

WEATHERING WITHIN WAR

Somatic Health Complaints Among Vietnamese Older Adults Exposed as Adolescents to Bombing and Violence in the American War



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OBJECTIVES

To understand whether and how the environment of war, in particular encounters with high intensity bombing & wartime stress exposures during late adolescence and early adulthood, affect weathering in late adulthood.



THEORETICAL FRAMEWORK: WEATHERING IN WAR

- Socioecological environment of war heightens mortality and morbidity risks
- Short- and long-term effects on biological, psychosocial, and physiological outcomes
- Studies of the effects of weathering¹ resultant from war are largely absent
- Developmental plasticity of adolescence creates a focal period for understanding potential weathering effects from war-time experiences
- Somatization and somatic health complaints

STUDY CONTEXT: AMERICAN WAR IN VIETNAM

- Protracted armed conflict transformed Vietnamese society
- Widespread loss of life, infrastructure destruction, and displacement from most intense aerial bombing in history²
- U.S. War resulted in 10-fold increase in crude death rate³
- Adolescent males experienced especially high mortality
- Broad mobilization of teens and young adults, incl. women, to formal and informal military (e.g., Youth Shock Brigades)

HYPOTHESES — Somatic health complaints will be greater:

- 1 Among individuals who report **more intense exposures to armed conflict**, compared to less intense exposures;
- 2 When intense wartime exposures are **experienced at younger ages of adolescence**, relative to late adolescence or young adulthood.
- 3 Among older adults who lived in **more heavily bombed communities** versus those living in areas less affected by bombing.

DATA AND SAMPLE

Source: 2018 Vietnam Health & Aging Study (VHAS), designed to investigate the long-term health effects of war

Data: Biomarker and omnibus survey data

Sampling Method: Purposive sampling of four districts differentially exposed to bombing,⁴ and stratified random sampling within 12 communes

Sample Characteristics: 2,447 older adults age 59+ who experienced peak American War decade (1965-1975) as children-young adults

ANALYTICAL APPROACH

Survey-adjusted OLS regression of somatic health complaints; nested models

MEASURES

Dependent Variable: Somatic Health Complaints

of somatic health complaints/past month, from SCL-90 (e.g., headache; insomnia; bodily pain)

Explanatory Variables: War Exposure & Timing

- Military service: formal, informal, none
- Index of wartime violence exposure
- Age: in 1965; at most intense bombing

Confounding Variables

PTSD, comorbidities, mental health problems

Controls

Gender, main occupation, education

Figure 1. Sampled Districts and Bombing Levels

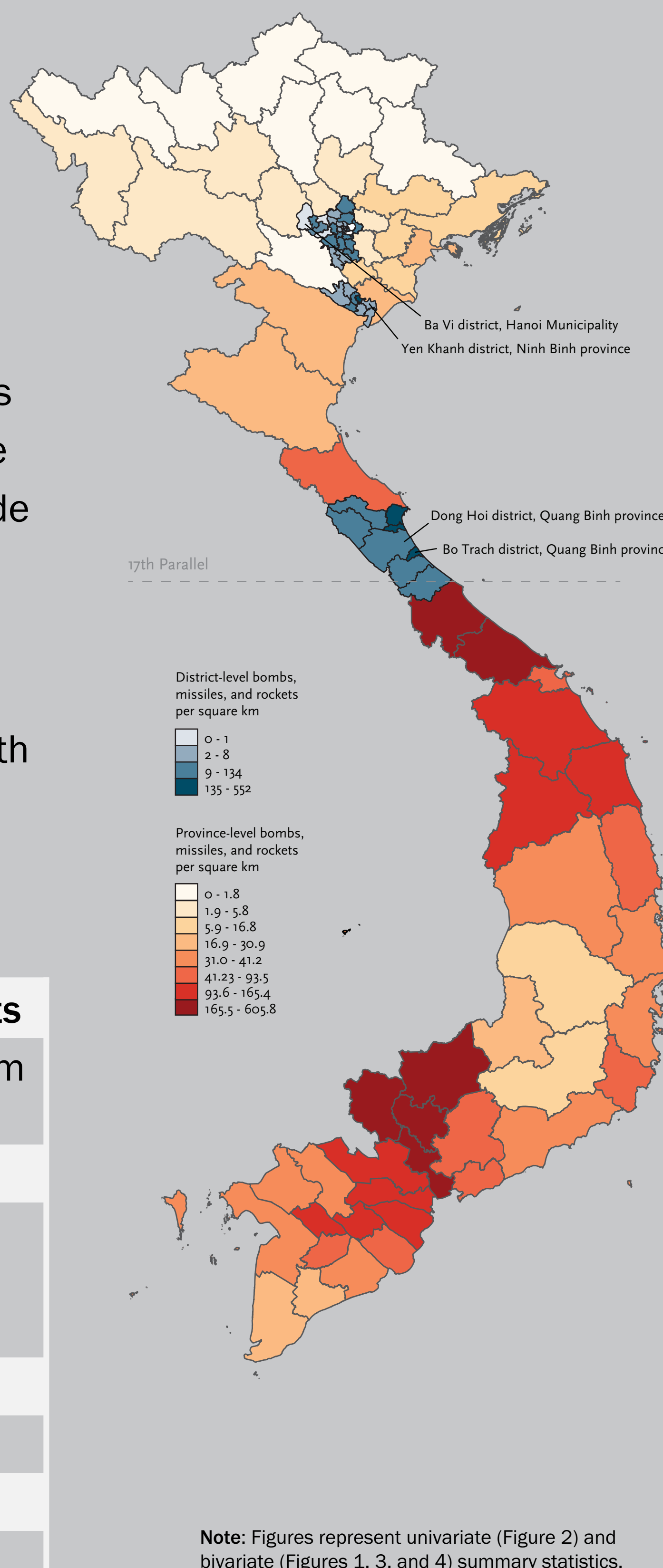


Figure 2. Number of health complaints

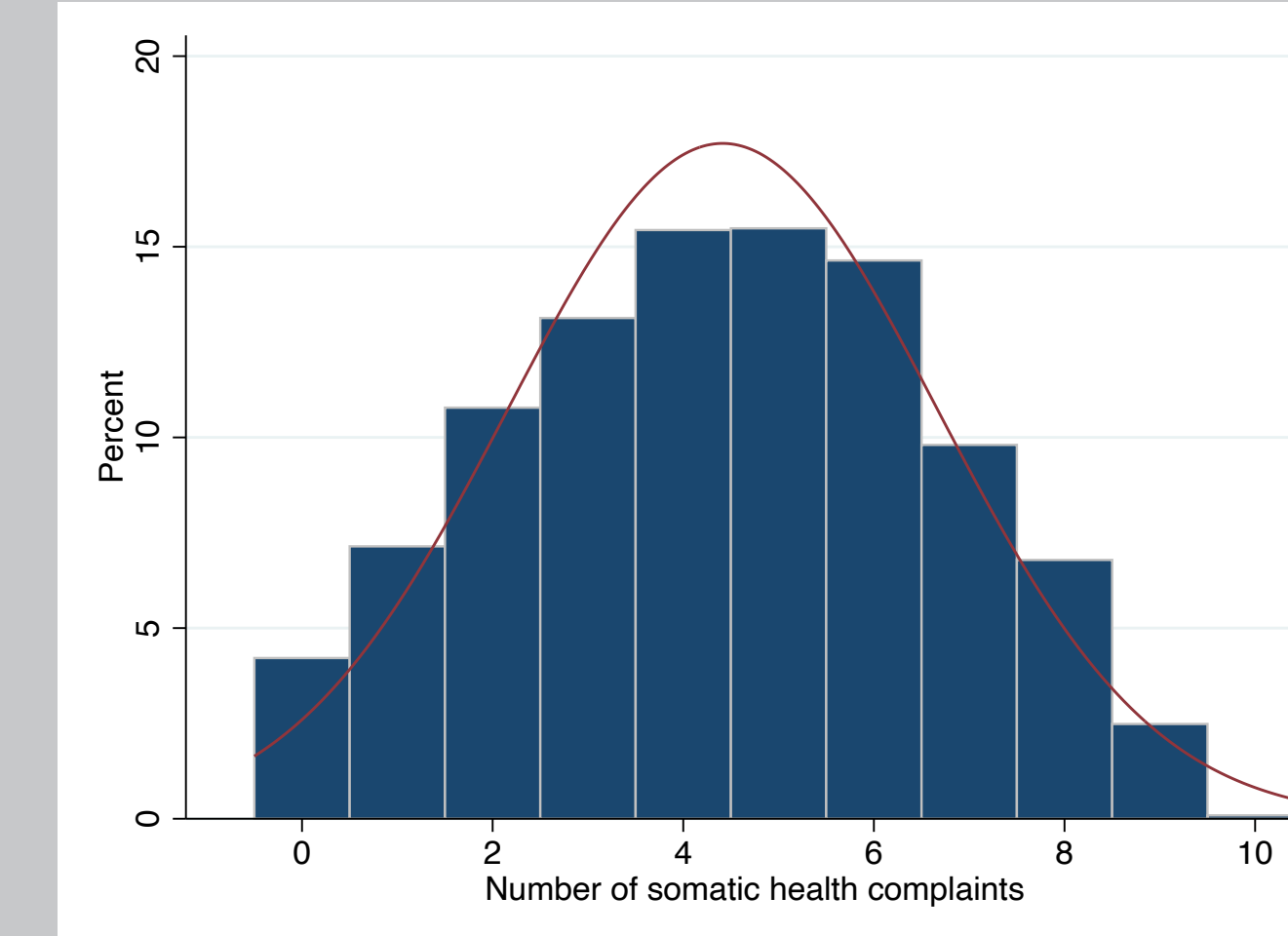


Figure 3. Health complaints by gender and military service

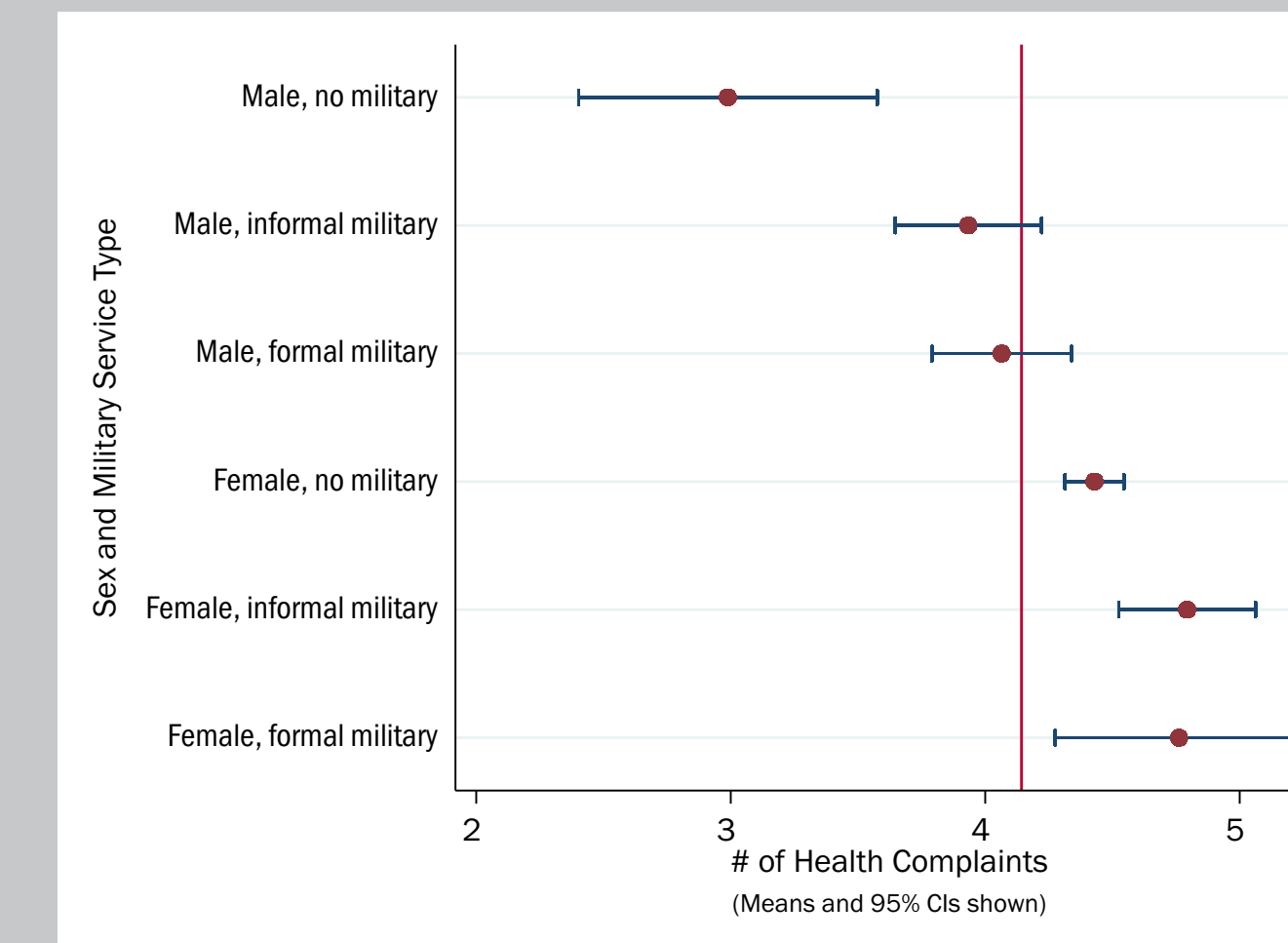
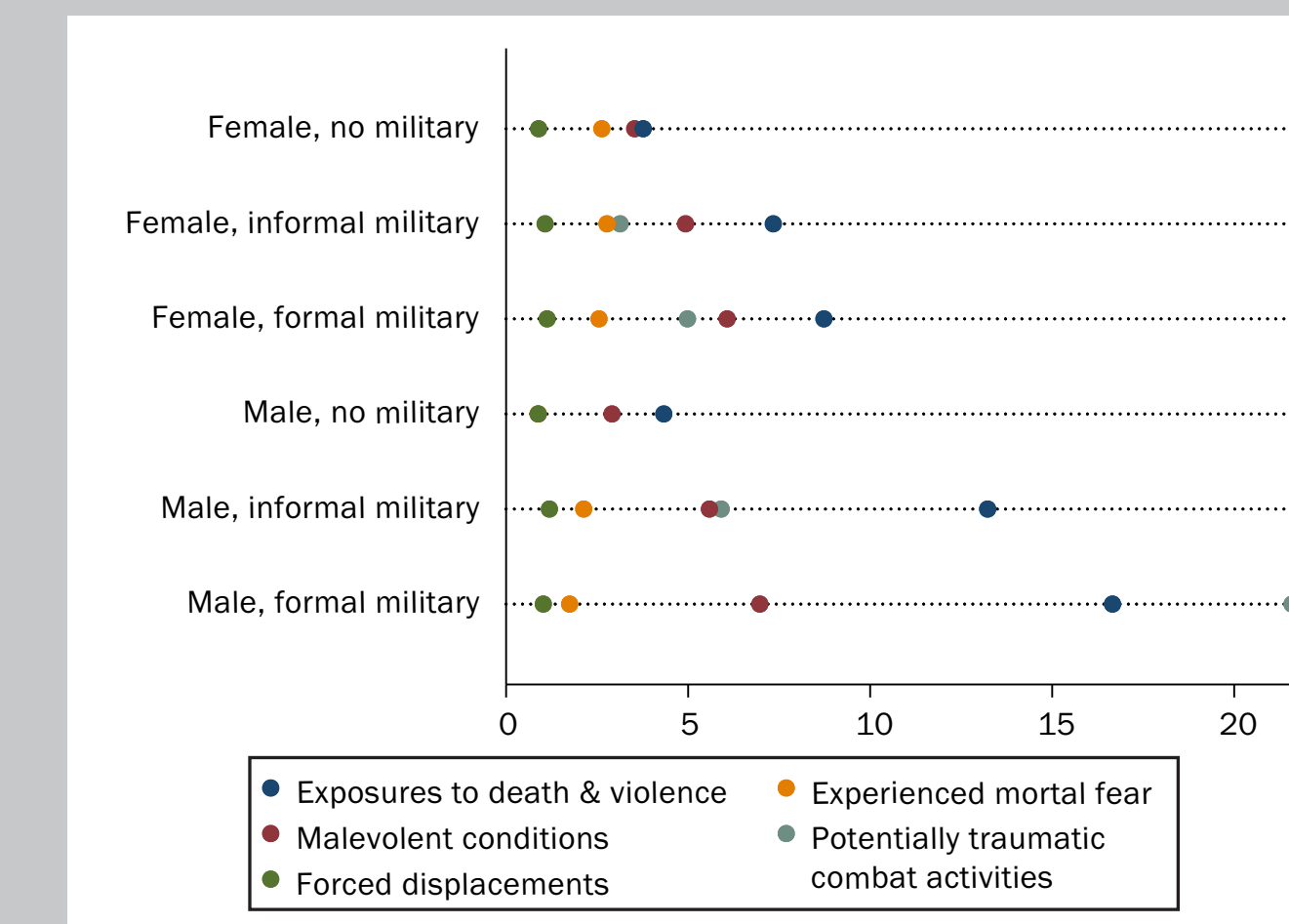


Figure 4. Mean number of war exposures



MAIN FINDINGS

Northern Vietnamese adults who were exposed to greater aerial bombing, individual war exposures, or were < 15 years old at their most intense bombing exposure during the American War, experience more somatic health complaints. Gender and military service are key adolescent social statuses influencing susceptibility to late life weathering.

	Base Model	Full Model
War Exposure		
Province-level bombing intensity	0.007** (0.002)	0.005** (0.001)
Individual war exposure index	0.291** (0.068)	0.006 (0.055)
Military service (ref: civilian)		
Informal military	0.717** (0.175)	0.361* (0.110)
Formal military	0.414* (0.128)	0.169+ (0.084)
Lifecourse Timing		
Age in 1965		
15-18 years old	0.670*** (0.131)	0.137 (0.111)
19-24 years old	0.283 (0.306)	-0.310+ (0.157)
25+ years old	0.182 (0.517)	-0.453* (0.194)
Age at most intense bombing		
15-18 years old (ref: < 15)	-0.434* (0.157)	-0.046 (0.144)
19-24 years old	-0.836* (0.320)	-0.617* (0.188)
25+ years old	-0.690 (0.501)	-0.305 (0.260)

+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001; parameter estimates shown with std. errors in parentheses. Base model includes controls (R² = 0.134). Full model includes controls and confounders (R² = 0.404).

TAKEAWAY POINTS

“Weathering from war is evinced in late-life somatic health complaints.”

- Adolescence is a particularly important phase of life during which extreme stress becomes embodied impacting short and long-term health and illness.
- War and armed conflict present a complicated ‘environment’ that has capacity to shape human health.

CITATIONS

- ¹ Clarkin, P. F. (2019). The Embodiment of War: Growth, Development, and Armed Conflict. *Annual Review of Anthropology*, 48, 423-442.
- ² Geronimus, A. T., Hicken, M., Keene, D., & Bound, J. (2006). “Weathering” and age patterns of allostatic load scores among blacks and whites in the United States. *American Journal of Public Health*, 96(5), 826-833.
- ³ Khamvongsa, C., & Russell, E. (2009). Legacies of war: Cluster bombs in Laos. *Critical Asian Studies*, 41(2), 281-306.
- ⁴ Hirschman, C., Preston, S., & Loi, V. M. (1995). Vietnamese casualties during the American war: A new estimate. *Population and Development Review*, 783-812.
- ⁵ District bombing intensity data courtesy of Miguel, E., & Roland, G. (2011). The long-run impact of bombing Vietnam. *Journal of Development Economics*, 96(1), 1-15. Province-level bombing data come from the U.S. Department of Defense Theater History of Operations (THOR) database detailing U.S. and Allied aerial missions.