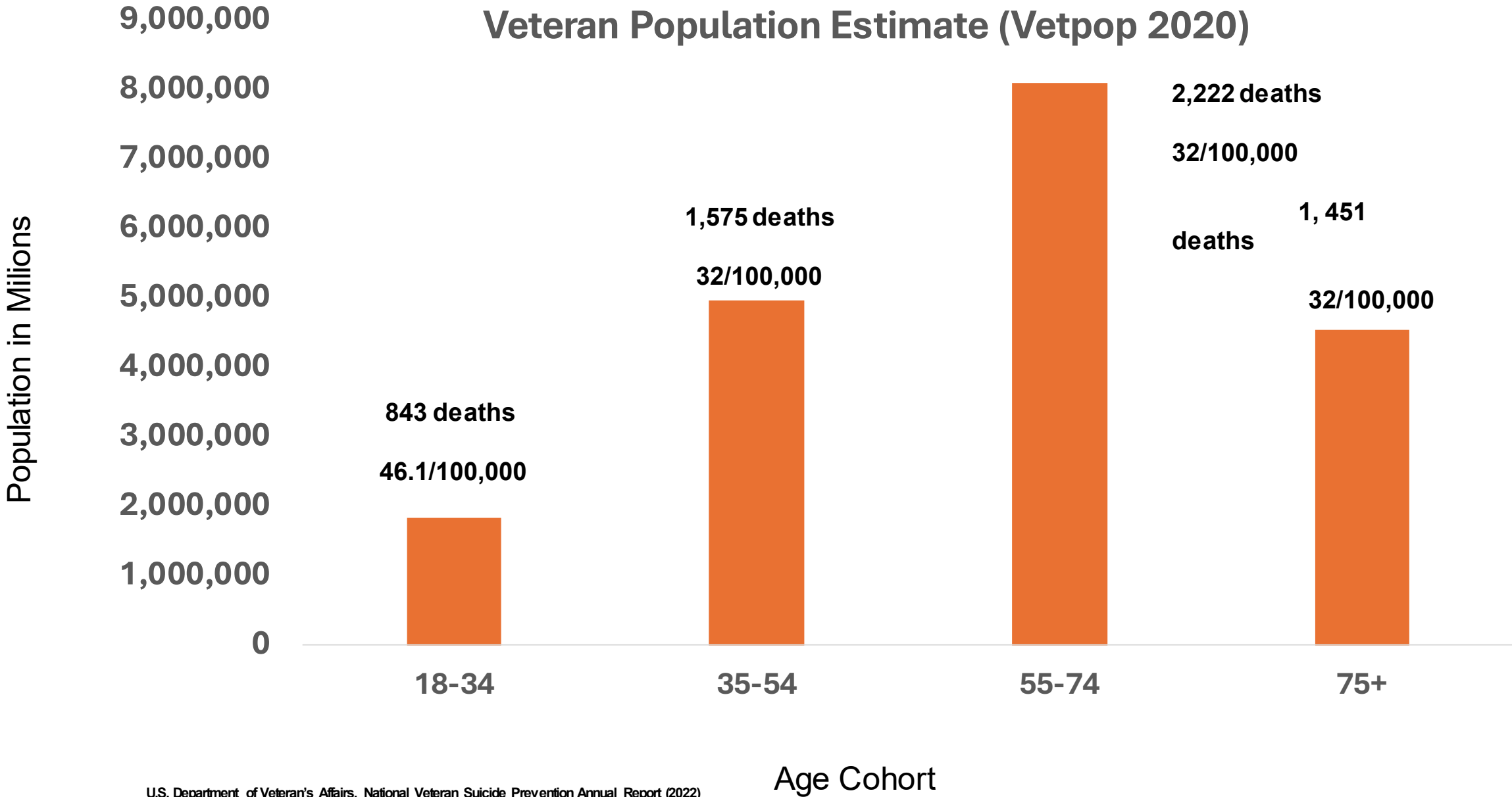
Age and Sex Adjusted Population-Based Suicide Mortality Rates in Veterans and Non-Veterans



Age Adjusted Population-Based Suicide Mortality Rates in Veterans and Non-Veterans by Sex, 2020



Veteran Population Estimate (Vetpop 2020)



Suicide Risk Factors in Veterans



- **Recent separation from the military.**
- **Sex.**
- **Untreated mental health conditions:
PTSD, depression, substance use.**
- **Physical health conditions: sleep, pain.**
- **Key military occupational exposures
(e.g., moral injury, MST).**
- **Premilitary, military service, and
military discharge context.**

Vietnam War Era Veterans

- Over 10 million Americans served in the Armed forces during the Vietnam era (1961 – 1975).
- More than 3 million deployed to Vietnam or the surrounding warzones.
- Common Military Occupational Exposures included warzone exposure/stress, combat, Agent Orange and MST.



Women Vietnam War Era Veterans



- About 265,000 women served in the armed forces between 1961 and 1975.
- It is estimated that 11,000 were deployed to the theaters of war (Vietnam, surrounding countries) and served primarily as nurses.

Vietnam Veterans and Suicide

- **Media Reports**

 - The role of deployment

 - Suicide projections

- **Research**

 - Variation in study population, scope

 - Observation period

Our Study Methodology

- The United States Veterans Eligibility Trends and Statistics (U.S.VETS) database identified all Veterans (N = 9,826,155) who served in the Vietnam era (2/28/1961 – 5/7/1975).
- Theater service (deployment) was determined via the Defense Manpower Data Center (DMDC) Vietnam file (N = 2,828,834).
- The VA/DOD Mortality Data Repository (MDR) and the U.S.VETS data base provided vital status and date of death.
- Cause of Death (suicide vs not) was provided through MDR which maintains annual searches of the National Center for Health Statistics National Death Index.



Context: Research Strengths and Limitations



- **Strengths**

- Most comprehensive capture of the population in a mortality study to date.
- Longest observation period of suicide mortality outcomes in this Veteran cohort to date.
- Incorporates military occupational variables (rank, branch of service).
- Examines the role of deployment.
- Examines sex differences in suicide risk as a function of deployment.

- **Limitations**

- No contextual (mediating/moderating) factors: PTSD, depression, details of service length/discharge, injury
- Cause of death data prior to 1979 not available.

-

Objective 1

**Characterize
suicide risk by sex
and theater status.**



Poll Question # 1

Do you agree?

“In-theater Veterans - - those who deployed to the Vietnam war theater - - have a higher risk of suicide than Veterans who did not deploy to the Vietnam war theater.”



Answer Choices:

1 = Strongly Disagree

2 = Disagree

3 = Neither Disagree nor Agree

4 = Agree

5 = Strongly Agree

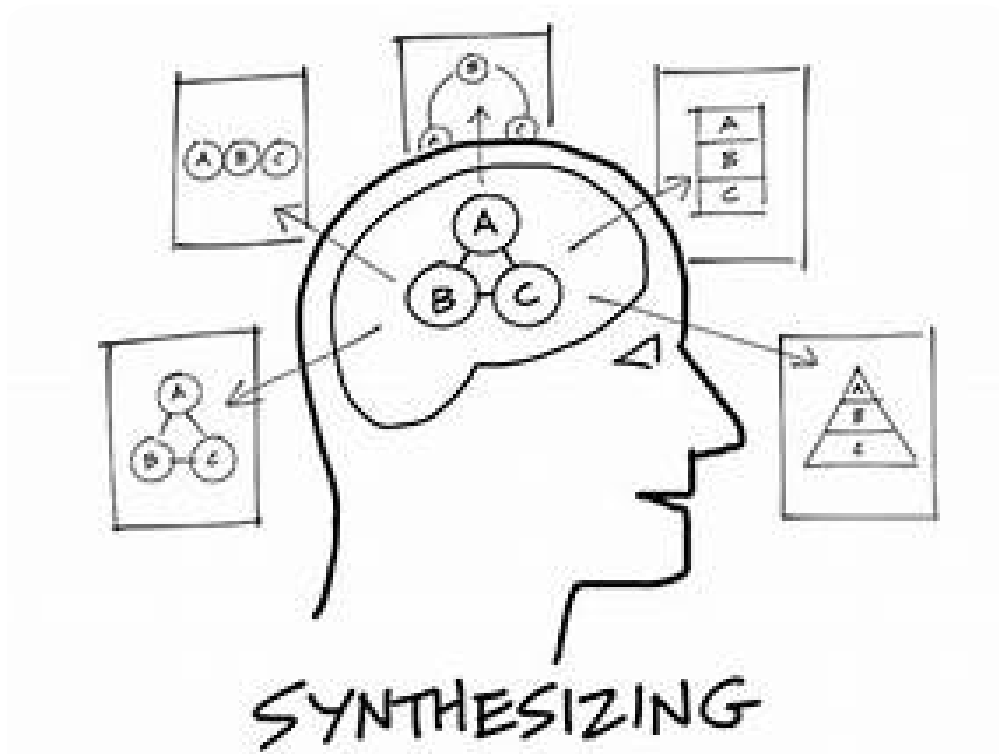
Suicide Mortality Overall and by Sex and Theater Status, 1979 - 2019

	All Vietnam Era Veterans				Male Vietnam Era Veteran				Female Vietnam Era Veteran		
	All	All In-theater	All Non-Theater		All	In-theater	Non-Theater		All	In-theater	Non-Theater
Total Suicides (count)	94,497	22,736	71,761		92,995	22,651	70,344		1,346	81	1,265
Total (all cause) Deaths (count)	3,577,557	933,914	2,743,643		3,615,897	929,339	2,686,558		59,534	4,537	54,997
Suicide/Total Deaths (%)	2.6	2.4	2.6		2.6	2.4	2.6		2.3	1.8	2.3
Suicide Crude Rate Per 100,000 PYR	27.9	25.9	28.6		28.3	26.0	29.1		13.8	14.7	13.8

Hazard Ratios for Suicide Associated with Vietnam Theater by Sex

	All			Males			Females		
	Count	H.R. Vietnam Deployment	95% C.I.	Count	H.R. Vietnam Deployment	95% C.I.	Count	H.R. Vietnam Deployment	95% C.I.
In-theater	15,949	0.94	0.93-0.96	15,887	0.94	0.93 – 0.96	62	1.22	0.94 – 1.59
Non-Theater	47,176	referent		46,315	referent		861	referent	

Synthesize and Summarize



- Deployment to the theater of war **was not associated with greater risk of suicide for Vietnam War era Veterans, regardless of biological sex.**
- Assessing lifetime suicide risk - -after the period of highest risk following military separation- -we observed that **male Vietnam War era Veterans had a higher rate of suicide than their female counterparts.**



Characterize frequency of suicide method by sex and theater status.

Objective Two

Poll Question # 2



- **True or False? Deployment status impacts choice of suicide method.**

Answer Choices:

True

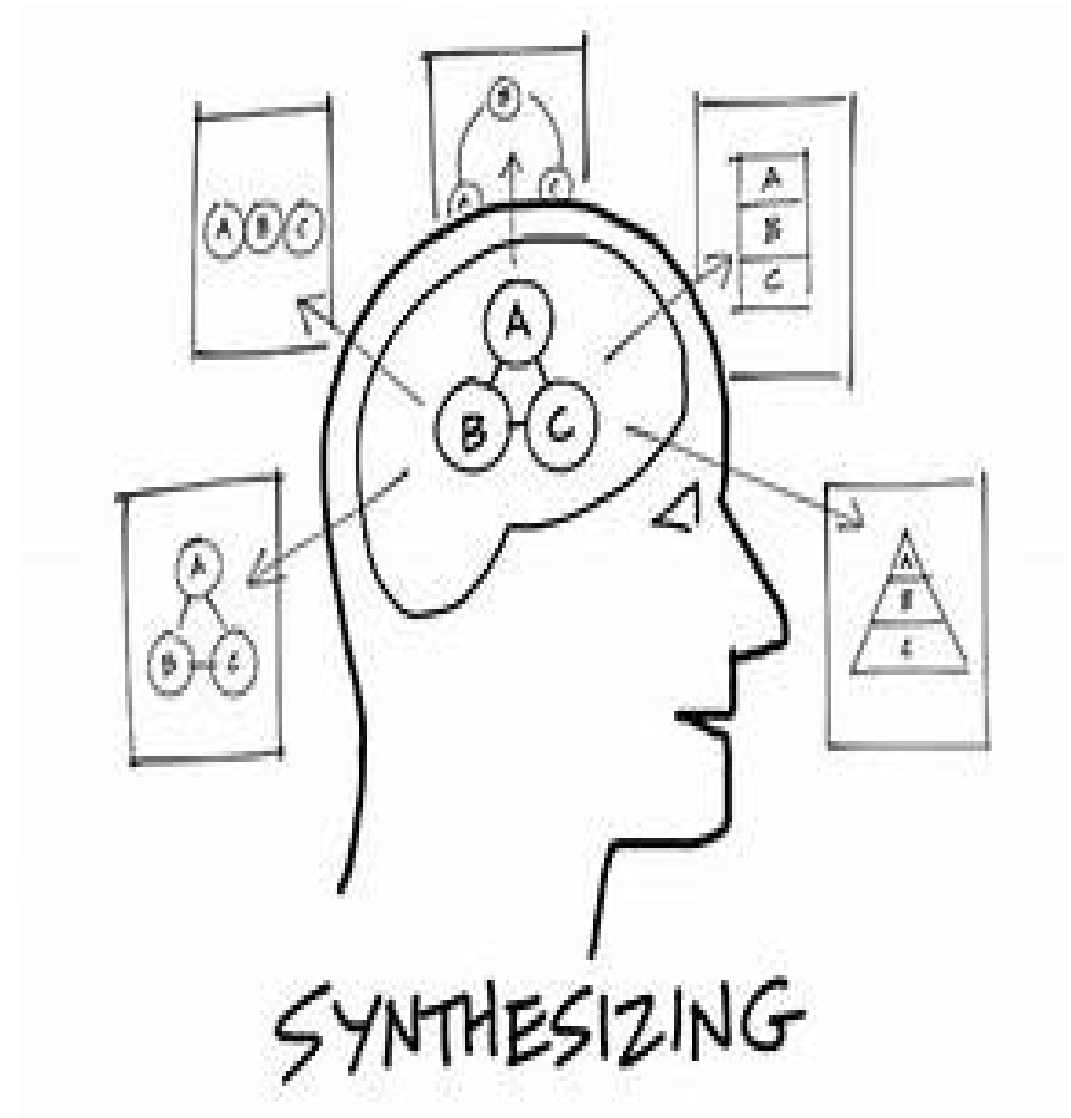
False

Suicide Method By Sex and Theater Status

		All				Males				Females		
		Count	H.R. Vietnam Deployment	95% C.I.		Count	H.R. Vietnam Deploymen t	95% C.I.		Count	H.R. Vietnam Deployme nt	95% C.I.
Firearm												
	In-theater	11,468	0.99	(0.97 – 1.01)		11,437	0.99	(0.97 – 1.01)		31	1.41	(0.97-2.04)
	Non-Theater	31,494	referent			31,118	referent			376	referent	
Suffocation												
	In-theater	1,691	0.86	(0.81 – 0.91)		1,685	0.86	(0.81 – 0.91)		6	1.63	(0.70-3.81)
	Non-Theater	6,028	referent			5,966	referent			62	referent	
Poisoning												
	In-theater	2,005	0.88	(0.83 – 0.92)		1,986	0.88	(0.84 – 0.92)		19	0.92	(0.58-1.46)
	Non-Theater	7,033	referent			6,674	referent			359	referent	
All Other												
	In-theater	785	0.86	(0.80 -0.94)		779	0.86	(0.80-0.93)		6	1.41	(0.60-3.29)
	Non-Theater	2,621	referent			2557	referent			64	referent	

Summarize and Synthesize

- Firearms were the most common method used by both Vietnam War era Veterans, regardless of biological sex; this was not impacted by deployment status.
 - Special considerations for the pattern of firearm use in women.
- Poisoning was the second most common method for both male and female Vietnam war era Veterans, regardless of deployment status.



Characterize risk of suicide for male and female Veterans, by theater status, relative to the U.S. population.

Objective Three



Poll Question # 3



Do you agree?

“Vietnam War era Veterans -- those that deployed to Southeast Asia and those that did not-- have a heightened risk of suicide relative to the general population.”

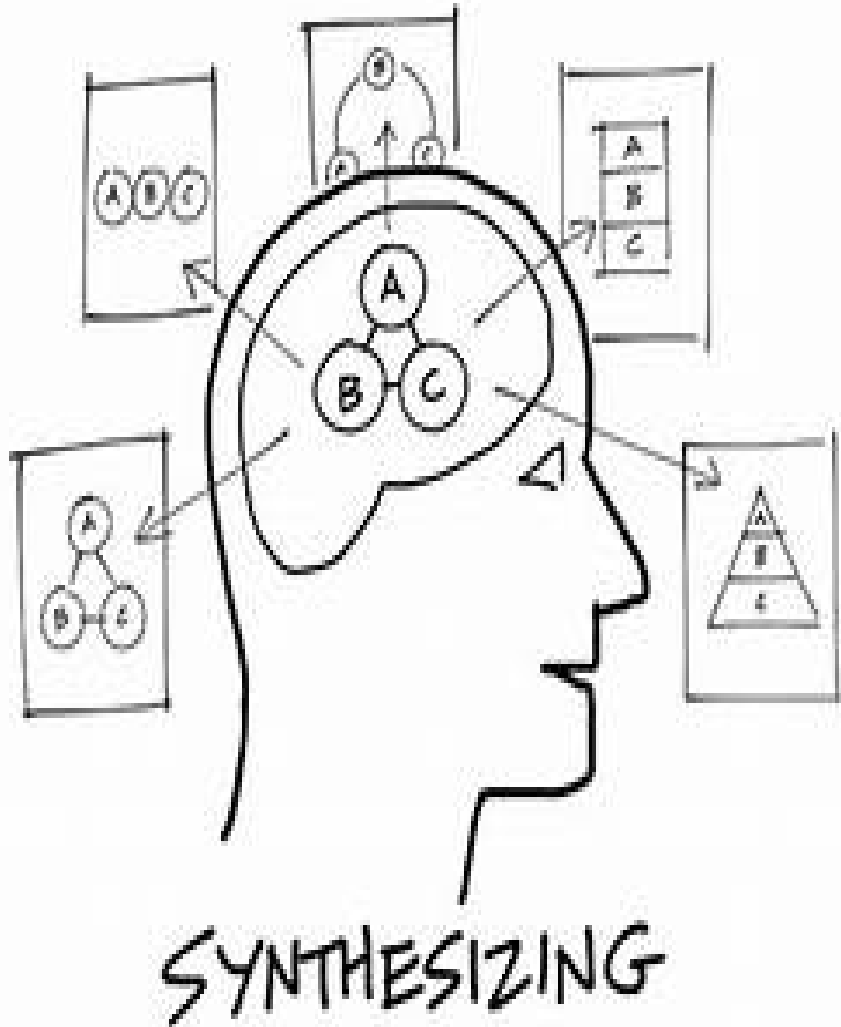
Answer Choices:

- 1 = Strongly Disagree**
- 2 = Disagree**
- 3 = Neither Disagree nor Agree**
- 4 = Agree**
- 5 = Strongly Agree**

Standardized Mortality Ratios for Suicide Mortality in Vietnam War Era Veterans Stratified by Sex

	All			Males			Females		
	Count	SMR	95% CI	Count	SMR	95% CI	Count	SMR	95% CI
All	94,497	0.97	(0.97 – 0.98)	92,995	0.97	(0.96 – 0.97)	1,346	1.76	(1.66 – 1.86)
In-theater	22,736	0.97	(0.96 – 0.99)	22,651	0.97	(0.96 – 0.98)	81	1.98	(1.55 – 2.49)
Non-Theater Vietnam	71,767	0.97	(0.97 – 0.98)	70,344	0.97	(0.96 – 0.98)	1,265	1.74	(1.64 – 1.85)

Summarize and Synthesize



- Looking over 41 years of observation, we see that male Vietnam Veterans (regardless of theater deployment status) had lower risk of suicide mortality relative to the general population.
- By contrast, female Vietnam Veterans had heightened risk relative to the general population, regardless of theater deployment status.

Among Vietnam War Era Veterans

Summary

- Males have higher risk of suicide than females.
- Deployment status does not impact this relationship.
- Firearms are the most common suicide method, regardless of sex or deployment status.

Conclusions/Implications

- Ongoing attention to risk of suicide in Vietnam War era Veterans is warranted; acknowledgement of the role of sex in determining risk is warranted.
- Self-examination of potential biases held about the role of Vietnam deployment on lifelong mental health is critical to providing optimal and stigma-free care to this population.
- Ongoing vigilance about the use of firearms as a method of suicide among Veterans, including Vietnam War era Veterans is crucial to providing high quality health care in VHA. Awareness of the use of firearms among women Veterans, including aging cohorts (e.g., Vietnam) is warranted.

Contrasting Vietnam War Era Veterans to the U.S. Population

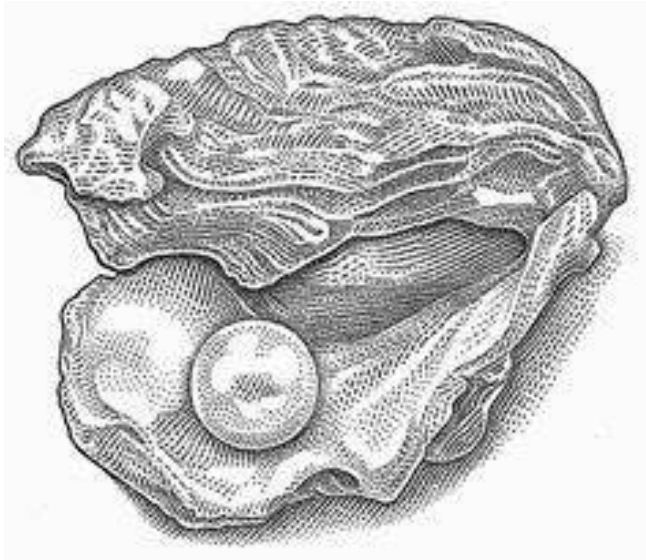
Summary

- Among males, suicide risk (1979-2019) was lower among Vietnam War era Veterans relative to the general population of males. Deployment status did not impact this.
- Among women, suicide risk (1979-2019) was higher among Vietnam War era Veterans relative to the general population of women, regardless of deployment status.

Conclusions / Implications

- Clinicians, researchers and policy makers must be well-informed about suicide risk in all populations of Veterans they serve. It is incumbent upon us all, however, to ensure that we do not perpetuate stigma or stereotypes based upon popular culture, media reports, or other unverified sources of information.
- Suicide risk among women Vietnam War era Veterans warrants attention. This community of Veterans is small and has historically been vulnerable to “invisibility” or being overlooked. We have clear evidence that risk of suicide is elevated relative to the general population, and that firearms are the mode of choice. Helping to ensure that we “see” this population and recognize their risk is critical to our mission of excellent care. Given that many women Veterans receive care outside of VA, helping our non-VA healthcare peers understand this Veteran group is also important.

“Pearls”



- **This work highlights** the reality that questions about the intersection of sex, theater deployment status and post-military lifetime risk of suicide are complicated! We must approach this topic with humility.
- **This work highlights** a need for us to be aware of bias and assumptions about suicide risk in Veterans. We must be aware of bias we may hold about male Veterans of the Vietnam War era and about female Veterans of this era.
- **This work highlights the importance of understanding sex differences in risk for suicide in Veterans.** We need to deeply appreciate that although men and women served together during this war, their experiences were different, and we need sex stratified studies (like this one) to highlight unique patterns of risk that would otherwise be overlooked.

Moving Forward

- We **must** attend to the data about how sex impacts suicide risk in Veterans.
- We are charged with **becoming experts at assessing suicide risk**, including asking Veterans about their access to lethal means, especially firearms.
- We encourage **continued efforts for identifying best practices** for discussing suicide risk and access to lethal means in older women Veterans. Aging women Veterans of the Vietnam War era must not be overlooked in this regard.



Thank You!

Questions?