

CSP#579 - Long Term Health Outcomes of Women Veterans Service During the Vietnam Era

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CSP #579 Team

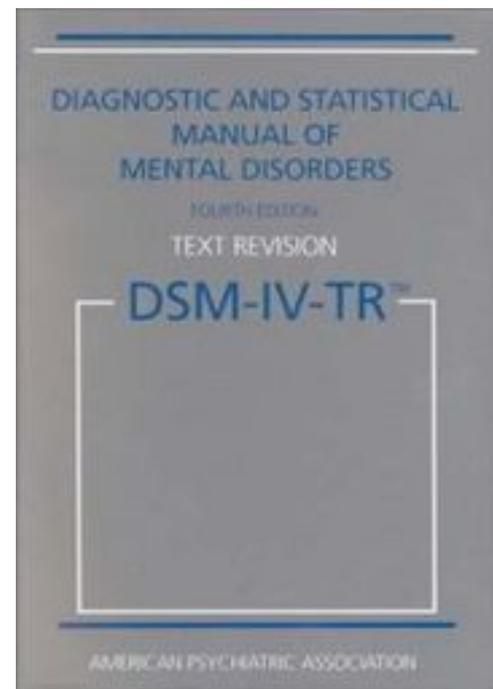
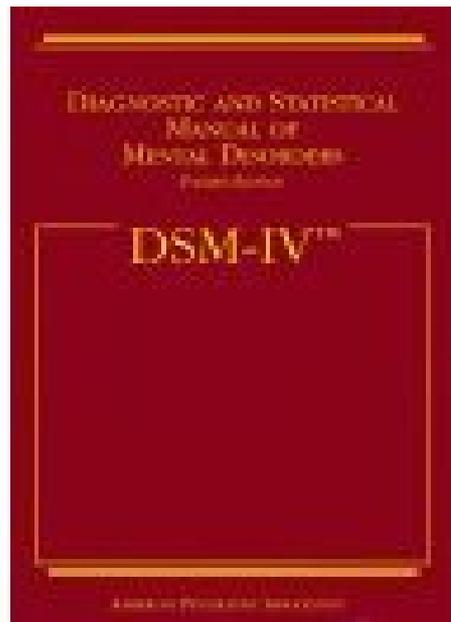
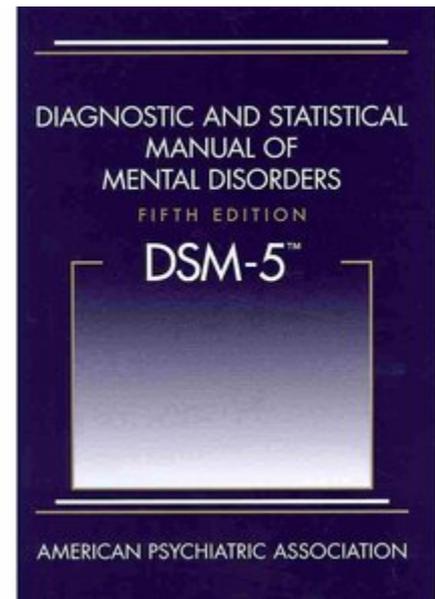
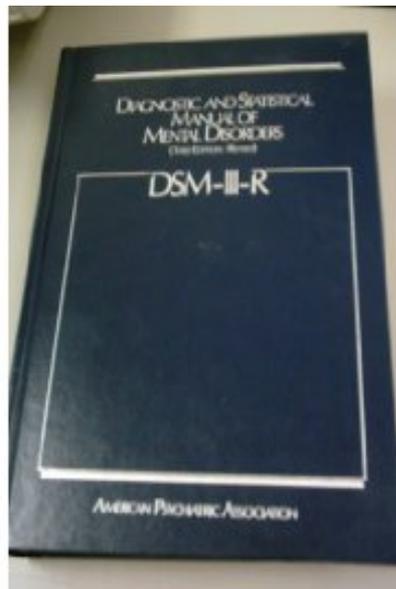
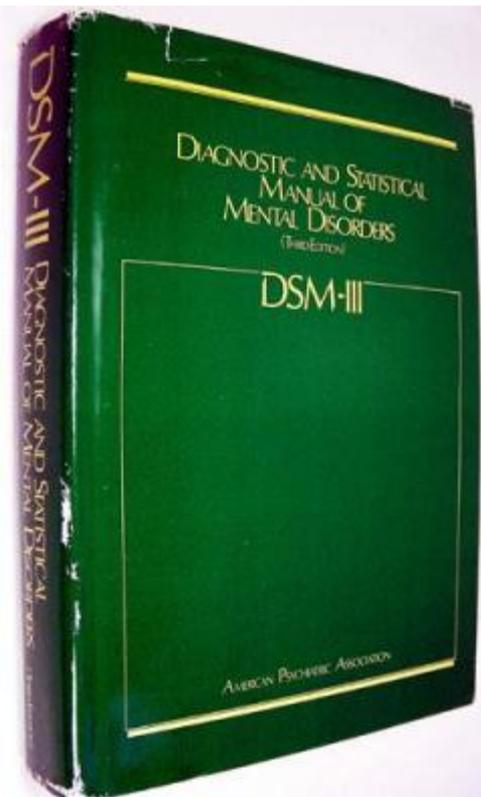
- Study Chairs
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 - Amy Kilbourne, Ph.D., Ann Arbor, MI VA
 - Han Kang, Dr.P.H., Washington, DC VA (retired)
- Executive Committee
 - Rachel Kimerling, Ph.D.
 - Susan Frayne, MD, MPH
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- Consultant
 - Joan Furey, RN, MA – Vietnam Veteran
- CSPCC Study Team
 - Joseph Collins, Sc.D.
 - Tracey Serpi, Ph.D.
 - Erin Norman, LGSW

How old were you in 1975?

- a. Not yet born
- b. <10 years old
- c. 10-19 years old
- d. 20+ years old



FALL OF SAIGON
30 April 1975



DSM I	1952
DSM II	1968
DSM III	1980
DSM III-R	1987
DSM IV	1994
DSM IV-TR	2000
DSM V	2013

History of CSP # 579

Early Studies

- 3 large scale studies of Vietnam Era Veterans
 - National Vietnam Veterans Readjustment Study (NVVRS) 1988
 - Vietnam Era Twin Study (1992)
 - Vietnam Experience Study (Center for Disease Control Study) 1989

Recent Studies

- National Vietnam Veterans Longitudinal Study (NVVLS) 2001 (not completed)
- Vietnam Era Twin Study (CSP #569) 2011-12
- Health ViEW Study (CSP #579)
- NVVLS 2010-13

Question

- How many women served in the armed forces during the Vietnam Era?
 - 3,000
 - 10,000
 - 100,000
 - 250,000

Greetings from Vietnam!



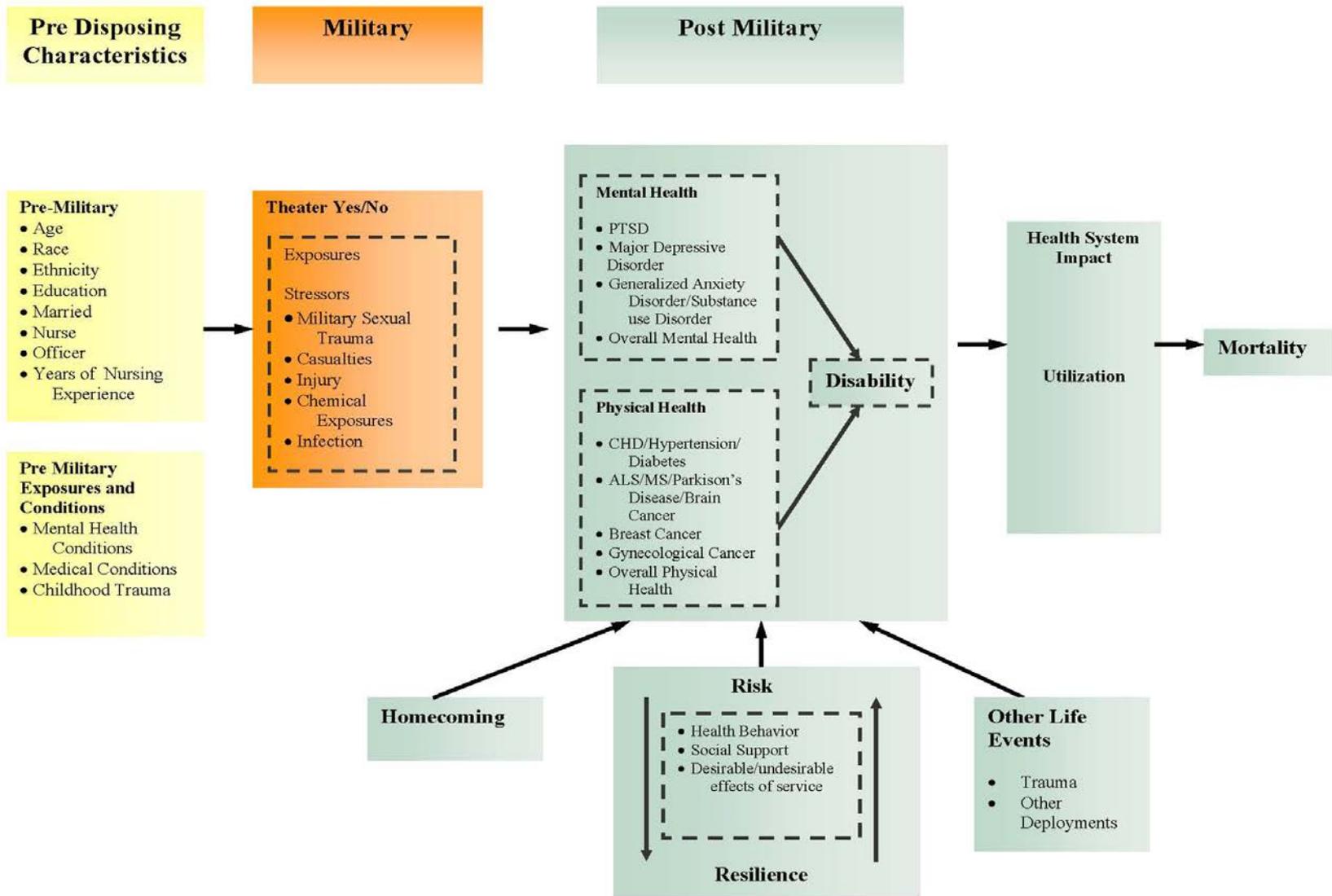
HealthViEWS

- An epidemiologic study designed to assess the prevalence of PTSD and other mental and physical health conditions for women Vietnam veterans, and to explore the relationship between PTSD and the Vietnam deployment experience.
- This study was designed to examine those women Veterans who served in Vietnam and may have had more direct exposure to traumatic events, those who served in facilities near Vietnam and may have had different exposures with women who served in the military during the Vietnam Era, but not in or near Vietnam.
- Largest study of women Vietnam Veterans conducted to date. This study will help the VA to understanding the physical and emotional health care needs of women Veterans as well as inform the VA's efforts to assure that appropriate services are available and to develop proactive program planning to prepare for future waves of aging women Veterans.

HealthViEWS Study

- Three cohorts of women Vietnam Veterans:
 - Women serving **in Vietnam** are those who were deployed to the country of Vietnam during the Vietnam Era for >30 days
 - Women serving **near Vietnam** are those who were deployed to Japan, Guam, Philippines, Korea, Thailand, or Okinawa (but not Vietnam) during the Vietnam Era for >30 days
 - Women serving **in the 50 United States (U.S.)** are those who did not serve in any part of Vietnam or near Vietnam (Japan, Guam, Philippines, Korea, Thailand, or Okinawa) for >30 days during the Vietnam Era

STUDY AIMS AND DESIGN



Study Aim 1

- To determine the prevalence of lifetime and current psychiatric conditions, including PTSD, among women veterans who served during the Vietnam Era.
 - Post Traumatic Stress Disorder
 - Major Depression
 - Generalized Anxiety Disorder
 - Substance Abuse Disorder
 - Overall Mental Health
- Compare current psychiatric conditions between those who served in Vietnam versus those who served in the US.
- Compare current psychiatric conditions all three cohorts of women (Vietnam, Near-Vietnam and US).

Study Aim 2

- To characterize the physical health of women who served during the Vietnam Era.
 - Cardiovascular Disease, Hypertension
 - Diabetes
 - Amyotrophic Lateral Sclerosis, Multiple Sclerosis, Parkinson's Disease
 - Brain, Breast, and Gynecological Cancers
 - General Physical Health Status
- Compare mortality between those who served in Vietnam and those who served in the US.
- Compare the physical health conditions between those who served in Vietnam versus those who served in the US.
- Compare the physical health conditions all three cohorts of women (Vietnam, Near-Vietnam and US).

Additional Study Aims

- Study Aim 3

- To characterize the level of current disability in women who served during the Vietnam Era.
- Compare current level of disability between those who served in Vietnam versus those who served in the US.
- Compare current level of disability between all three cohorts of women (Vietnam, Near-Vietnam and US).

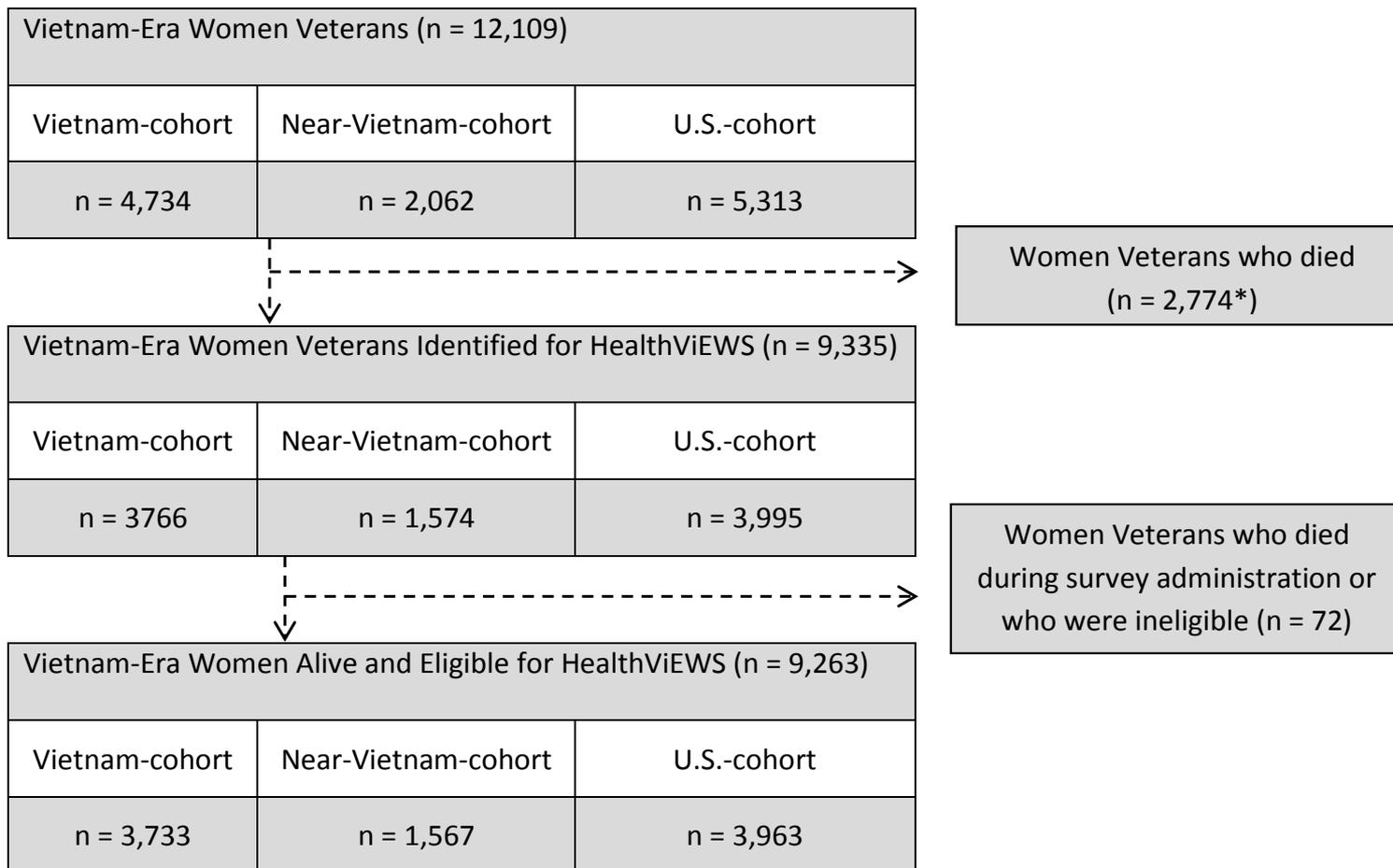
- Exploratory Aims

- To characterize and compare health services utilization of women who served during the Vietnam Era.
- To characterize and compare current medical conditions (other than cardiovascular disease, hypertension, diabetes, cancers, etc.) in women who served during the Vietnam Era.

Study Design

- Included women who were active duty military personnel in one of the four Armed Services (Army, Navy, Air Force, Marines) between July 4, 1965, and March 28, 1973, with a 30-day minimum period of service.
- Women were identified for potential participation by:
 - Existing roster of women Vietnam Era Veterans that was developed for VA studies of mortality and reproductive health and pregnancy outcomes of women Vietnam Veterans (Thomas et al. 1991; Dalager et al. 1995; Kang et al. 2000a, b)
 - Defense Manpower Data Center (DMDC) Vietnam Roster
 - Self-registration through Perry Point CSP

Figure 1. Identification of Vietnam-Era Women Veteran Cohorts



*Number of deaths identified prior to and during mail survey administration only.

Main Study Components

- Mail Survey (Conducted by Westat)
 - A self-administered questionnaire addressing physical and mental health, war time exposures, resilience and stress.
 - All identified eligible women were sent a mail survey.
 - Women received \$75 for completion.
- Telephone Interview (Conducted by Westat)
 - A computer- assisted telephone interview (CATI) consisting of modules from the Composite International Diagnostic Interview (CIDI), a structured psychiatric telephone interview, the Behavioral Risk Factor Surveillance System (BRFSS) and the Telephone Interview of Cognitive Status (TICS).
 - All identified eligible women were called for the telephone interview regardless of mail survey completion.
 - Women received \$75 for completion.
- Medical Record Verification (Conducted by Ann Arbor VA)
 - A manual review of medical records from a sample of women to confirm self-reported medical conditions.
 - Women were selected from those who completed a mail survey.

Additional Study Components

- National Personnel Record Center (NPRC) data collection
 - Records for women whose service had not been verified were examined. A total of 1,015 women were identified as serving in Vietnam or near- Vietnam and were added to the study.
- Sub-study Telephone Interview
 - A telephone administered diagnostic interview using the Clinicians Administered PTSD Scale (CAPS).
 - A subset of 165 women who responded to the mail survey and completed the telephone interview were selected to complete the CAPS.
- Mortality Study
 - Vital status was determined for all women Vietnam Veterans identified and cause of death information was established.

CSP #579: Measurement Overview: Military Record

- **Data Abstracted from National Personnel Records Center**
 - Recorded for entire cohort of women
 - Date of Birth
 - Branch
 - Rank
 - Military Occupation
 - Race
 - Beginning and End Dates of Service
 - Type of Discharge]
 - Overseas service during the Vietnam War
 - Start and end dates of military tours in Vietnam or other countries

CSP#579: Measurement Overview: Mail Survey

- **Phase I – Mail Survey**
 - Self-reported physical & mental health (VR-36)
 - Functional status /Disability (WHO-DAS)
 - Psycho-social measures (including WWES-R)
 - Post-traumatic growth (PTGI)
 - Health behaviors
 - Exercise derived from BRFSS
 - Smoking
 - Alcohol
 - Late onset Stress Symptomatology (LOSS)
 - Desirable/Undesirable effects of Service/Homecoming
 - Socio-demographic information
 - Health service utilization (From Survey of Veterans)
 - Wartime Exposures (WWES-R)

CSP#579: Measurement Overview: Telephone Interview and Medical Record Abstraction

- **Phase II –Telephone Interview**
 - Composite International Diagnostic Interview
 - Screening Module
 - Depression Module
 - Mania Module
 - Generalized Anxiety Disorder Module
 - Substance Abuse Module
 - Interviewer Assessment Module
 - BRFSS Diabetes and Heart Disease Questions
 - Telephone Interview for Cognitive Status
- **Phase III – Record Abstraction**
 - Requested medical records from up to 3 medical providers
 - Assessed evidence for medical conditions endorsed on mail survey

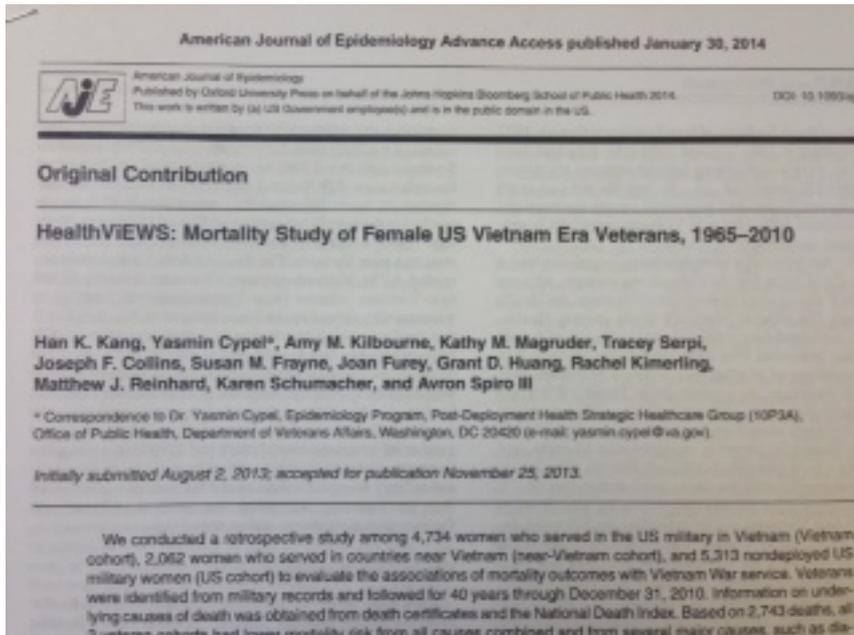
Study Timeline

- Scientific Review (June 2009)
- Approved for Funding (Sept 2009)
- Approved by VA Central IRB (Jan 2010)
- First Mailing – May 16th, 2011
- Telephone Interviews Began – June 27, 2011
- Medical record validation began - February 2, 2012
- All Data Collection Completed by December 2012
- Mortality Paper – March 2014
- CAPS/CIDI Comparison Paper – April 2014

Mortality analysis

STUDY AIM 2

1. Mortality Study



- Built on a previous study conducted by Dr. Han Kang
- Compared mortality by service location
 - N=4734 Vietnam
 - N=2062 Near Vietnam
 - N=5313 US
- Compared mortality by nurse/non-nurse occupation

Cause-specific Mortality Risk Among Women Vietnam-era Veterans Compared with US Women by Deployment Status, 1965-2010^a

Underlying cause of death (ICD9; ICD10)	Deployment Status								
	Vietnam cohort			Near- Vietnam cohort			Non-Vietnam cohort		
	Observed	SMR	95% CI ^c	Observed	SMR	95% CI	Observed	SMR	95% CI
All causes ^d	955	0.85	0.80-0.91*	477	0.89	0.81-0.97*	1307	0.97	0.92-1.03
All cancers (140-239; C00-C97) ^d	361	0.94	0.85-1.05	153	0.88	0.74-1.03	421	1.02	0.93-1.12
Breast (174-175; C50)	81	1.11	0.88-1.38	34	1.03	0.71-1.44	89	1.12	0.90-1.37
Ovary (183; C56,C57.0-C57.4,C57.8)	27	1.13	0.75-1.65	12	1.12	0.58-1.95	21	0.82	0.51-1.26
Uterus (179,181-182; C54-C55,C58)	9	0.95	0.44-1.81	4	0.91	0.25-2.33	12	1.13	0.58-1.98
Cervix (180; C53)	5	0.62	0.20-1.44	1	0.3	0.01-1.52	6	0.65	0.24-1.42
Respiratory cancer (160-165; C30-C34,C37,C38.0-C38.4,C38.8,C39)	95	0.92	0.75-1.13	35	0.76	0.53-1.06	100	0.98	0.80-1.19
Lung, trachea, bronchus (162; C33-C34)	91	0.90	0.73-1.11	34	0.75	0.52-1.05	96	0.96	0.78-1.17
Stomach (151; C16)	6	1.02	0.38-2.23	1	0.4	0.01-1.95	2	0.28	0.03-1.03
Intestine - except rectum (152-153; C17-C18)	15	0.53	0.30-0.88*	13	0.96	0.51-1.65	38	1.14	0.81-1.56
Biliary passages, liver, and gall bladder (155-156; C22-C24)	7	0.79	0.32-1.64	4	0.97	0.26-2.48	8	0.82	0.35-1.62
Rectum (154; C19-C21)	3	0.57	0.12-1.68	3	1.23	0.25-3.59	7	1.16	0.47-2.38
Pancreas (157; C25)	28	1.47	0.97-2.12	7	0.79	0.32-1.62	22	1.05	0.66-1.60
Connective tissue (171; C46.1,C49)	9	3.32	1.52-6.29*	1	0.8	0.02-4.60	6	2.05	0.75-4.46
Brain & other parts of nervous system (191-192; C47,C70-C72)	14	1.42	0.77-2.38	7	1.61	0.65-3.32	8	0.76	0.33-1.50
Lymphatic and hematopoietic (200-208; C46.3,C81, C82-C85, C88.0,C88.3,C88.7,C88.9,C90,C91.0-C91.3,C91.4, C91.5-C91.9,C92-C95, C96)	31	0.98	0.66-1.39	11	0.8	0.37-1.34	46	1.31	0.96-1.75

Cause-specific Mortality Risk Among Women Vietnam-era Veterans Compared with US Women by Deployment Status, 1965-2010^a

Underlying cause of death (ICD9; ICD10)	Deployment Status								
	Vietnam cohort			Near- Vietnam cohort			Non-Vietnam cohort		
	Observed	SMR	95% CI ^c	Observed	SMR	95% CI	Observed	SMR	95% CI
Ischemic heart disease (410-414,429.2; I20-I22,I24-I25,I51.3,I51.6)	101	0.57	0.47-0.70*	58	0.64	0.49-0.83*	176	0.72	0.62-0.83*
Cardiomyopathy (425; I42,I52.8)	7	0.71	0.29-1.47	4	0.9	0.23-2.17	12	1.06	0.55-1.86
Hypertensive heart disease (402,404; I11,I13)	11	0.94	0.47-1.69	7	1.2	0.46-2.37	8	0.52	0.22-1.02
Conductive disorder (426-427; I44-I49,R00.1,R00.8)	17	0.99	0.58-1.58	5	0.6	0.19-1.35	20	0.90	0.55-1.39
Other circulatory diseases ^d	61	0.63	0.48-0.81*	44	0.9	0.65-1.21	95	0.74	0.60-0.90*
Cerebrovascular disease (430-438; G45.0-G45.2,G45.4-G45.9,I60-I69)	36	0.56	0.39-0.78*	28	0.9	0.57-1.23	58	0.66	0.50-0.85*
Hypertension (401,403,405; I10,I12)	5	0.67	0.22-1.55	3	0.77	0.16-2.26	7	0.75	0.30-1.55
Respiratory system diseases ^d	71	0.72	0.56-0.90*	44	0.9	0.67-1.24	124	1.07	0.89-1.28
Chronic obstructive pulmonary disease (490-492, 496; J40-J44)	33	0.56	0.39-0.79*	24	0.88	0.56-1.31	54	0.87	0.66-1.14

Cause-specific Mortality Risk Among Women Vietnam-era Veterans Compared with US Women by Deployment Status, 1965-2010^a

Underlying cause of death (ICD9; ICD10)	Deployment Status								
	Vietnam cohort			Near- Vietnam cohort			Non-Vietnam cohort		
	Observed	SMR ^b	95% CI ^c	Observed	SMR	95% CI	Observed	SMR	95% CI
Cirrhosis and other chronic liver disease (571; K70,K73-K74,K76.0)	17	0.91	0.53-1.45	8	0.94	0.40-1.85	18	0.88	0.52-1.39
Chronic and unspecified nephritis, renal failure, and other renal sclerosis (582-587;N01.9,N03-N07,N14.0-N19,N26) ^d	6	0.48	0.18-1.05	1	0.2	0.00-0.90*	8	0.56	0.24-1.09
Nervous system disorders ^{d,e}	30	0.79	0.53-1.13	14	0.76	0.41-1.27	34	0.74	0.52-1.04
Multiple sclerosis (340; G35)	4	1.03	0.28-2.63	3	1.82	0.37-5.31	3	0.74	0.15-2.15
Mental psychoneurotic and personality disorders ^d	22	1.15	0.72-1.75	9	0.9	0.41-1.72	43	1.66	1.20-2.24*
Alcoholism (291,303,305.0; F10,G31.2)	6	2.16	0.79-4.70	2	1.60	0.19-5.79	4	1.31	0.36-3.37
All external causes (E800-E999; V01-V99,W00-W99,X00-X99,Y00-Y89) ^{d,f}	73	1.26	0.97-1.55	25	0.97	0.59-1.35	70	1.02	0.78-1.26
Motor vehicle - Driver (E810-E819.2; V20.4-V86.0) ^d	22	3.67	2.30-5.56*	2	0.79	0.10-2.84	13	1.91	1.02-3.27*
Accidental poisoning (E850-E869,E929.2; X40-X49)	3	0.78	0.16-2.28	1	0.60	0.02-3.33	7	1.50	0.60-3.08
Suicide (intentional self harm) (E950-E959; X60-X84,Y87.0)	15	1.13	0.63-1.86	7	1.25	0.50-2.58	21	1.41	0.87-2.16
Assault & Homicide (E960-E978; X85-X99,Y00-Y09,Y35,Y87.1)	3	0.59	0.12-1.71	2	0.86	0.10-3.11	6	0.96	0.35-2.09

Cause-specific Mortality Risk among Women Vietnam and Near-Vietnam Veterans Compared with Non-Vietnam Veterans, 1965-2010

	Comparison of Specified Cohort to Non-Vietnam Veterans					
	Vietnam cohort			Near- Vietnam cohort		
Underlying cause of death	n ^a	Crude rate ratio	Adjusted RR ^a (95% CI) ^b	n	Crude rate ratio	Adjusted RR (95% CI)
All causes	2260	0.82	0.90(0.82-0.98)*	1781	0.96	0.91(0.82-1.01)
All cancers	782	0.96	0.99(0.86-1.14)	573	0.96	0.86(0.72-1.04)
Intestine - except rectum	53	0.44	0.48(0.26-0.88)*	51	0.90	0.75(0.40-1.43)
Heart disease	451	0.66	0.79(0.65-0.96)	368	0.78	0.76(0.60-0.98)
All external causes	143	1.17	1.22(0.87-1.71)	95	0.94	0.93(0.58-1.47)
Motor vehicle - Driver	35	1.90	2.29(1.11-4.71)*	15	0.41	0.42(0.09-1.87)
Accidental poisoning	10	0.48	0.58(0.14-2.42)	8	0.38	0.50(0.06-4.20)
Suicide (intentional self harm)	36	0.80	0.76(0.38-1.49)	28	0.88	0.94(0.39-2.23)
Assault & Homicide	9	0.56	1.23(0.28-5.41)	8	0.88	0.74(0.14-3.85)

Question

- What role did most women serve in during the Vietnam Era?
 - Front-line combat
 - Cooks
 - Nurses
 - Clerical positions

Cause-specific Mortality Risk among Women Vietnam and Near-Vietnam Veterans Compared with Non-Vietnam Veterans, 1965-2010, Nurses Only

Underlying cause of death	Comparison of Specified Cohort to Non-Vietnam Veterans					
	Vietnam cohort			n	Near-Vietnam cohort	
	n ^a	Crude rate ratio	Adjusted RR ^a (95% CI) ^b		Crude rate ratio	Adjusted RR (95% CI)
All causes	1627	0.68	0.87(0.79-0.96)*	1207	0.93	0.85(0.75-0.97)*
All cancers	551	0.81	0.93(0.79-1.11)	374	0.89	0.78(0.62-1.00)†
Pancreas	35	1.43	2.07(1.00-4.25)†	18	1.05	0.86(0.30-2.45)
Brain & other parts of nervous system	16	3.67	4.61(1.27-16.83)*	6	2.74	2.12(0.42-10.83)
Heart disease	343	0.52	0.80(0.63-1.00)†	268	0.72	0.70(0.52-0.94)*
Motor vehicle - Driver	22	2.88	3.09(1.12-8.52)*	7	1.10	1.30(0.24-6.96)

Comparison of the CAPS and the CIDI

SUB-STUDY

PTSD (CAPS vs CIDI) Sub-study

- Evaluated the diagnostic utility of the Composite International Diagnostic Interview (CIDI 3.0) PTSD module and the Clinician Administered PTSD Scale (CAPS).
- A sample of women completing the mail survey (PCL-C) were selected to participate in the substudy.
 - Women were asked to participate after completion of the CIDI telephone interview.
 - 165 women were contacted and invited to participate in the follow-up interview (CAPS) by telephone.
 - Women were compensated \$75 for completion of this interview.

CAPS Administration

- CAPS was administered by trained interviewers at the Charleston VAMC.
- CAPS was completed within 3 weeks of completing the HealthViewWS telephone interview.
- Women were sampled based upon PCL-C scores.
 - Score of ≥ 30 was used as cut score to ensure a wide range of PTSD symptoms
 - Oversample cases with current PTSD
- CAPS interviewers were blinded to PCL-C and CIDI results.

Scoring

- 160 women completed the CAPS interview
 - 5 women excluded due to incomplete CAPS interviews.
- PCL-C score
 - 68 scored above the PCL-C threshold
 - 92 scored below
 - Scores ranged from 17 to 76
- CAPS Scoring
 - Results were compared using the more lenient (F1/I2) scoring rule and the more conservative (F1/I2/Sever65) scoring rule.
 - Results revealed no statistically significant differences between scoring rules, so F1/I2 was used as the scoring for the CAPS.

Estimates of Diagnostic Accuracy for the CIDI, Compared to the CAPS (n=160)

	CAPS PTSD n (%)	CIDI PTSD n (%)	AUC (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Lifetime PTSD	72 (45.0%)	54 (33.7%)	0.77 (0.71 - 0.84)	0.64 (0.52 - 0.75)	0.91 (0.83 - 0.96)
Past Year PTSD	35 (21.9%)	44 (27.5%)	0.78 (0.70 - 0.86)	0.71 (0.54 - 0.85)	0.85 (0.77 - 0.91)

Lifetime PTSD – CIDI correctly classified 78.8% ($\kappa=0.56$)

Past Year PTSD – CIDI correctly classified 82% ($\kappa=0.52$)

Target range for κ is 0.4 – 0.6 = moderate level of agreement

Misclassified Cases

- False negative cases
 - 26 cases diagnosed with lifetime PTSD by the CAPS, but missed by the CIDI
 - 11 (42%) – subthreshold levels of PTSD symptoms on CIDI but meet criteria for subthreshold levels of PTSD symptoms
 - 5 cases did not meet trauma exposure criteria on the CIDI and were not assessed for PTSD because of skip patterns
- False positive cases
 - 8 cases not diagnosed with lifetime PTSD by the CAPS, but met criteria for lifetime PTSD on CIDI
 - 5 cases demonstrated subthreshold levels of PTSD on the caps, meeting criteria for all but one symptom cluster

Results

- Key Result
 - The CIDI has good utility for identifying PTSD, though is a somewhat conservative indicator of lifetime PTSD as compared to the CAPS.
 - Published in the Journal of Traumatic Stress , April 2014.

RESPONSE AND WEIGHTING

Survey Completion

Survey Completion	Vietnam n(%)	Near-Vietnam n(%)	US Cohort n(%)	Total
Neither Survey	1353 (14.6)	726 (7.8)	1920 (20.7)	3999 (43.2)
Both Surveys	1956 (21.1)	657 (7.1)	1606 (17.3)	4219 (45.5)
Mail Survey Only	266 (2.9)	108 (1.2)	245 (2.6)	619 (6.7)
Telephone Interview Only	158 (1.7)	76 (0.8)	192 (2.1)	426 (4.6)
Total	3733 (40.3)	1567 (16.9)	3963 (42.8)	9263

- 450 out of 900 women selected participated in the medical record validation.

Weighting

- Two Stage Propensity cell method of weighting was used:
 - Mail Survey Only
 - Telephone Survey Only
 - Mail Survey & Telephone Interview
- Logistic regression model for located/not located was developed
 - Race
 - Nurse
 - Service Time (categorical)
 - Branch
 - Area of Service
 - Age on 12/31/2010
- Resulting propensity cell weights were used in logistic regression models for responded/did not respond.
 - Same variables as above
- Resulting weights were used in the analyses for that population.

PTSD Prevalence

POPULATION = 4219 Women who completed both a Mail Survey and Telephone iNterview

PRIMARY OBJECTIVE 1

Weighted Demographics from the Military Record

	Vietnam	Near VN	US
Enlistment age (mean)	22.5	22.9	21.5
Enlistment year (mean)	1964	1964	1965
% Non-white	4.9	9.8	8.0
Branch			
% Army	77.4	42.9	83.5
% Navy	7.0	6.1	7.0
% Air Force	14.8	50.8	8.8
% Marines	0.8	0.2	0.7
% Nurse	79.9	56.1	57.8
Service Time			
% < 3 years	29.3	18.4	37.5
% 3 – 19 years	52.3	55.3	52.2
% 20+ years	18.4	26.3	10.3

2010 Self-Reported Socio-demographics

	Vietnam	Near VN	US
Age (mean)	68.2	68.7	66.3
% Married	45.5	45.4	53.6
% Never Married	27.2	29.0	15.4
% some grad school or grad/professional degree	42.9	47.7	40.4

** Weighted using 2 tiered propensity cell method by locatability and response status*

Women's Wartime Exposure Scale-Revised (WWES-R)

- Capture military experience
 - 31 questions
 - 5 point scale (never to very often) or yes/no
- 6 scales

WWES Subscales (1)

Sexual Discrimination/Harrassment

- isolated because female
- unfair treatment
- sexual comments
- sexual touching
- unwanted sex – known
- unwanted sex – unknown
- deceptive intimate relationships
- pressure to fraternize

Combat Nursing

- involved in mass casualty
- how often view casualties
- perform under fire
- care for enemy
- provide worse care to enemy
- perform in uncomfortable environment

WWES Subscales (2)

Performance Pressure

- perform exceeding training
- errors/shortages
- excessive fatigue
- told you caused death
- think you caused death
- perform unethical tasks
- support from senior leadership

Casualties & Death

- how often post-mortem ops
- assist in dying
- sit with dying
- triage
- feel responsible for dying
- friends
killed/wounded/POW/ MIA

WWES Subscales (3)

Danger/threat

- how often in real danger
- possess a weapon
- use weapon for protection
- kill or injure someone

Overwork

- work > 14 hr/day
- work 7+ days

WWES

- Sexual discrimination/harrassment
 - VN>near>US
- Combat nursing
 - VN>near>US
- Performance pressure
 - VN>near>US
- Casualties & death
 - VN>near<US
- Danger/threat
 - VN>near>US
- Overwork
 - VN>near>US

PTSD Prevalence

- Lifetime
 - VN (20.1%) > nearVN (11.5%) < US (14.1%)
- Current
 - VN (15.9%) > nearVN (8.1%) < US (9.1%)
- Lifetime with pre-military onset
 - VN (2.9%) = nearVN (2.9%) < US (5.0%)
- Lifetime with military or post-military onset
 - VN (16.9%) > nearVN (8.5%) < US (8.9%)

Current PTSD Prevalence Models

Model 1

- Risk factors
 - VN service (vs. US)
 - Army (vs Navy)
- Protective factors
 - Older age in 2010
 - Nurse
- Not significant
 - Near VN (vs US)
 - Race
 - Years of service
 - Air Force or Marines (vs. Navy)

Model 2

- Risk factors
 - Army (vs. Navy)
 - Sexual discrim/harrass
 - Combat nursing
 - Performance pressure
 - Casualties & death
 - Danger/threat
- Protective factors
 - Nurse
- Not significant
 - VN or near VN service (vs US)
 - Age in 2010
 - Years of service
 - Air Force or Marines (vs. Navy)
 - Overwork

Lifetime PTSD Prevalence Models

Model 1

- Risk factors
 - VN service (vs. US)
 - Army (vs. Navy)
- Protective factors
 - Older age @ enlistment
 - Nurse
 - Service >3 years
- Not significant
 - Near VN (vs. US)
 - Race
 - Air Force or Marines (vs US)

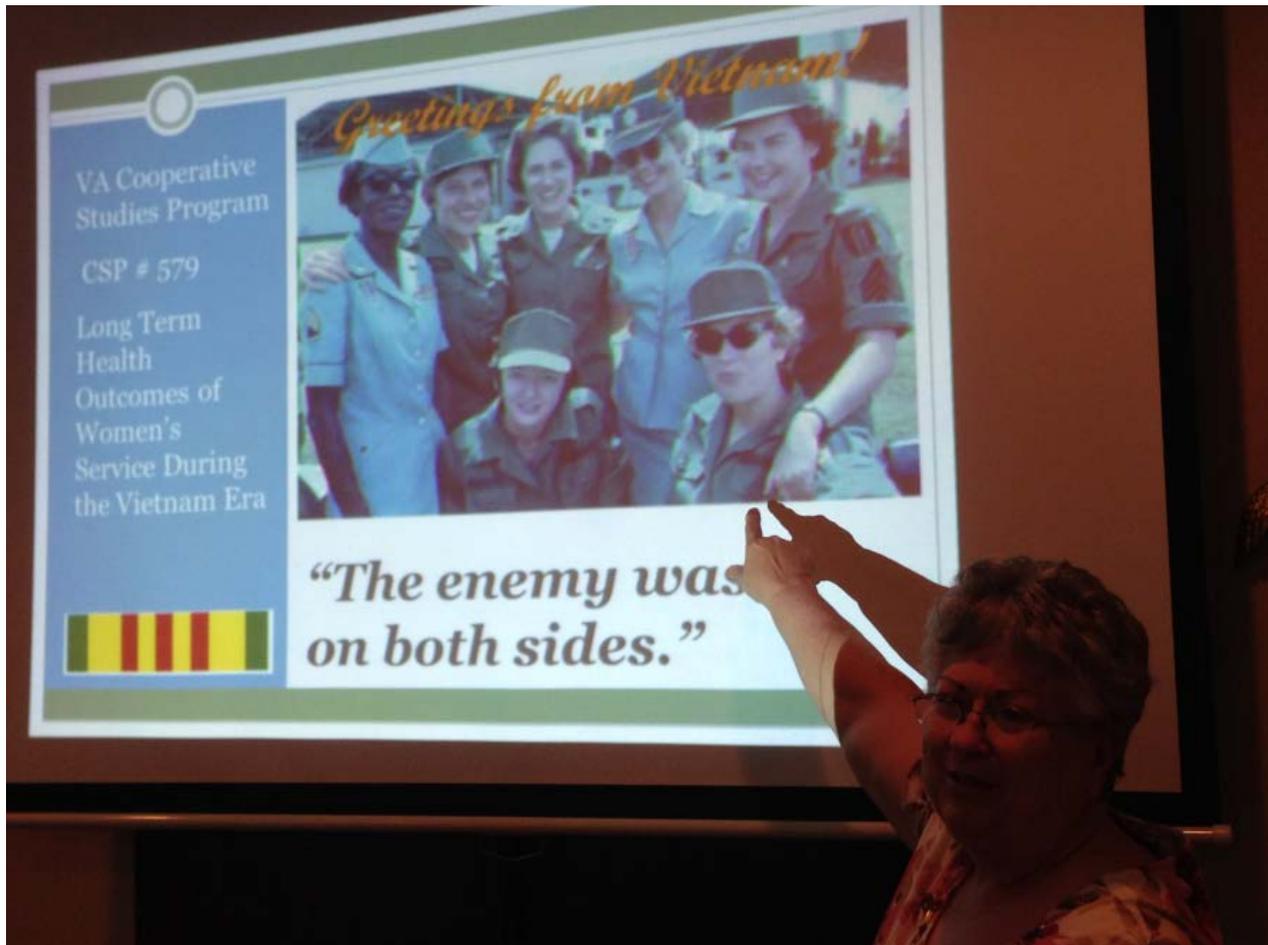
Model 2

- Risk Factors
 - Sexual discrim/harrass
 - Performance pressure
- Protective factors
 - Older age @ enlistment
 - Nurse
 - Service >20 years
- Not significant
 - VN or near VN service (vs US)
 - Race
 - Service 3-19 years
 - Service branch
 - Combat nursing
 - Casualties & death
 - Danger/threat
 - Overwork

PTSD Prevalence

- Women Veterans who served in Vietnam have 20% lifetime & 15.9% current PTSD prevalence – higher than those who served near VN or in the US
- All 3 cohorts had higher PTSD prevalence than US women (US: ~10% lifetime, ~5% current)
- After adjusting for wartime experiences, service area was no longer significantly different.

40+ years later



VA Cooperative Studies Program
CSP # 579
Long Term Health Outcomes of Women's Service During the Vietnam Era

Greetings from Vietnam!



"The enemy was on both sides."

The image shows a woman in the foreground, partially visible, pointing her right hand towards the photograph on the slide. The slide itself is a presentation slide with a blue sidebar on the left containing text and a yellow and red striped graphic at the bottom. The main area of the slide features a photograph of seven women in military uniforms, with the text 'Greetings from Vietnam!' written in a cursive font above them. Below the photograph is a quote in italics: 'The enemy was on both sides.'



Vietnam Women's Memorial, Washington, D.C.
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Glenna Goodacre, Sculptor

QUESTIONS/COMMENTS?

THANK YOU

References

- Han K. Kang, Yasmin Cypel, Amy M. Kilbourne, Kathy M. Magruder, Tracey Serpi, Joseph F. Collins, Susan M. Frayne, Joan Furey, Grant D. Huang, Rachel Kimerling, Matthew J. Reinhard, Karen Schumacher, and Avron Spiro III. 2014. HealthViEWS: Mortality Study of Female US Vietnam Era Veterans, 1965–2010. *American Journal of Epidemiology*. 2014 Mar 15; 179(6):721-30.
- Kimerling R, Serpi T, Weathers F, Kilbourne AM, Kang H, Collins JF, Cypel Y, Frayne SM, Furey J, Huang GD, Reinhard MJ, Spiro A, Magruder K. 2014. Diagnostic accuracy of the Composite International Diagnostic Interview (CIDI 3.0) PTSD module among female Vietnam-era veterans. *J Trauma Stress*, Apr;27(2):160-7.

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