

# From the Front Line to the Home Front: Three decades of veterans research



Zahava Solomon, PhD

Tel Aviv University

I-Core for Mass Trauma Research

Veterans' Mental Health Conference: Evidence Innovation and Practice London

March 14, 2019



W. Miller

*...and that was the war in Her Majesty's Armed Forces. Really exciting, don't you think?*

# RESEARCH AIMS

- Does the war end when the shooting stops?
- Is CSR a normal and short-lived reaction to an abnormal situation?
- Are ex-POWs ever really free from captivity?

## STUDY: 1

Traced the 20-year longitudinal course of CSR casualties and matched controls and their spouses. Four assessments were conducted 1, 2, 3 and 20 years after the 1982 Lebanon War.

## STUDY 2:

Ex-POWs, decorated heroes and controls of the 1973 Yom Kippur War, with four assessments 18, 30, 35 and 42 years after captivity.

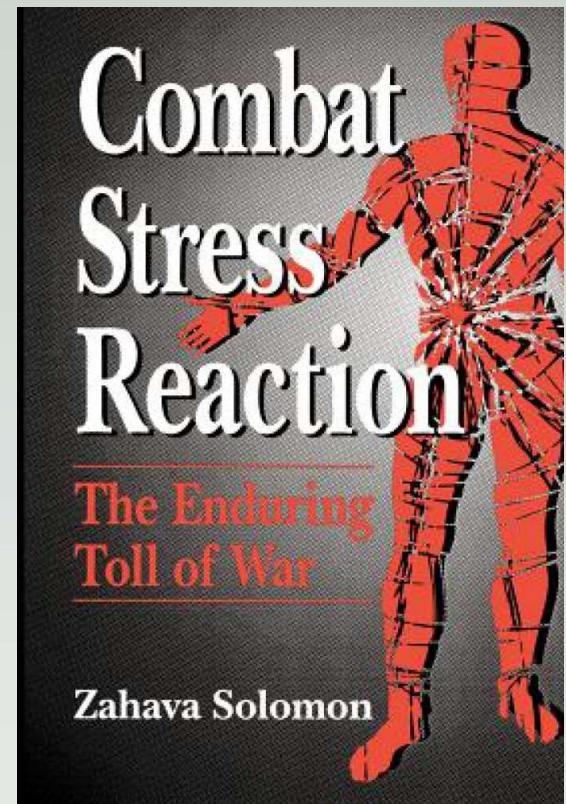
Spouses assessed at 3 time points.

Adult offspring assessed once.

# **CSR STUDY**

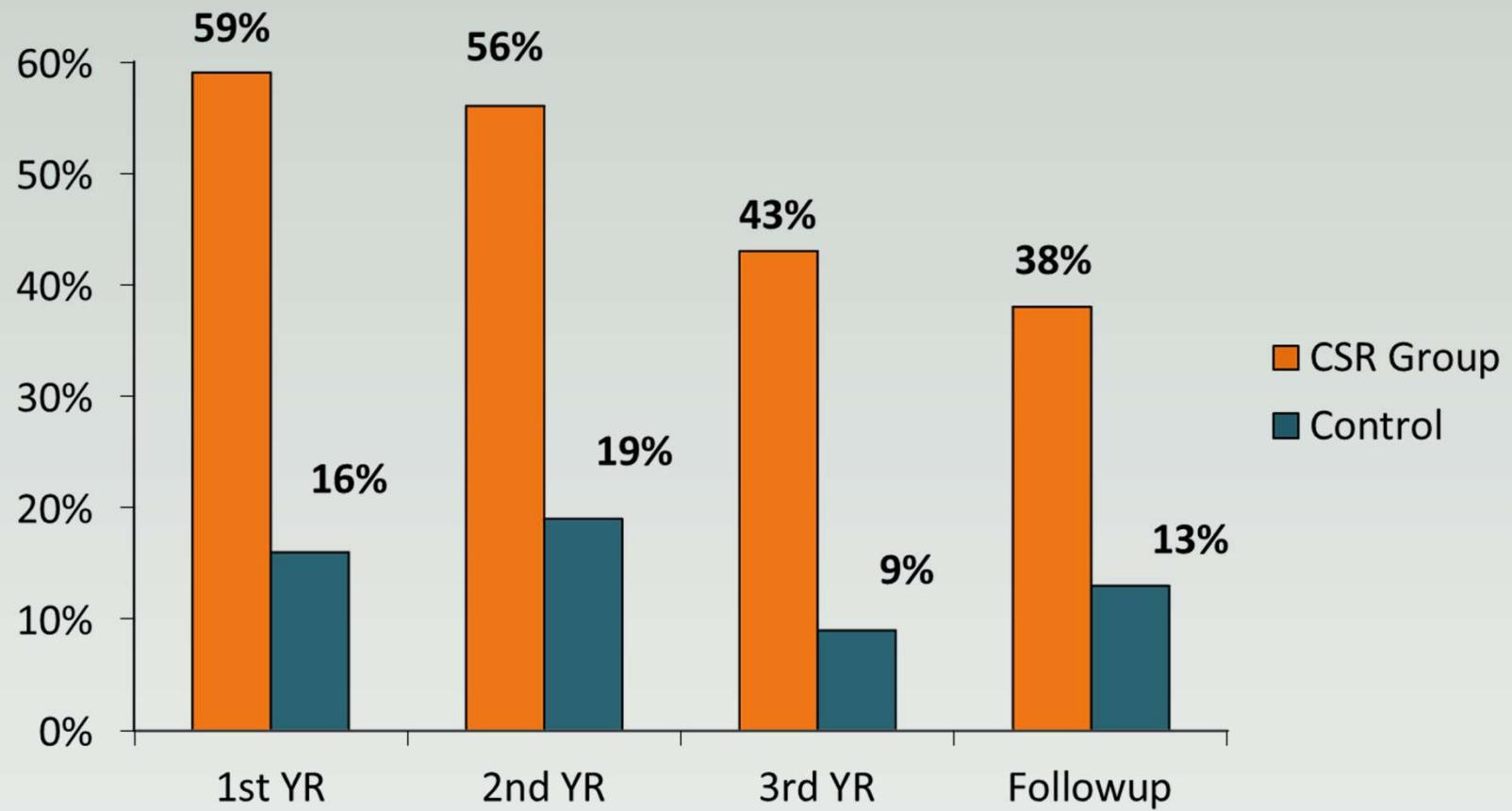
# COMBAT STRESS REACTION

- CSR is a labile, polymorphic phenomenon marked by a wide variety of somatic and affective manifestations (e.g., restlessness, dissociation, withdrawal, startle reactions)
- Diagnosis based on functional impairment



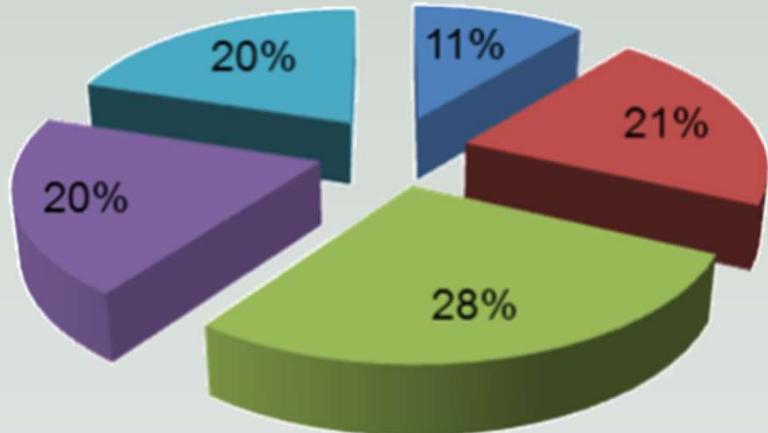
Solomon, Z. (1993). *Combat stress reaction: The enduring toll of war*. New York: Plenum.

# COURSE OF PTSD BY STUDY GROUP AND TIME

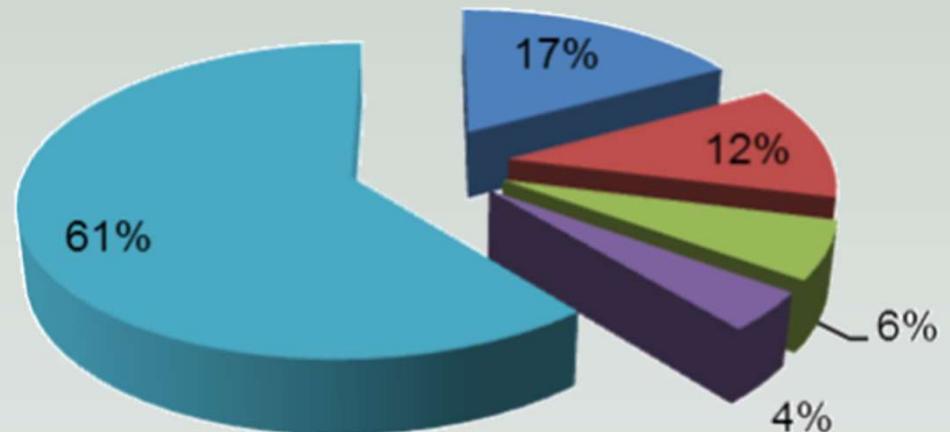


# PTSD RATES BY TIME AND GROUP

CSR Group



Non-CSR Group



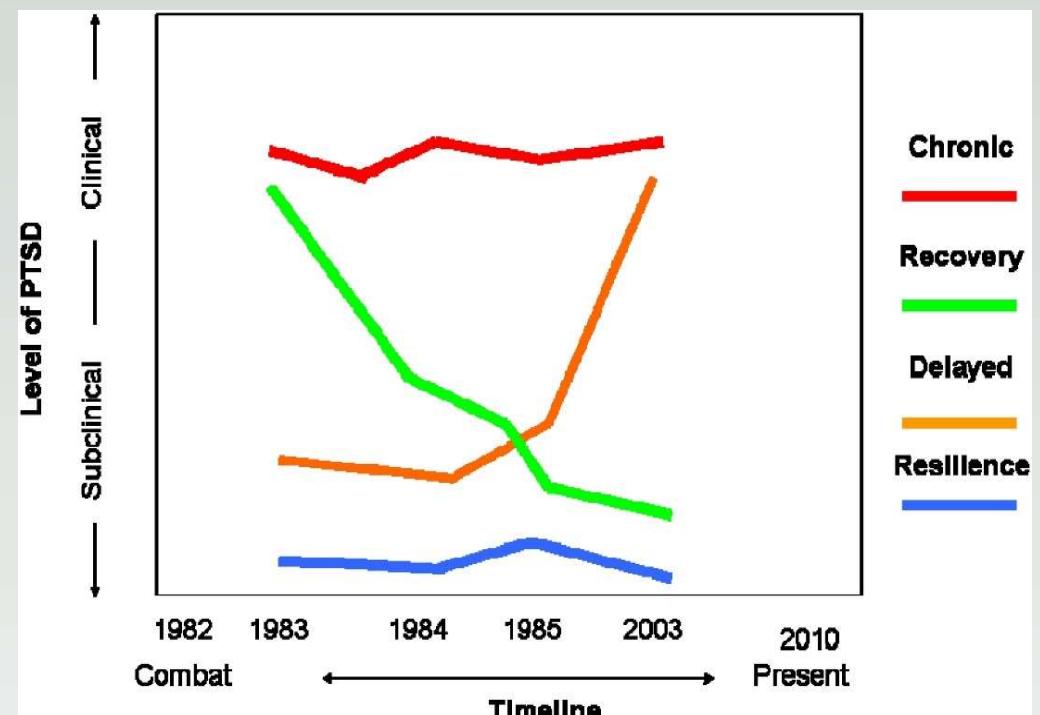
- No PTSD
- PTSD in one measurement point
- PTSD in two measurement points
- PTSD in three measurement points
- PTSD in four measurement points

CSR odds: 8.6 : 11.6 : 9.6 : 4.7

(Solomon & Mikulincer, 2006, AJP)

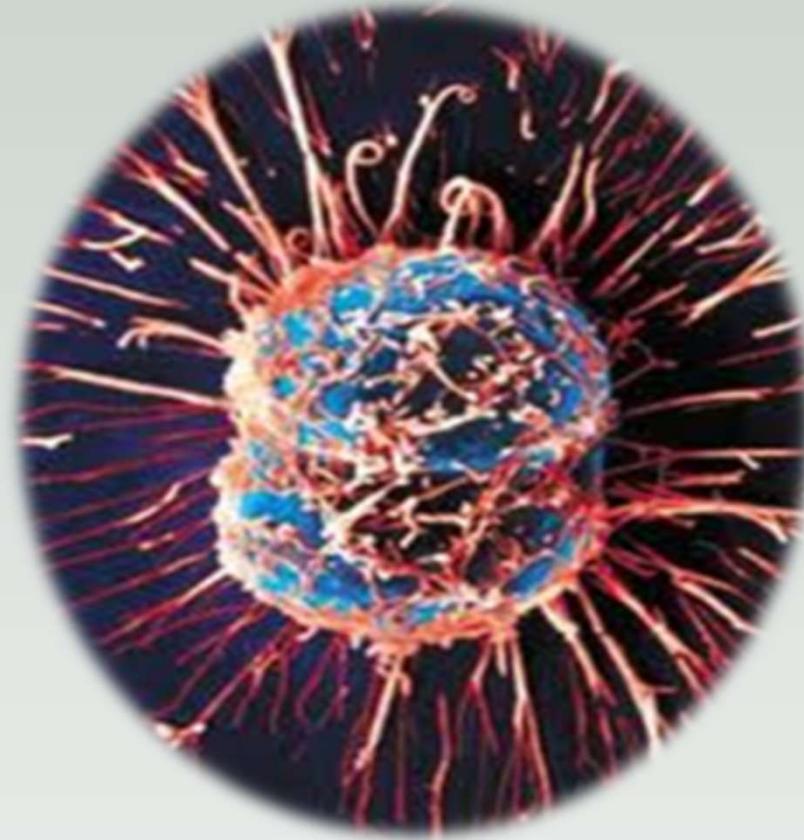
# PTSD TRAJECTORIES AND SEVERITY

- Chronic – (3 months or more)
- Delayed onset – 23.8% non-CSR (20 years), less severe than chronic
- Recovered
- Resilient
- Reactivated



(Solomon & Mikulincer, 2006, AJP)

**Trauma is likened to cancer:  
It metastasizes, and often has co-morbidities**



# CO-MORBIDITY

- The CSR group had significantly higher rates of comorbidity (PTSD with depression and anxiety) than the non-CSR group
- PTSD accompanied by very high rates of comorbid depression (81% vs 15.5%) and anxiety (69.7% vs 29.5%)
- CSR/PTSD increased risk for comorbidity

(Ginzburg et al., 2010, Journal of Affective Disorders)

# SOCIAL FUNCTIONING

- Across all 4 points of measurement, CSR veterans reported more problems in social functioning than non-CSR veterans (e.g., work, social relationships)
- CSR casualties with PTSD reported particularly impaired functioning

(Solomon & Mikulincer, 2007, JCCP)

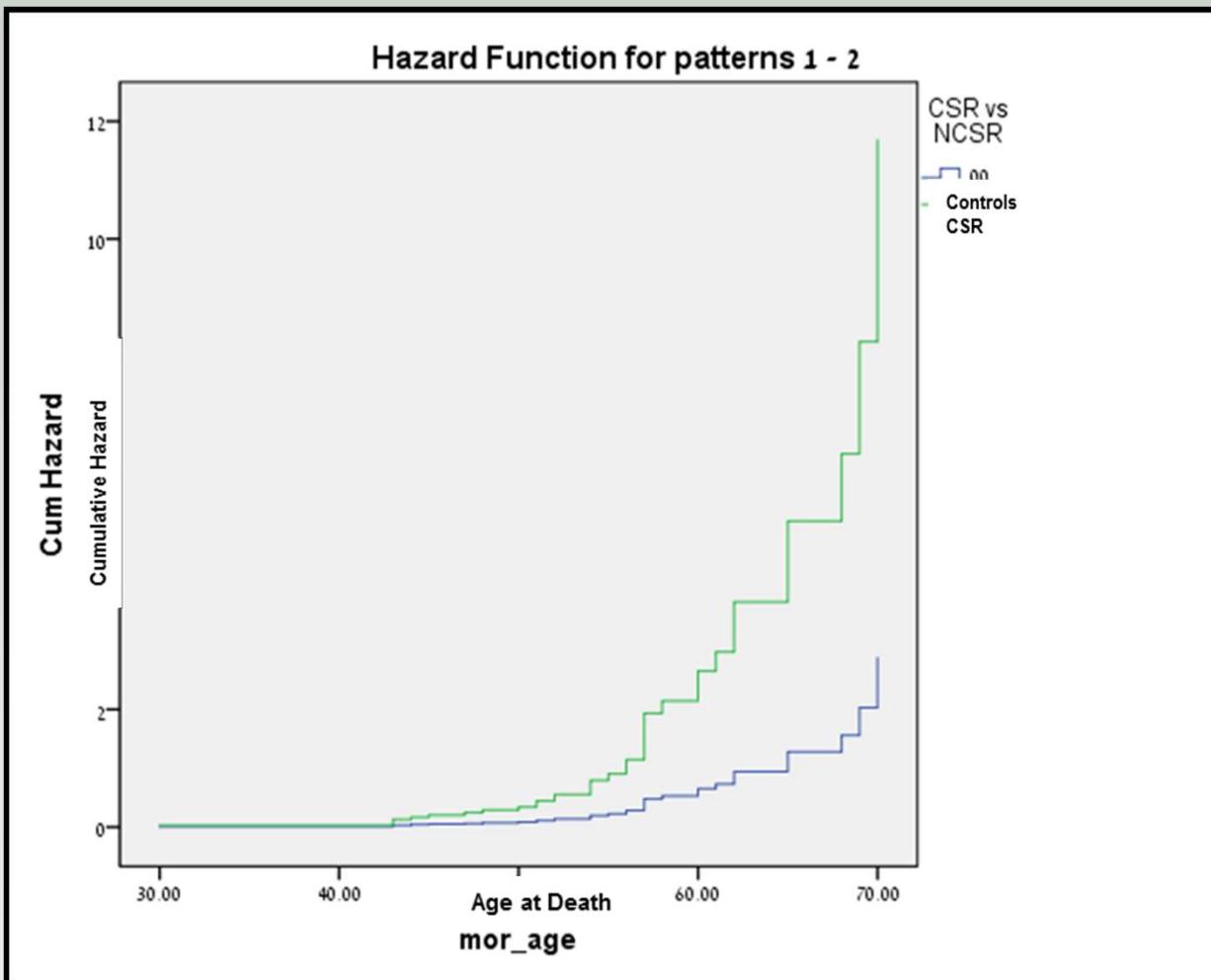
# **PHYSICAL HEALTH**

20 years after the war, both CSR and PTSD were associated with:

- Self-rated health
- Chronic diseases
- Physical symptoms
- Health related risk behaviors (e.g., smoking)

(Solomon et al., 2006, J. Nerv. & Ment. Disease)

# CSR AND MORTALITY



(Solomon, Levin, Crompton, & Ginzburg, Health Psychology, In press)

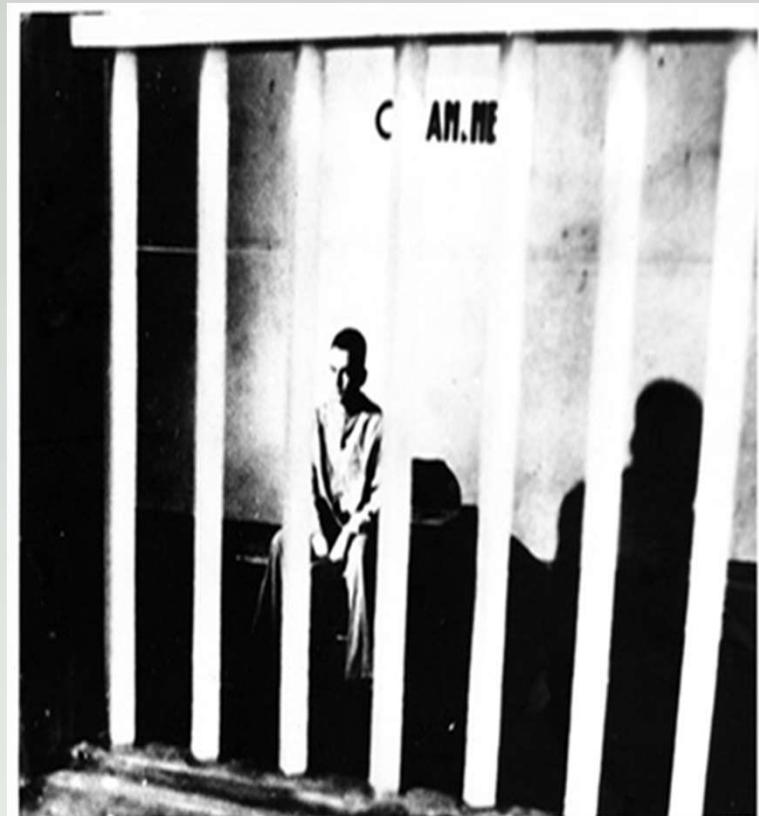
# IS CSR SHORT-LIVED?

- CSR is a precursor for a profound, prolonged, and deeply entrenched psychiatric and somatic impairment

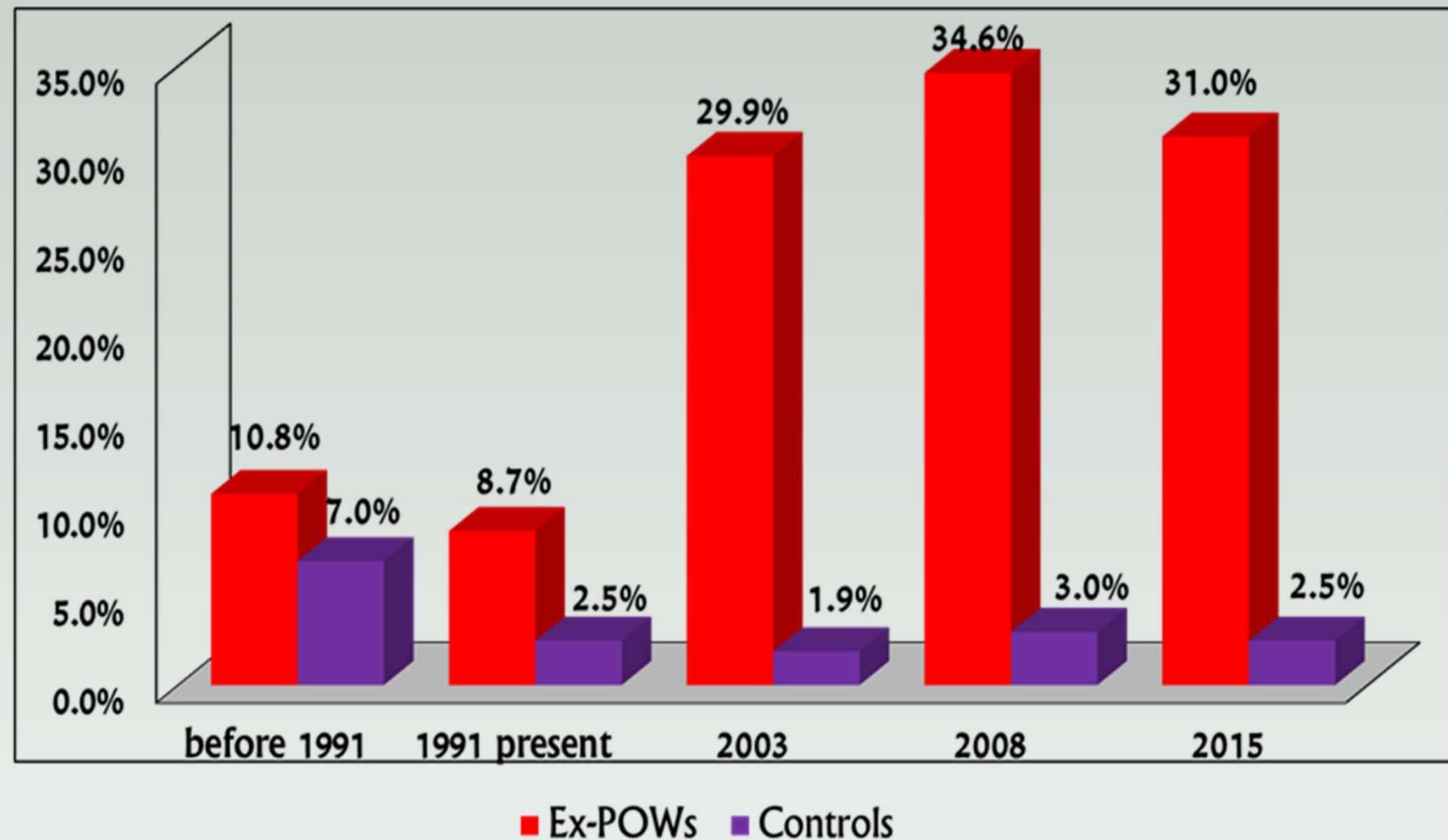
# WAR CAPTIVITY STUDY

# STRESSORS OF CAPTIVITY

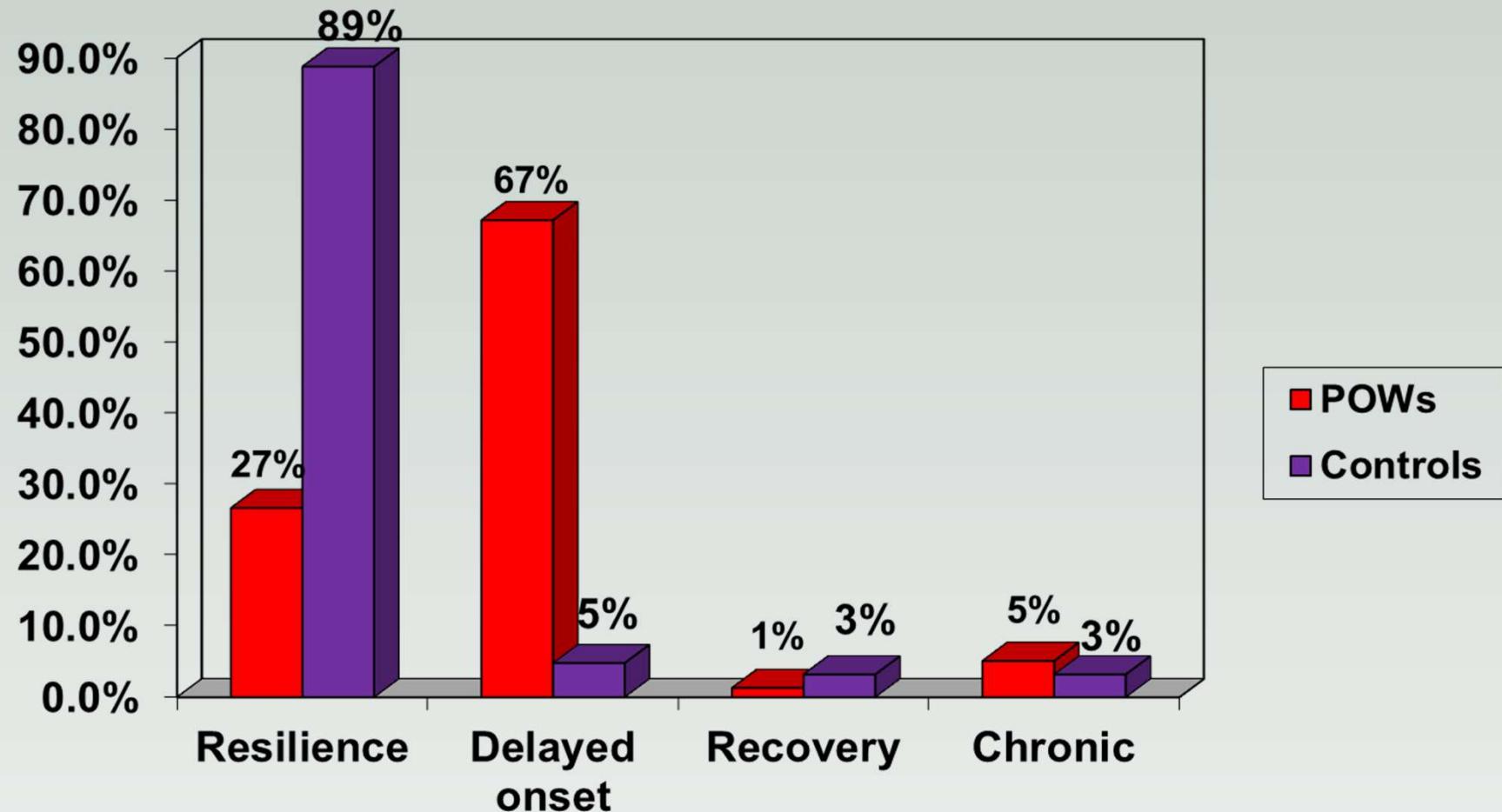
- Solitary confinement
- Harsh physical conditions
- Brutal torture
- Oppression and humiliation
- Interrogations
- Total control by perpetrator
- Issues of failure, betrayal



# PTSD RATES



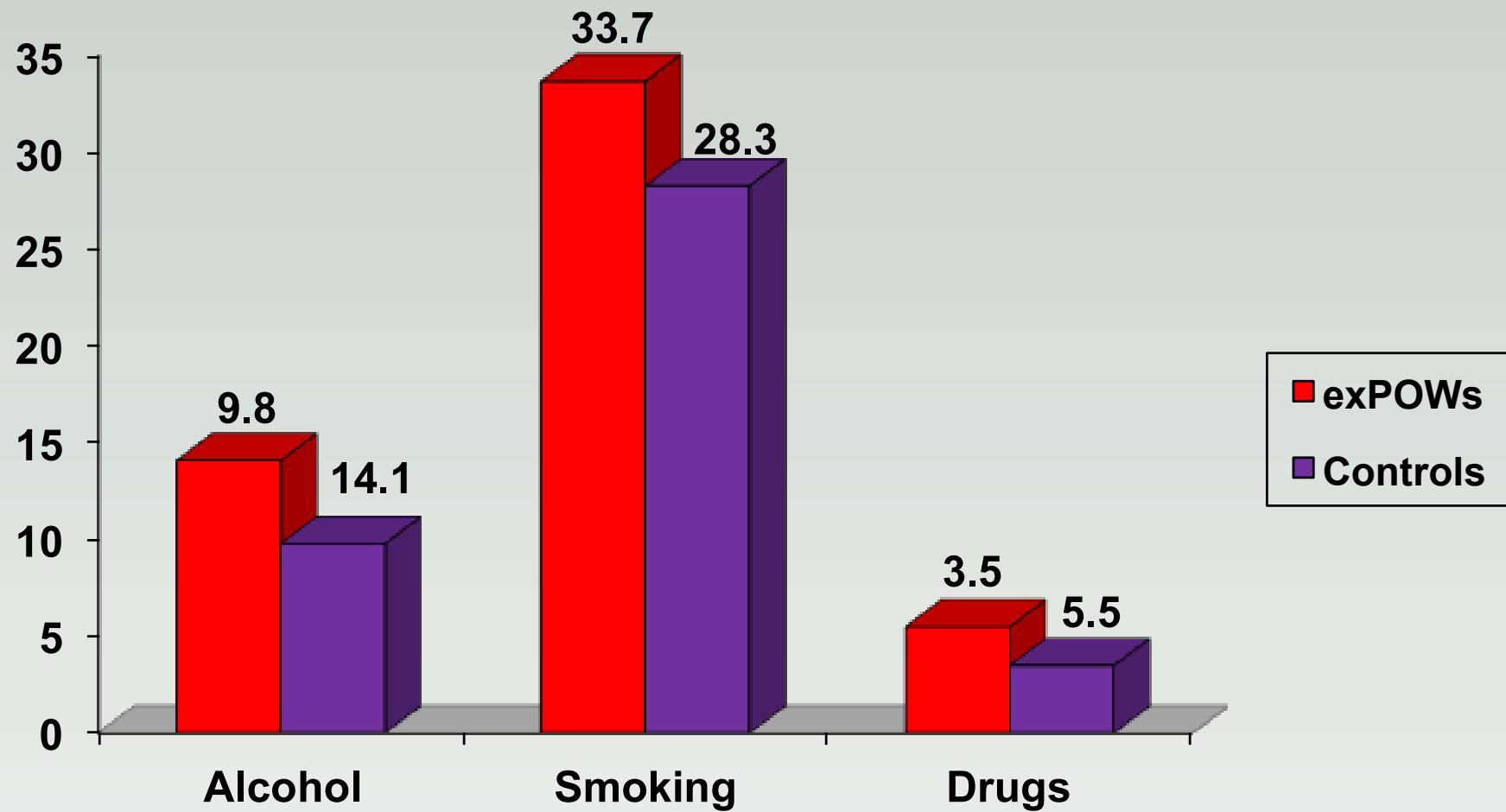
# TRAJECTORIES OF PTSD



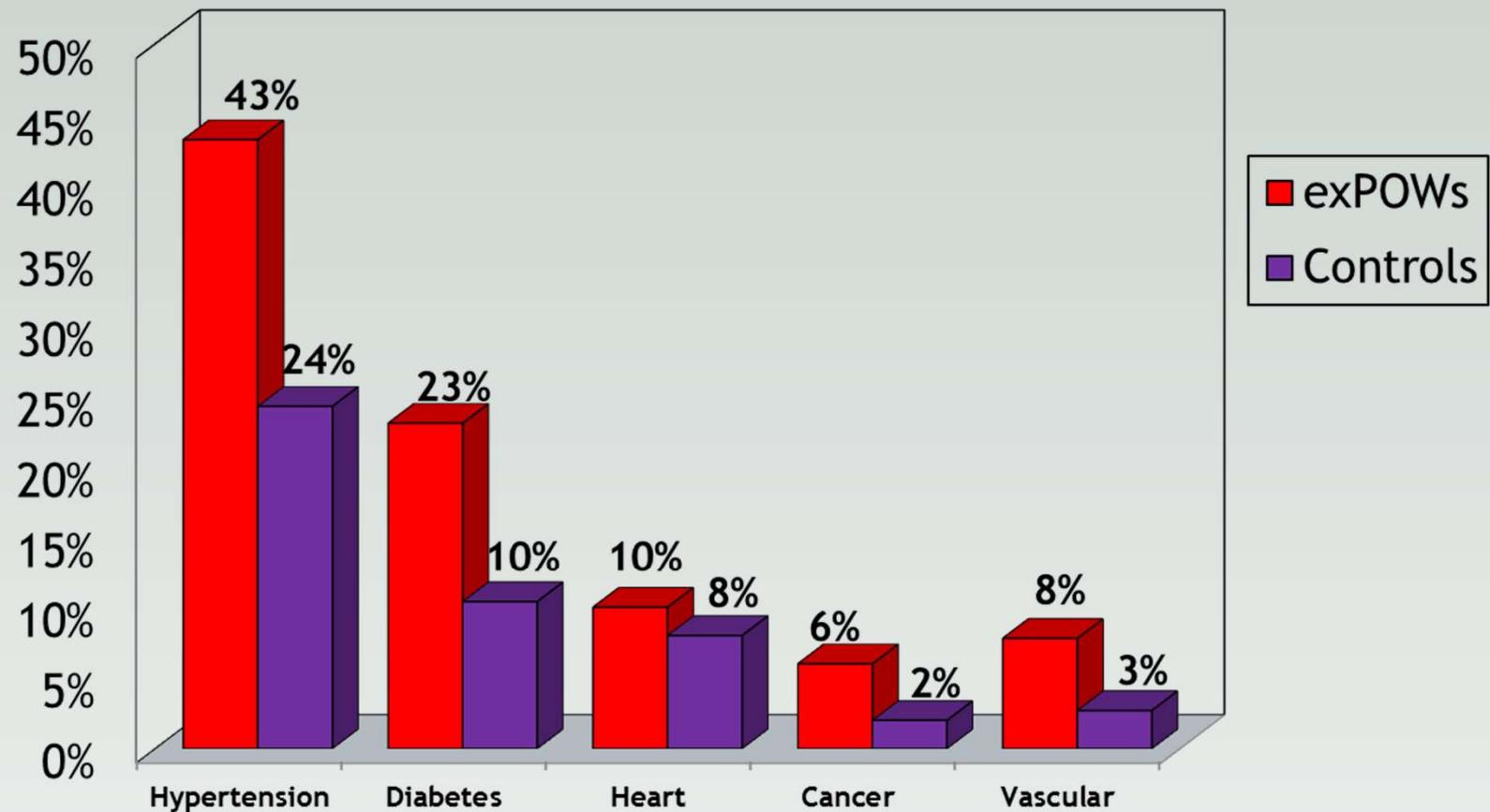
## PSYCHIATRIC CO-MORBIDITY

- As in the CSR study, PTSD was the most common and conspicuous disorder, but not the sole psychiatric manifestation
- High rates of co-morbidity – particularly depression, OCD, and anxiety
- Higher co-morbidity implicated in greater impairment and distress

# HEALTH RISK BEHAVIORS



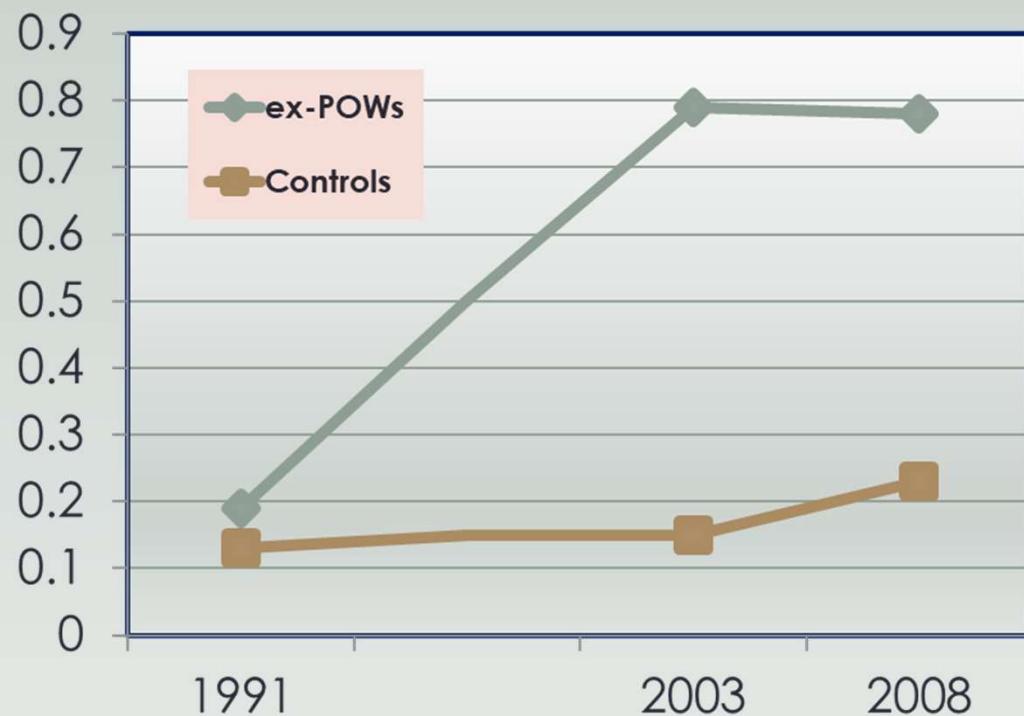
# SOMATIC MORBIDITY IN EX-POWS



# ACCELERATED/PREMATURE AGING

- Sense of foreshortened future
- Expect that their health will deteriorate in the future
- Subjective age: feel/look/act older than chronological age

# SUICIDAL IDEATION



Ex-POWs' unconditional LTMs fit the data adequately [ $\chi^2(1) = 3.08, p = .07, CFI = .93, NFI = .91, RMSEA = .13$ ].

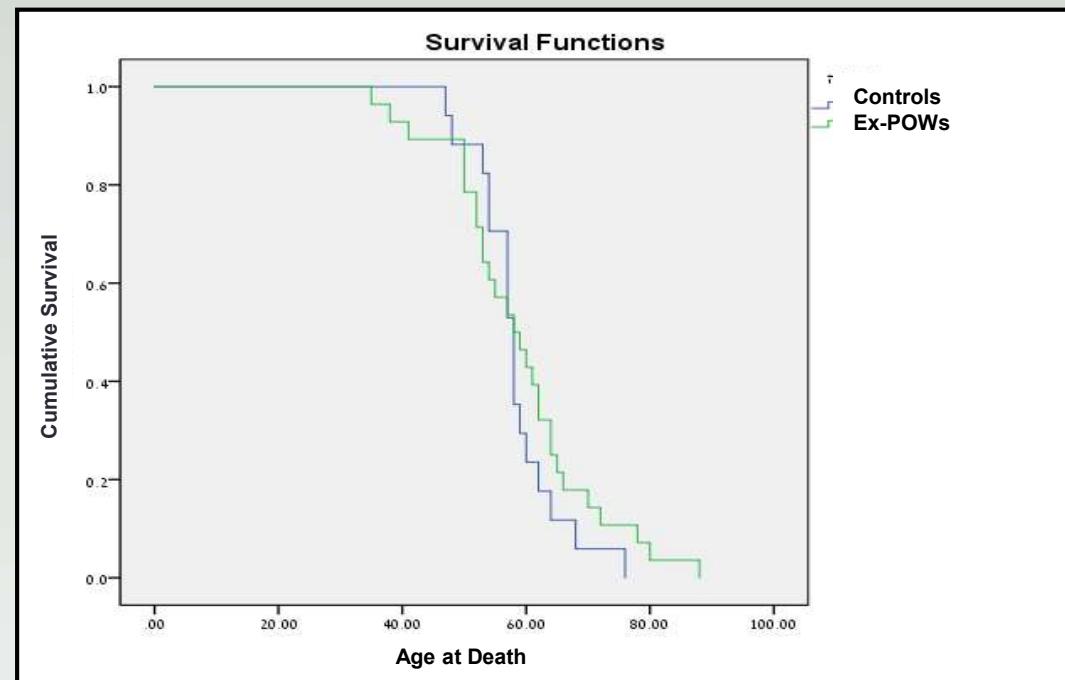
Controls' unconditional LTMs fit the data adequately [ $\chi^2(1) = .61, p = .43, CFI = 1, NFI = .98, RMSEA = 0$ ].

**Ex-POWs' rate of change in SI significantly differed from those for controls by virtue of increasing over time ( $\Delta\chi^2 = 36.80, df = 1, p < .001$ ).**

(Zerach, Levi-Belz, & Solomon, 2014, SPR)

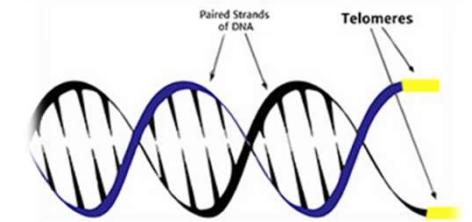
# ALL CAUSE MORTALITY

- 35-years after the war, ex-POWs' all cause mortality rate was **4** times higher than controls
- 42-years after the war mortality rate was **1.66** times higher than controls



(Solomon et al., 2014, J. Behav. Med.)

# TELOMERES

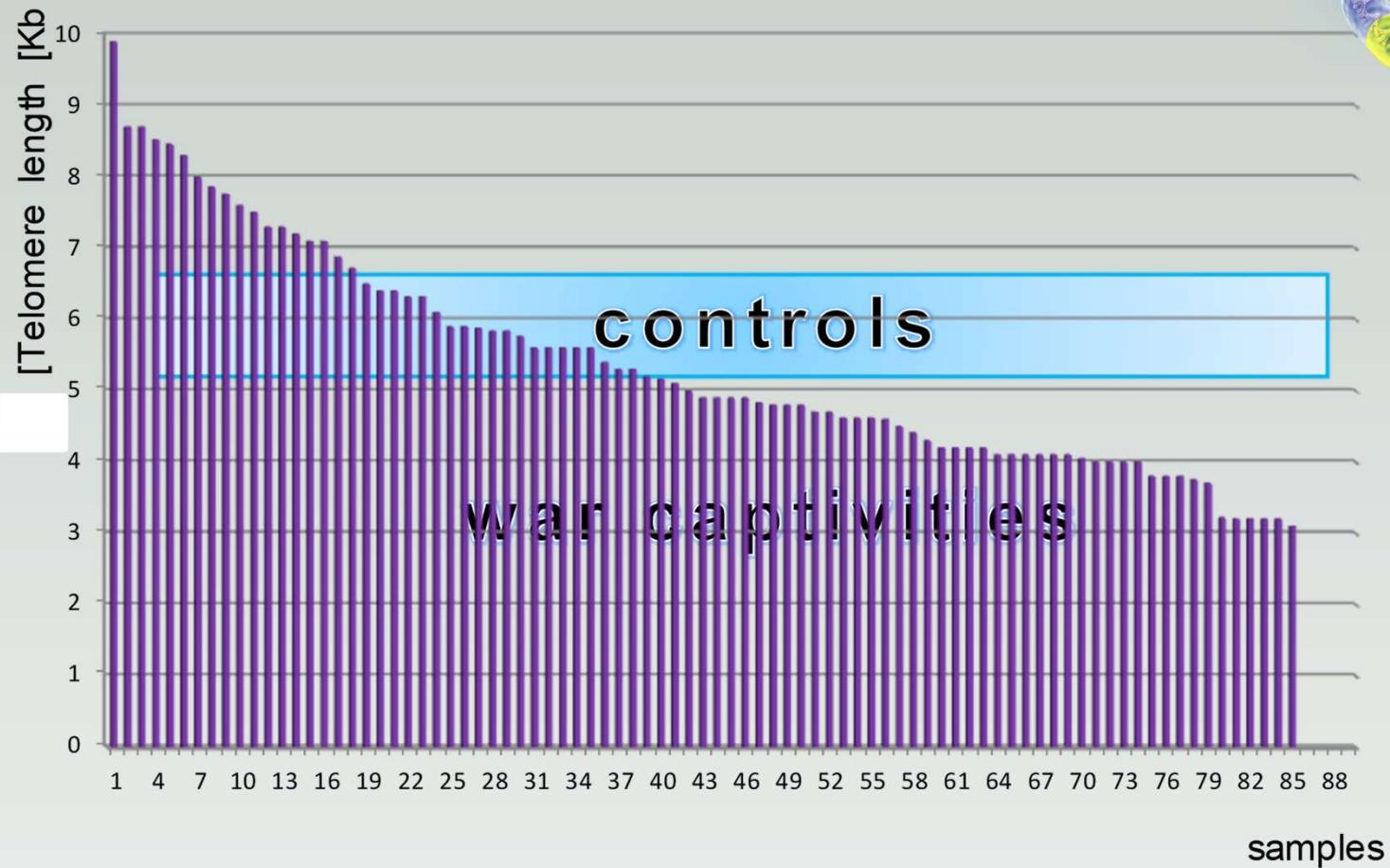


Telomeres are repetitive TTAGGG sequences located at the chromosomal ends, which confer genomic stability. In each cell division, telomeres progressively shorten, denoting an inverse correlation between telomere length and human age.

Apart from normal ageing, leukocyte telomere shortening is also correlated with life events, external stressors and lifestyle, such as chronic illness, disability, nutrition and smoking.

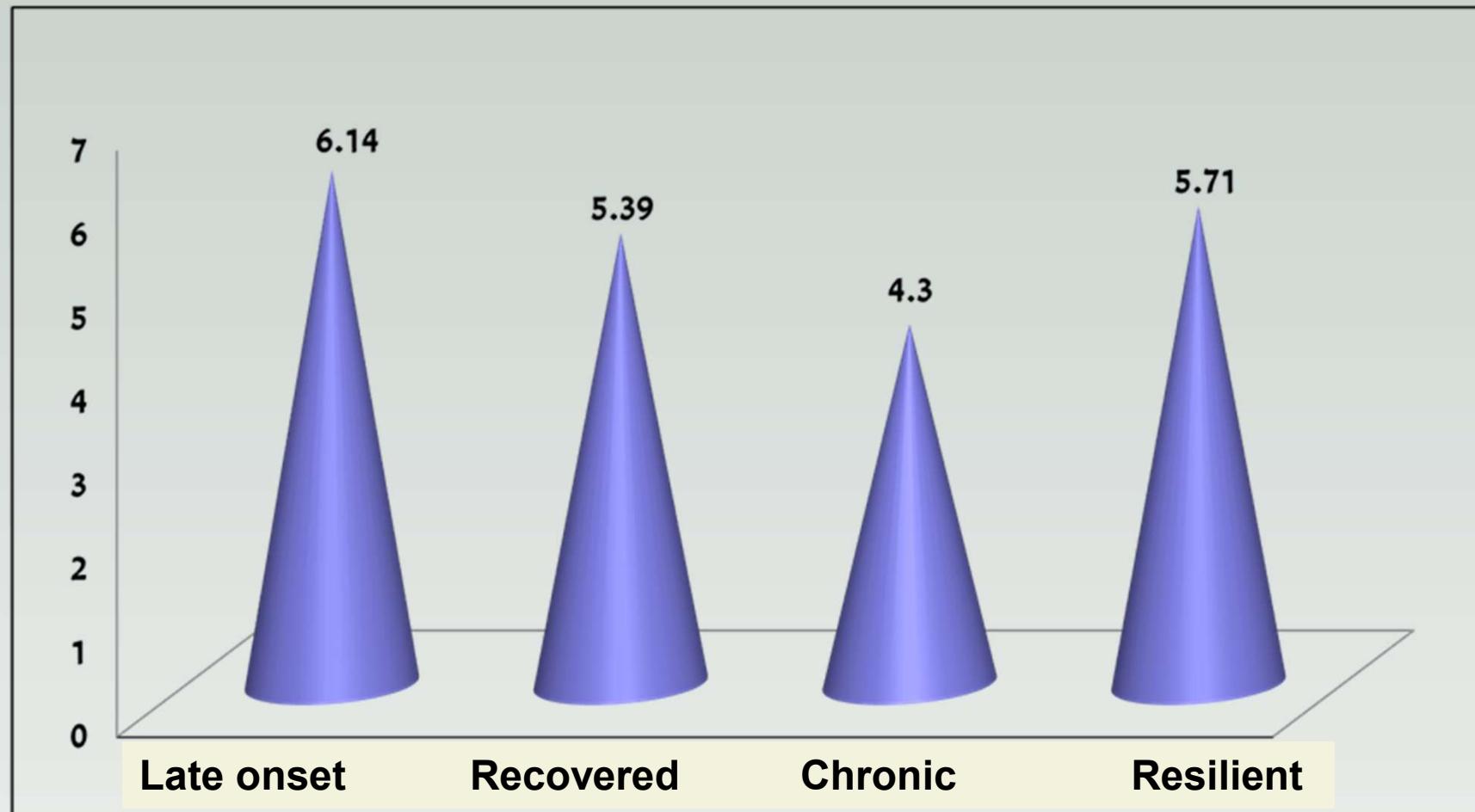
Augmented telomere erosion has emerged as a robust indicator of the human biological age, and a significant marker of cellular senescence.

# TELOMERE LENGTH



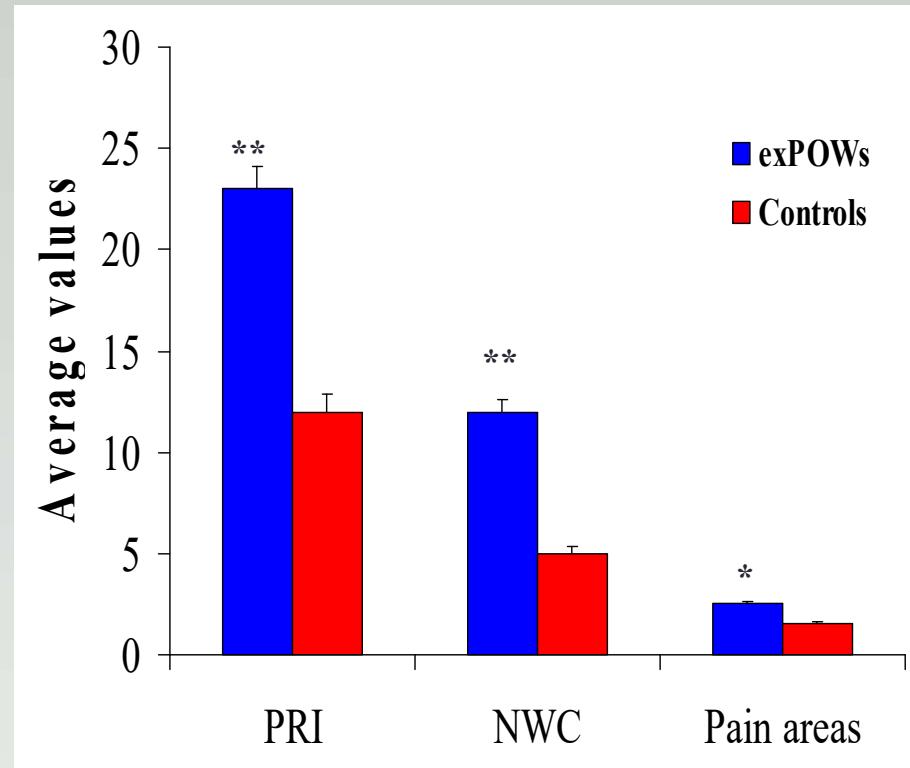
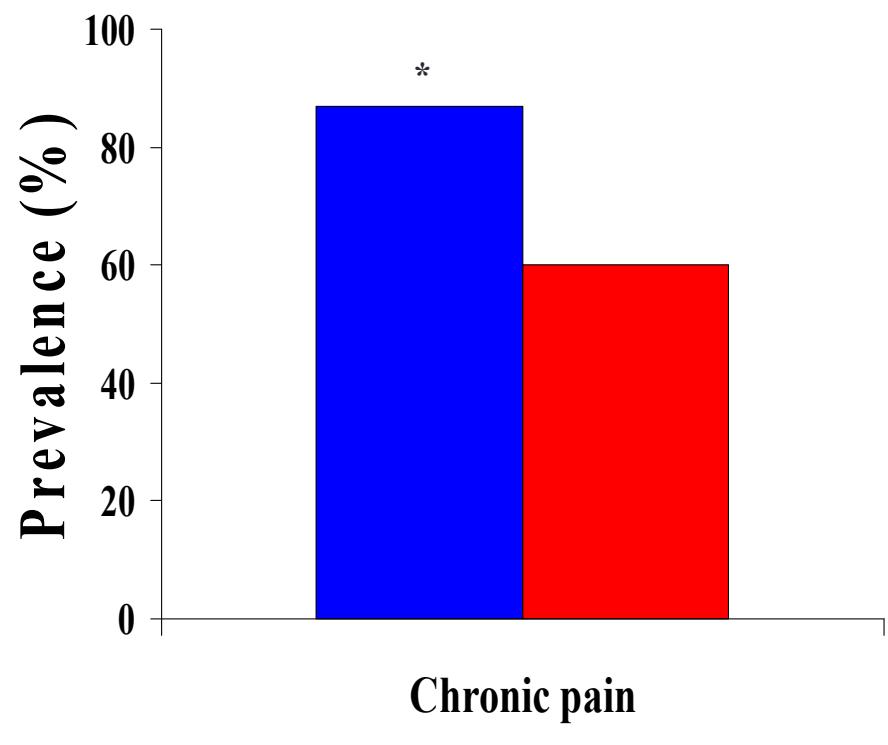
(Solomon et al., 2017, Psychoneuroendocrinology)

# PTSD TRAJECTORIES AND TELOMERE LENGTH



(Solomon et al, 2017, Psychoneuroendocrinology)

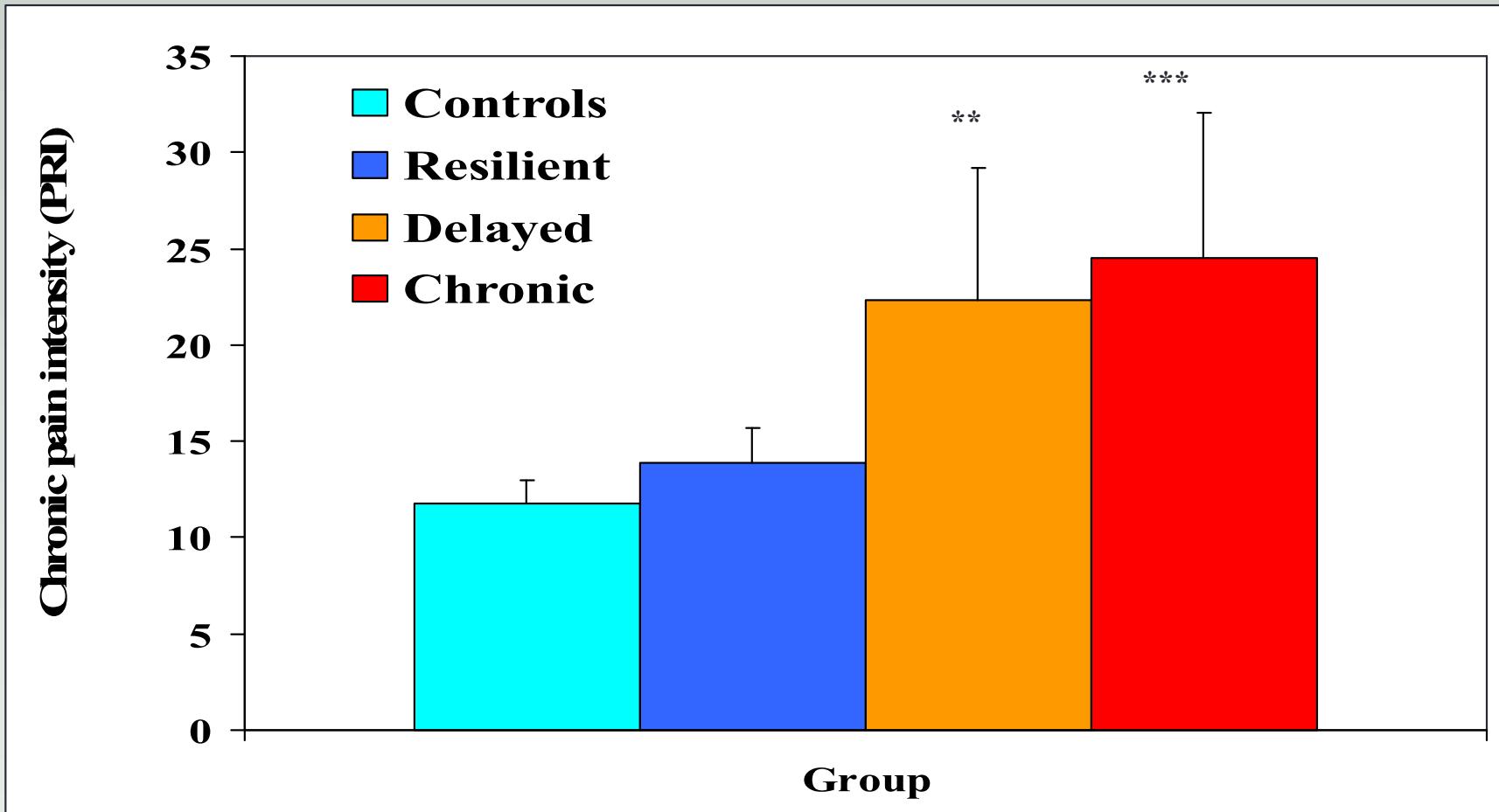
# THE BODY KEEPS SCORE - PAIN



\* $p<0.05$ , \*\* $p<0.01$

(Defrin, Ginzburg, Mikulincer Solomon, 2014, EJP)

# PTSD TRAJECTORIES AND PAIN



(Defrin, Lahav, Solomon 2017, J Pain)

# IMPAIRED FUNCTIONING

- High rates are unemployed
- 80% report interpersonal difficulties at work
- 70% report severe difficulties that undermine social ties
- Severe problems in family relationships

# SECONDARY TRAUMATIZATION

“‘Secondary traumatization’ refers to the traumatization of persons in close proximity to victims of traumatic events, who suffer from a range of emotional symptoms” (Figley, 1983)



# **SECONDARY TRAUMATIZATION IN VETERANS' WIVES IN BOTH STUDIES**

- 1. PTSD-like symptoms**
- 2. Somatic complaints and SRH**
- 3. Comorbidity: Depression, GAD**
- 4. Impaired social functioning**
- 5. Impaired sexual satisfaction**

(Zerach, Greene, & Solomon, 2015, *Journal of Health Psychology*; Bachem, Levin, & Solomon, submitted; Greene, Lahav, Bronstein, & Solomon, 2014, *Journal of Family Psychology*)



# RECIPROCITY OF TRAUMATIC STRESS



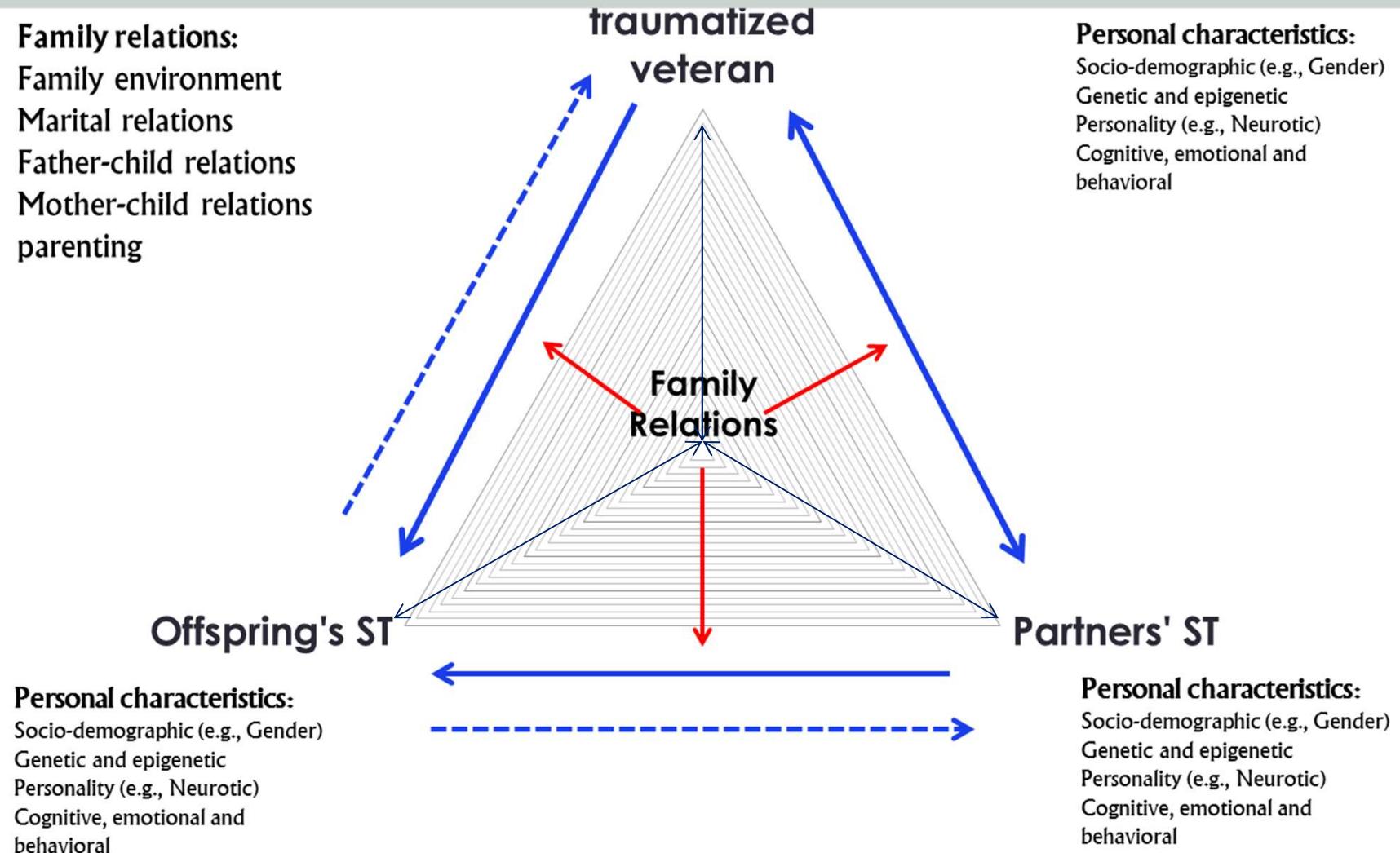
(Bachem, Levin, Zhou, Zerach, & Solomon, 2017, JMFT; Levin, Bachem, & Solomon, 2016, Family Process)

# SPILLOVER OR COMPENSATION?

- In both husbands and wives, lower marital adjustment predicted **lower parental functioning**, supporting the **spillover** hypothesis

(Levin, Bachem, & Solomon, 2016, Family Process)

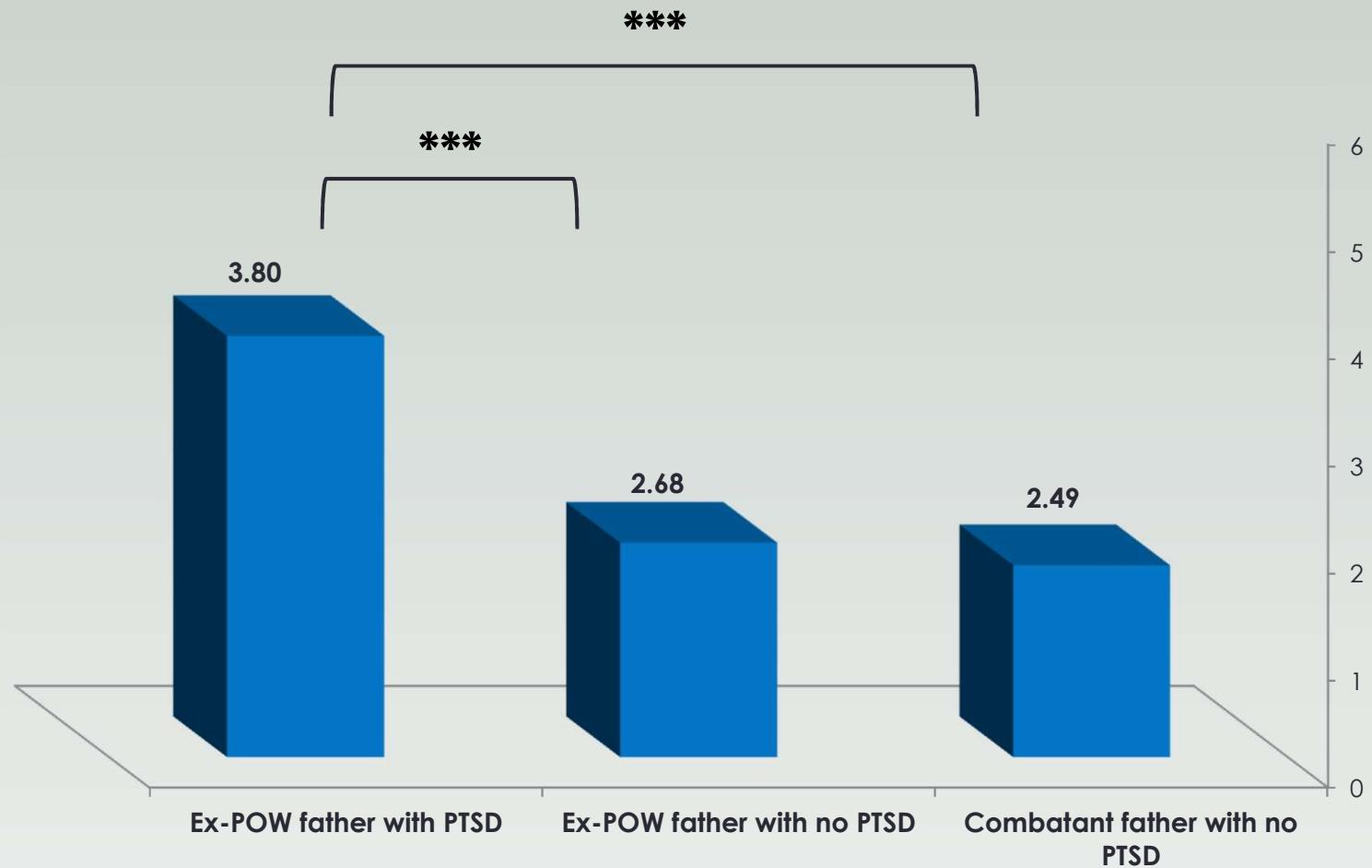
# AN INTEGRATIVE MODEL OF MUTUAL EFFECTS WITHIN FAMILIES OF TRAUMATIZED VETERANS



# OFFSPRING RAMIFICATIONS

- Offspring of traumatized veterans are at an increased risk for:
  - Psychological distress
  - Increased anxiety in the face of adversity
  - Survivor guilt
  - Difficulties in regulating and coping with aggression
  - Behavioral problems

# OFFSPRING PTSD SYMPTOMS ACCORDING TO FATHERS' CAPTIVITY AND PTSD



(Zerach, Kanat-Maymon, Aloni, & Solomon, 2016, JAD)

# WHY IS THEIR DISTRESS SO ENTRENCHED?

- Accumulation of stressors  
(Israeli security situation)
- Failure and betrayal



# CONCLUSIONS

- The effects of trauma are broad and long lasting:  
Decades after the wars end, traumatized veterans,  
their spouses, and offspring are at an increased risk  
for distress and illness
- Intervention should target the family unit and  
account for societal acknowledgement



## PRACTICAL IMPLICATIONS

- An establishment of a CSR unit that provides free of charge, life-long treatment for veterans
- Recognition of Secondary Traumatization in spouses and offspring and the provision of treatment
- Evaluation of treatment modalities: Front Line Treatment (Proximity-Immediacy-Expectancy)
- Evaluation of Department of Defense procedures for treatment (e.g., front-line), rehabilitation and compensation

## PRACTICAL IMPLICATIONS

- Formation of self-help organization – "Awake at Night"
- Department of Defense outreach to all ex-POWS
- Advocacy for ex-POWS recognition and rights  
(Knesset, Public committees, President of Israel)

*Thank  
you*