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# The long-term impact of war on health and wellbeing in Northern Vietnam: Some glimpses from a recent survey

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ABSTRACT

War is deemed a major threat to public health; yet, the long-term effects of war on individual health have rarely been examined in the context of developing countries. Based on data collected as a pilot follow-up to the Vietnam Longitudinal Survey, this study examines current health profiles of northern Vietnamese war survivors who entered early adulthood during the Vietnam War and now represent Vietnam's older adult population. To ascertain how war and military service in the early life course may have had long-term impacts on health status of Vietnam's current older adults, we compare multi-dimensional measures of health among veterans and nonveterans, and within these groups, regardless of their military service, between combatants and noncombatants. Multivariate results suggest that despite prolonged exposure to war, veterans and those who served in combat roles are not significantly different from their civilian and noncombatant counterparts on most health outcomes later in life. This is in contrast to American veterans who fought on the opposing side of the war. The near absence of differences in older adult health among northern Vietnamese with varying degrees of war involvement might be explained by the encompassing extent of war; the notion that time heals; and the hardiness and resilience against ill health that are by-products of shared struggle in war and a victorious outcome.


## Introduction

War is deemed a major threat to population health in the short and long run (Murray, King, Lopez, Tomijima, & Krug, 2002; Panter-Brick, 2010). Violence and traumas inflicted by war often lead to increases in casualties, morbidity risks, and mental health problems. Yet, the long-term impacts of war on health have rarely been examined in the context of developing countries (Levy & Sidel, 2009; Pedersen, 2002). Vietnam provides a compelling setting from which to address this research gap. Throughout the 20th century, the country underwent continuous wars, including armed conflicts against the Americans during 1965–1975 – widely known as the Vietnam War. The war encompassed the most intense aerial bombing campaigns in history, caused estimated millions of fatalities and the exodus of over a million refugees (Clodfelter, 1995; Hirschman, Preston, & Vu, 1995). Information on the long-term effects of the Vietnam War on *American* veterans' health statuses is emerging (Wilmoth, London, & Parker, 2010), and scholars across disciplines have documented rather extensively the association between service in the war, persistent post-traumatic stress disorder (PTSD) and other psychological health problems (Friedman, 2004). However, little is known about the analogous population of Vietnamese who fought in "the same war" and whose life course might have been shaped by military service, combat exposure, disability, the loss of loved ones and other wartime hardships.

Recent research suggesting that areas heavily bombed during the war are not distinctly disadvantaged in their current economic development has conjured debates about the extent to which the war continues to impact Vietnam's communities and the notion of community resilience (Miguel & Roland, 2011). While the long-standing toll of war devastation may be difficult to estimate (Brunborg & Urdal, 2005), there has been even less empirical study of how Vietnamese men and women who witnessed the war have fared over the long run with regards to their physical and mental health. Meaningful exceptions are studies that examine the health consequences of dioxin exposure for Vietnamese veterans and their descendants, and for populations in areas with high levels of contamination (Stone, 2007). Additional studies of generalized health outcomes in the broader population, considered from theoretical, public health and policy standpoints, are needed.

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Relying upon unique data from a pilot follow-up to the Vietnam Longitudinal Survey, we use a life course perspective to analyze health profiles of northern Vietnamese war survivors who entered early adulthood during the war and now represent Vietnam's older adult population. Our objectives are twofold. First, we analyze differences in health outcomes between Vietnamese veterans and nonveterans, and further differentiate these groups according to combat participation, to examine the association between degree of war involvement in early adulthood and health outcomes in later-life. Second, drawing on existing literature examining Vietnam-era veterans in the US, we interpret our empirical findings in comparison to their American counterparts. This comparison sheds light on whether historical and geopolitical contexts may have had long-term implications for the health status of soldiers fighting on opposing sides of the war.

## Background

The Vietnam War was a major turning point of the 20th century. Not only did it confront two political ideologies – capitalism versus socialism; it also revealed that a nationalist revolution in a poor country could overcome the world's military superpower. This section provides a brief overview of historical contexts surrounding Vietnam's and America's involvement in the war, followed by a review of the largely US-based literature on the long-term effects of war on veterans' health.

Steady bombing campaigns launched by the US in northern Vietnam (formerly North Vietnam) in early 1965 marked the beginning of the undeclared war, which later unfolded very different perspectives on the war's meanings and day-to-day realities for the American and Vietnamese populace. On the one hand, the Vietnam War took place far from the US home-front and a majority of the American public was not directly exposed to war violence. Yet, it created a deep rift in American society. Before the war ended bitterly a decade later, the US government and its military strategies were harshly criticized and war opposition was pervasive. On the other hand, the war affected almost every facet of ordinary northern Vietnamese life, spurring nationalist zeal and invoking a total mobilization of Vietnamese society (Van Dyke, 1972). As a consequence of the historical context, widespread losses endured by northern Vietnamese were filtered through a certain sense of purpose – that theirs was an honorable and legitimate cause. Such commonly held definitions are seen as the very "bedrock of resilience" in post-conflict settings (Eggerman & Panter-Brick, 2010: 71).

The Red River Delta in northern Vietnam, where our study is based, was widely affected by US bombing. Attempts to mobilize the population began with the 1960 draft law. Northern Vietnamese men ages 18–27 were subject to be drafted to serve in the Vietnam People's Army (VPA) for 2–4 years. Subsequently, the draft age was broadened to ages 16–45, with duration of service extended indefinitely. About three quarters of men in this region who reached early adulthood during wartime served in the army (Teerawichitchainan, 2009). Evidence suggests that northern Vietnamese men of relatively high socioeconomic status were more likely than those with lower status to be inducted and to bear a greater burden of war casualties (Merli, 2000). Arguably, because of patriotism, the array of incentives promised to returning veterans, and severely restricted economic opportunities during wartime, young people were likely to perceive military service as a viable route for future opportunity and upward social mobility (Van Dyke, 1972).

Apart from formal military mobilization, between 1965 and 1975 nearly 150,000 teenagers were recruited to the Youth Shock Brigades and approximately 1.6 million adult civilians to paramilitary self-defense forces (Guillemot, 2009; Pike, 1986). Although their major roles were to provide logistical support to the VPA, it was not uncommon for brigade and militia personnel to assume combat duties. Given the extent of war mobilization and potential combat exposure, anecdotal evidence concurs that war exerted myriad sufferings for soldiers and civilians alike (Bao, 1996; Dang, 2007). Despite adversities and the staggering human cost of the war, the desire to fight for national unification was thought to contribute significantly to North Vietnam's success in total mobilization (Van Dyke, 1972). From the Vietnamese vantage point, broad-based participation in war efforts, which cross-cut age, gender and social-class boundaries, confirmed that this was a "people's war" – a conceptualization distinct from that of many American troops.

It has been estimated that a million Vietnamese lives were lost during 1965–1975 (Hirschman et al., 1995) and that wartime mortality rates for young northern Vietnamese men were 10 times higher than normal mortality rates (Merli, 2000). A handful of existing studies substantiate the dangerous conditions endured by northern Vietnamese soldiers who survived the war. Given nearly half of northern Vietnamese veteran survivors spent over seven years in service (Teerawichitchainan, 2009) and many were sent to central and southern Vietnam where dioxin exposure and other risks were heightened, it follows that prolonged exposure to harmful conditions was commonplace. For veteran survivors, health may have been debilitated by such conditions and perhaps further compromised by Vietnam's limited healthcare technology and deteriorating public health system during the 1980s (Guldner, 1995).

Compared to the northern Vietnamese experience, the death toll of the US military was far less (standing at 58,000 when the war ended) and only a small fraction of American military personnel was considered combat troops (Westheider, 2007). Unlike the total mobilization in North Vietnam, the American public was divided in its support for the war. U.S. involvement in Vietnam was subject to intense opposition from various segments of the society. The draft system was criticized for imposing disproportionate burdens upon men from lower socioeconomic classes (Fallows, 1975). Evidence indicates that returning American veterans often faced indifference, if not alienation or ridicule, from the public. Numerous stark differences arise when juxtaposing American and northern Vietnamese experiences in the war. Among these, the societal conditions in which veteran survivors were embedded, that either facilitated resilience or vulnerability, aid in understanding how war and military service relate to health outcomes later in life.

### *The impacts of military service on health and wellbeing over the life course*

Recent research shows that the military is an important institution that can reshape one's life course, including later-life health status (MacLean & Elder, 2007). The literature exploring American veterans who served during the Vietnam War primarily reports negative effects of service upon men's health later in life. Vietnam-era veterans tended to report poorer self-rated health and more functional and work-related disability than nonveterans (Boscarino, 2006; MacLean, 2010). They were also likely to suffer disproportionately from chronic illnesses in old age (London & Wilmoth, 2006) and as they aged, their functioning and health deteriorated more rapidly than that of nonveterans (Dobkin & Shabani, 2009). Further evidence suggests significant persistence of post-traumatic stress disorder decades after tours of duty in Vietnam, with risks related to post-service social support and life events (Friedman, 2004).

Researchers have identified key mechanisms through which past military service could harm health in older adult years. First,

wartime service tends to involve combat exposure, which increases risks for injury, disability, and premature death (MacLean, 2010). Second, military service exposes soldiers to conditions that threaten health such as deployment to locations with infectious diseases and in environments conducive to substance abuse (Wilmoth et al., 2010). Further, service can adversely affect health by fostering difficulties in post-service social integration (Frey-Wouters & Laufer, 1986). Related to this, trying periods of service and reentry can produce strain in marital, workplace and other relationships that may contribute to stress, weakened social relational buffers, and thereby, negative health outcomes.

Military service can also be positively associated with health outcomes in older adulthood – mainly through selection and some effects of service on subsequent life course outcomes (Wilmoth et al., 2010). First, veterans may have better health than nonveterans because the military inducts healthy persons for service (i.e., "healthy warrior effect"). Further, intense physical training during service can be beneficial to health and may encourage veterans to engage in physical activities after deployment. Studies find that service is particularly beneficial for young men from disadvantaged backgrounds because it "knifes off" negative influences of the early life course and creates a bridging environment that provides access to educational and healthcare resources during and after service (Sampson & Laub, 1996).

Knowledge of war's effects on the health of Vietnamese survivors derives from a narrow base of studies conducted within overseas refugee communities. An example is a longitudinal study of the relationship between war traumas and health outcomes among Vietnamese refugees in Australia (Steel, Silove, Phan, & Bauman, 2002). While offering compelling findings, dimensions of military service are not addressed. Furthermore, we expect that the northern Vietnamese who associated with the VPA and who remained in Vietnam following reunification differ on many grounds from southern Vietnamese in exile. These factors each speak to the novel contribution of the current study.

## Hypotheses

Drawing on the above literature review and juxtaposition of the American and northern Vietnamese historical contexts, we formulate our hypotheses on war involvement and later-life health among Vietnamese war survivors. First, we hypothesize that Vietnamese veterans will have worse health in their older adult years than nonveterans. In addition, while being aware of the "healthy warrior effect" which may be favorable to veteran's long-term health, we anticipate veteran–nonveteran differentials in later-life health outcomes are mediated by several factors including veterans' tendency to possess advantageous pre-service socioeconomic status and the possibility that veteran status positively enhances life chances in middle and older adulthood.

Next, we hypothesize that having engaged in combat during the war will be associated with negative health outcomes in the long-term. As elaborated above, in this home-front war, combat was not restricted to formal military personnel. Some militia members engaged in combatant roles. Likewise, many veterans, depending upon their rank, location of service, and other factors, were not exposed to combat. If combat entails uniquely distressing experiences (e.g., use of deadly force, proximity to comrades' deaths) we might expect that the combat experience is particularly salient to ill health over the long-term.

Finally, while the absence of truly comparable data prevents full hypothesis testing, following from our first hypothesis, and in contrast with key results from US-based research, we expect that veteran–nonveteran health differentials in older adulthood will be less pronounced among northern Vietnamese older adults than their American counterparts. Given distinctive historical and cultural contexts, a particular wartime experience may weigh very differently upon the long-term health of an American versus northern Vietnamese veteran. Among northern Vietnamese, service in war was largely embedded in communities engaged in a common, popular struggle for liberation, and which lauded soldiers as heroes. Nonveterans were not immune from direct wartime trauma and many served in roles that approximated formal military service. For American veterans, situations were often quite different – they returned to a society divided, unaware if not unsupportive of their battlefield experiences, and without the heroes' welcome of their northern Vietnamese counterparts. One may expect, then, more ill health consequences for American veterans than northern Vietnamese veterans.

## Data and methods

Our analyses are based on a recent follow-up to the Vietnam Longitudinal Survey (VLS), referred to as the VLS Health and Aging Pilot Study. The VLS is a large probability survey of 1855 households and nearly 4500 adults in 10 communes in the Red River Delta (located approximately 60–100 km south of Hanoi). The VLS baseline survey was conducted in 1995 with annual follows-up until 1998. Further details about the VLS can be found at: http://csde.washington.edu/research/projects/hirschman/vietnam/vls.html.

In June–July 2010, we conducted a pilot survey in one of the 10 original VLS communes with the goal of addressing current health and wellbeing among Vietnamese men and women born in 1955 or earlier (i.e., those who were at least 20 years old by the time the Vietnam War ended) who are now entering older adulthood. Our pilot commune was chosen because it represents the significant development occurring in rural communities over the last decade. Commune selection was also guided by practical matters, such as permission from local authorities and budgetary issues. While selection biases cannot be completely ruled out, they are unlikely given our commune shares similar demographic and economic profiles to those of neighboring rural communes.

The pilot survey consisted of two phases. First, we attempted to contact 310 individuals age 55 and older who had been surveyed in the baseline VLS. We successfully interviewed 215 original respondents (approximately 70 percent). Attrition was due mainly to mortality (elaborated at the end of this section). Second, to reach our target sample size of at least 400, we randomly selected from the commune's current household registration an additional 196 individuals age 55 and above who had not been interviewed in the 1995 VLS. A high response rate of 97 percent during the second phase is largely due to a long history of collaboration between our host research institution in Vietnam and the commune residents. While such amicable relationship may arguably affect data collection, based on our first-hand observations, this relationship created an environment of trust allowing most respondents to feel at greater ease in interviews about wartime experiences. The first and second phases combined, we interviewed a total of 405 respondents. Nineteen of these cases involved proxy, next-of-kin respondents who answered factual questions when elderly respondents were too physically or mentally incapacitated to be interviewed. The study was given ethical approval by the Institutional Review Boards at the Singapore Management University, University of Utah, and the Vietnam Academy of Social Sciences.

### *Measurement of dependent variables*

We examine three dimensions of health, including self-rated, functional, and mental health. Studies demonstrate that self-rated

health is a well-rounded indicator of health status because it encompasses the many physical, psychological, and social aspects of current health status (Benyamini, Ein-Dor, Ginzburg, & Solomon, 2009). In our survey, respondents were asked to assess whether their current health was very good, good, fair, poor, or very poor. In this study, we measure self-rated health dichotomously, indicating whether the respondent assessed his/her health negatively (coded 1) or positively (coded 0). A negative health assessment refers to poor or very poor ratings, whereas a positive assessment includes fair, good, and very good ratings.

The second measure, functional health, is adapted from the SF-36 health assessment instrument (Ware & Sherbourne, 1992), and Katz' Activities of Daily Living assessment (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963). The SF-36 instrument has been validated in Vietnamese settings (VanLandingham, 2009). Our survey asked respondents whether, at the time of interview, they could do the following 13 activities: bathing, dressing, using toilet, transferring from one place to another, eating, visiting neighbors, going shopping, cooking meals, washing clothes, walking 200–300 m, carrying and lifting a weight of 5 kg, crouching and standing up 3 times, and using fingers to grasp an object. Answers ranged from 1 (independently), 2 (with some help), to 3 (assistance required). In the analyses, we measure functional limitation as a dichotomous variable indicating whether the respondent required at least some help to do any of the above activities (coded 1) or whether they could do all the activities independently (coded 0). It is more appropriate to operationalize this variable as a dichotomous rather than continuous variable because 76 percent of the sample reported they could do all 13 activities independently. Nevertheless, our preliminary analyses show that regardless of how this dependent variable is operationalized, multivariate results are similar regarding the direction and magnitude of each covariate.

We also adapted the SF-36 instrument to assess general mental health status among Vietnamese older adults. To construct an index of depressive symptoms, we aggregated the answers to six questions, including the extent to which, during the 4 weeks prior to the survey, respondents felt full of pep; a lot of energy; happy; tired; downhearted and blue; and "so down in the dumps that nothing can cheer you up." Possible answers ranged from 1 (none of the time), 2 (a little of the time), 3 (some of the time), 4 (most of the time), to 5 (all the time). We did reverse coding for the first three positive feelings. Having the range of values from 5 to 30, the index of depressive symptoms is treated as continuous variable with higher scores suggesting greater depressive symptoms.

### *Measurement of independent variable*

Our survey provides comprehensive information about respondents' wartime experience, thus enabling us to capture nuances of involvement of the northern Vietnamese population in the Vietnam War. Evidence suggests that recall errors related to wartime experiences are likely minimal because they are so significant in the life course that people tend to remember details and figure out other life events in reference to them (Hirschman et al., 1995). In our analyses, veteran status is incorporated as a dichotomous variable indicating whether the respondent was a veteran or nonveteran. Veterans were individuals who participated in the VPA. We also considered 7 respondents who were Youth Shock Brigade members as veterans, given that the nature of war involvement of brigade personnel resembled that of VPA soldiers to a large extent (Guillemot, 2009). While militia members were expected to station in their home villages as self-defense forces, brigade members carried out their duties away from home and, like VPA soldiers, many were sent to central and southern Vietnam. Upon their return, brigade members were also entitled to veteran benefits such as health insurance. In addition to veteran status, our analyses incorporate a measure of battlefield exposure as a dichotomous variable indicating whether the respondent participated in combat during wartime. Given North Vietnam's total mobilization, our pilot survey asked all respondents, regardless of formal military experience, whether they had combat exposure.

### *Measurement of control variables*

While war involvement is hypothesized to impact health later in life, we acknowledge that health status can be mediated by myriad other factors in wartime and peacetime. To examine net effects of war involvement, we introduce three types of controls into the analyses: demographic, socioeconomic, and lifestyle variables. Demographic controls include gender, age, and marital status. Relationships between these demographic variables and health outcomes are well-established. Age is inversely related to good health. Although women generally live longer than men, it is consistently found that females are more likely than males to report negative self-rated health and more illness episodes. While healthy people tend to stay married, being married has significant positive effects on health. In our study, gender is measured as a dichotomous variable indicating whether the respondent is male or female, whereas age is incorporated as a continuous variable indicating the age of the respondent at the time of survey. Marital status is measured as a dichotomous variable signifying whether the respondent is married or unmarried (i.e., divorced, widowed, and never-married) at the time of survey.

Moreover, our analyses control for respondents' socioeconomic characteristics, including educational attainment, occupational status, financial wellbeing, and Communist Party membership. It is well-established that relatively high socioeconomic status is positively correlated with short- and long-term health outcomes. Additionally, Communist Party membership in liberalizing socialist societies rendered individuals various forms of social and political capital that could in turn benefit their health (Nee, 1989). We incorporate educational attainment as a categorical variable indicating whether the respondent has primary education or less, lower secondary education, or upper secondary schooling and higher. Communist Party membership status at the time of survey is included as a dichotomous variable, as is occupational status, indicating whether the respondent primarily engaged in the farm or nonfarm sector throughout his/her adult life. For financial wellbeing, we include a dichotomous variable indicating whether the respondent feels his/her current income sufficiently meets daily expenses.

Lifestyle choices are consistently shown to correlate with health outcomes. For example, excessive tobacco and alcohol consumption are detrimental to health. Physical exercise and social support resources from family and community buffer life stressors and tend to have positive effects on health (Jawad, Sibai, & Chaaya, 2009). Our analyses incorporate a series of dichotomous variables which measure whether, at the time of interview, the respondent habitually smokes or consumes alcohol; exercises almost daily; visits family members and socializes with friends at least once a week; and attends community activities at least once a month.

### *Study limitations*

We are mindful about study limitations that may affect our conclusions about the relationship between war involvement and later-life health. First, a chronic issue in this and other studies of aging and health relates to mortality selection. US-based evidence, for example, shows steeper health decline and greater mortality

risks among Vietnam-era veterans, compared to nonveterans. Our pilot survey probed the traits of originally-surveyed adults who died between 1995 (after the baseline VLS was conducted) and 2010 (when our follow-up study was carried out). Of 310 originally-surveyed adults who were eligible for re-interview in 2010, 81 persons (26%) died some time during 1995–2010. Our investigation reveals that most died of natural causes and that three quarters of them were nonveterans. While this implies that northern Vietnamese veterans were actually more likely to survive over this 15-year period than nonveterans, we still could not rule out the possibility that veteran survivors whose health was most negatively impacted by wartime service might have died prior to the initial VLS data collection in 1995. As a result, by 2010 we are likely to observe the relatively resilient veterans whose war injuries/illnesses did not threaten their lives in the immediate war aftermath.

Other limitations relate to the small-scale nature of the pilot study. Since our study features a sample of just over 400 persons, we are limited in exploring variation on several dimensions of health, life course, and military service. While we recognize that northern Vietnamese women actively participated in the militia and some in the VPA during the war and that their experiences may distinguish them from male veterans and from other women, our pilot sample was too small to investigate this unique dimension of wartime experience in Vietnam.

We contend that while these limitations related to sample size and selectivity may compromise our ability to observe with absolute precision the relationship between military service, combat and older adult health, they do not outstrip the empirical and theoretical insights gained. Many studies of health in older adulthood are similarly affected by selective survival into the ages of late adulthood. And, while the sample size may preclude disaggregation into meaningful categories, it was drawn using probability sampling techniques and is significantly large as to permit multivariate analyses. Exploratory in nature, the current study is unprecedented in its investigation of a population whose experiences are critically important for arriving at cross-cultural appreciation of military service in the life course and for understanding the salience of community resilience in war's aftermath.

## Results

Table 1 describes the distribution of dependent and control variables in the sample, with a focus on differentials by respondents' degrees of war involvement. Given a marked gender division in formal military and combat experience (i.e., only 2 percent of women were veterans and one percent had combat exposure), we additionally present descriptive statistics of dependent and control variables by respondents' gender.

Results indicate that nearly half of all older adults in our sample rated their health status negatively, while almost a quarter reporting some functional limitations. The average value for index of depressive symptoms was 15.7 (min = 5; max = 30). When examining how dependent and control variables varied by respondents' veteran status and combat experience, a couple of findings stood out. First, there were considerably fewer veterans than nonveterans who reported negative outcomes for all three measures of later-life health. Likewise, significantly lower proportions of former combatants, compared to noncombatants, demonstrated functional limitations and depressive symptoms.

Apart from health indicators, Table 1 suggests that veterans and nonveterans differed remarkably on almost every demographic,

**Table 1**
Descriptive statistics, distribution of dependent, independent and control variables.

| Background characteristics | All older adults | Veteran status | | | Combat exposure | | | Gender | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Veteran | Nonveteran | Sig. | Combat exposure | No combat exposure | Sig. | Male | Female | Sig. |
| *Dependent variables*[a] | | | | | | | | | | |
| Negative self-rated health (%) | 48 | 38 | 52 | * | 43 | 49 | n.s. | 39 | 56 | *** |
| Having functional limitations (%) | 24 | 14 | 28 | ** | 14 | 26 | * | 15 | 32 | *** |
| Mean index score for depressive symptoms (range: 5–30) | 15.69 | 14.46 | 16.17 | *** | 14.76 | 15.90 | * | 14.69 | 16.60 | *** |
| *Demographic controls* | | | | | | | | | | |
| Male (%) | 46 | 96 | 27 | *** | 99 | 34 | *** | – | – | – |
| Age 70+ (%) | 36 | 21 | 41 | *** | 29 | 37 | n.s. | 34 | 37 | n.s. |
| Mean age in 2010 | 66.55 | 63.62 | 67.63 | *** | 66.19 | 66.64 | n.s. | 66.48 | 66.61 | n.s. |
| Married (%) | 74 | 91 | 68 | *** | 89 | 71 | *** | 89 | 61 | *** |
| *Socioeconomic controls* | | | | | | | | | | |
| Level of highest education completed (%) | | | | | | | | | | |
| Primary or less | 41 | 18 | 49 | *** | 23 | 45 | *** | 25 | 54 | *** |
| Lower secondary | 45 | 58 | 41 | ** | 58 | 43 | * | 54 | 38 | *** |
| Upper secondary and tertiary | 14 | 24 | 10 | *** | 19 | 12 | † | 20 | 8 | *** |
| Total | (100) | (100) | (100) | | (100) | (100) | | (100) | (100) | |
| Communist Party member (%) | 17 | 34 | 11 | *** | 41 | 11 | *** | 30 | 6 | *** |
| Major work in nonfarm sector (%) | 19 | 32 | 15 | *** | 29 | 17 | * | 29 | 11 | *** |
| Sense of financial security (%) | 67 | 73 | 64 | † | 73 | 65 | n.s. | 71 | 63 | † |
| *Lifestyle controls* | | | | | | | | | | |
| Having smoked (%) | 35 | 79 | 19 | *** | 78 | 25 | *** | 75 | 1 | *** |
| Habitually consuming alcohol (%) | 36 | 78 | 21 | *** | 77 | 27 | *** | 76 | 3 | *** |
| Physically exercising almost daily (%) | 42 | 57 | 37 | *** | 56 | 39 | ** | 53 | 33 | *** |
| Visiting family at least weekly (%) | 41 | 37 | 42 | n.s. | 41 | 41 | n.s. | 40 | 41 | n.s. |
| Socializing with friends at least weekly (%) | 86 | 96 | 82 | *** | 95 | 84 | * | 93 | 80 | *** |
| Attending community activities at least monthly (%) | 43 | 55 | 38 | ** | 59 | 39 | ** | 54 | 33 | *** |
| Number | *405* | *109* | *296* | | *73* | *332* | | *186* | *219* | |

***Difference is significant at $p \leq 0.001$; **Significant at $p \leq 0.01$; *Significant at $p \leq 0.05$; †Significant at $p \leq 0.1$; n.s = Not significant $p$-value.

[a] For the analyses of self-reported health and mental health status, we exclude 19 cases that used proxy interviews. Source: VLS Health and Aging Pilot Study 2010.

socioeconomic and lifestyle characteristic. Compared to nonveterans, veterans were overwhelmingly male, younger, better educated and remained married at the time of survey. Significantly higher proportions of veterans worked in the nonfarm sector and felt rather secure about their current financial status. Considerably more veterans than nonveterans were Communist Party members. Regarding their lifestyle, greater percentages of veterans reported having smoked or consumed alcohol habitually and to have exercised almost daily. They also reported socializing with friends and doing community activities on a regular basis at a higher proportion than nonveterans. Similarly, we observed that combatants and noncombatants differed on key characteristics such as gender, party membership, and lifestyles. Yet, the degrees of difference were less prominent than differences observed between veterans and nonveterans.

As veterans and combat participants were disproportionately male, it is instructive to describe the salient gender differentials underlying our dependent and control variables. Significantly more women than men rated their current health negatively and reported worse functional health. They also scored higher than men in mean indices for depressive symptoms, suggesting that their psychological health was generally worse off. While there are no significant gender differences in age, considerably fewer women were married compared to their male counterparts (plausibly because of widowhood). Gender differences in socioeconomic characteristics suggest that older Vietnamese women are disadvantaged relative to their male counterparts in terms of educational attainment, nonfarm sector employment, party membership, and sense of financial adequacy. Lifestyle choices also differed significantly by gender. Unlike men, very few women reported having habitually smoked and consumed alcohol. Moreover, smaller proportions of them exercised, socialized with friends, and attended community activities regularly. Social interaction with family members was the only factor for which we consistently did not observe differences by respondents' veteran status, combat exposure, or gender.

To explore the net effects of war involvement and other mechanisms explaining later-life health, we used binary logistic regressions to address determinants of self-rated health and functional health, and ordinary least square regressions to examine determinants of the index of depressive symptoms. Results from the multivariate analyses for self-assessed, functional, and mental health are presented in Tables 2–4 respectively. When analyzing each dependent variable, we incorporated five models. Model 1 is an unadjusted model, treating each health outcome as a function of war involvement, namely veteran status and combat exposure. Model 2 shows a baseline regression adjusted for only control variables. Model 3 is a saturated model adjusted for war involvement and control variables. Models 4 and 5 replicate the saturated model but stratify by gender.

In Tables 2 and 3, coefficients are expressed as the odds ratios of negative self-rated health and having functional limitations versus positive self-assessed health and having no functional limitations for each category relative to the comparable odds of the reference category for each variable. Odds ratios above 1 indicate that the particular category is associated with higher chances than the reference category that the respondent rated health status negatively or has functional limitations, whereas values below 1 indicate the opposite. In Table 4, we present unstandardized coefficients whereby positive coefficients indicate greater depressive symptoms associated with a particular category, while negative coefficients suggest the contrary.

Unadjusted models (Model 1, Tables 2–4) consistently demonstrated that while combat exposure did not show statistically significant effects on any health indicators, there were significant differences in later-life health outcomes between veterans and nonveterans. Consistent with descriptive findings, veterans appeared less prone than nonveterans to rate their health status

**Table 2**
Multivariate analyses (binary logistic regression), determinants of negative self-rated health among older northern Vietnamese adults.

| Covariates | Model 1 All respondents | | Model 2 All respondents | | Model 3 All respondents | | Model 4 Male only | | Model 5 Female only[a] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Odds ratio | Std.error | Odds ratio | Std.error | Odds ratio | Std.error | Odds ratio | Std.error | Odds ratio | Std.error |
| Constant | – | – | – | – | – | – | – | – | – | – |
| Veteran (nonveteran = ref) | 0.474* | 0.31 | – | – | 0.915 | 0.38 | 0.786 | 0.44 | 0.389 | 1.08 |
| Combatant (noncombatant = ref) | 1.377 | 0.36 | – | – | 1.392 | 0.39 | 1.598 | 0.42 | – | – |
| Male (female = ref) | | | 0.767 | 0.42 | 0.725 | 0.44 | – | – | – | – |
| Age | | | 1.029† | 0.02 | 1.029† | 0.02 | 1.025 | 0.03 | 1.024 | 0.02 |
| Currently married (widowed/divorced/ single = ref) | | | 0.910 | 0.29 | 0.914 | 0.29 | 1.130 | 0.57 | 0.780 | 0.36 |
| Highest education completed (primary = ref) | | | | | | | | | | |
| Lower secondary | | | 1.704† | 0.30 | 1.694† | 0.30 | 1.268 | 0.49 | 2.256* | 0.41 |
| Upper secondary and tertiary | | | 0.630 | 0.45 | 0.640 | 0.45 | 1.311 | 0.63 | 0.053** | 1.18 |
| Communist Party member (nonmember = ref) | | | 1.304 | 0.35 | 1.227 | 0.35 | 1.758 | 0.43 | 0.522 | 0.77 |
| Major work in nonfarm sector (farm = ref) | | | 0.820 | 0.32 | 0.836 | 0.33 | 0.589 | 0.44 | 1.765 | 0.60 |
| Sense of income adequacy (inadequate = ref) | | | 0.430*** | 0.25 | 0.431** | 0.25 | 0.320** | 0.38 | 0.480* | 0.34 |
| Having smoked (never smoke = ref) | | | 0.852 | 0.38 | 0.836 | 0.38 | 0.999 | 0.40 | – | – |
| Habitually consuming alcohol (None/not regularly = ref) | | | 0.727 | 0.35 | 0.728 | 0.35 | 0.843 | 0.39 | – | – |
| Exercising almost daily (irregularly = ref) | | | 1.147 | 0.23 | 1.143 | 0.23 | 1.121 | 0.36 | 1.057 | 0.33 |
| Visiting family at least weekly (less often = ref) | | | 0.828 | 0.23 | 0.825 | 0.23 | 0.859 | 0.35 | 0.739 | 0.33 |
| Socializing with friends at least weekly (less often = ref) | | | 0.640 | 0.36 | 0.636 | 0.36 | 0.833 | 0.68 | 0.538 | 0.48 |
| Attending community activities at least monthly (less often = ref) | | | 0.671† | 0.23 | 0.666† | 0.23 | 0.505† | 0.36 | 0.834 | 0.33 |
| Number | 386 | | 386 | | 386 | | 183 | | 203 | |

Significance level: ***$p \leq 0.001$; **$p \leq 0.01$; *$p \leq 0.05$; †$p \leq 0.1$.
Note: For the analyses of self-reported health, we exclude 19 proxy interview cases.
[a] For the female only analysis, given that very few women report having been exposed to combat ($n = 1$), having smoked habitually ($n = 1$), and having consumed alcohol habitually ($n = 5$), we do not consider these three covariates in Model 5. Source: VLS Health and Aging Pilot Study 2010.

**Table 3**
Multivariate analyses (binary logistic regressions), determinants of functional limitations among older northern Vietnamese adults.

| Covariates | Model 1 All respondents | | Model 2 All respondents | | Model 3 All respondents | | Model 4 Male only | | Model 5 Female only[a] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Odds ratio | Std. error | Odds ratio | Std. error | Odds ratio | Std. error | Odds ratio | Std. error | Odds ratio | Std. error |
| Constant | – | – | – | – | – | – | – | – | – | – |
| Veteran (nonveteran = ref) | 0.481* | 0.39 | – | – | 1.945 | 0.53 | 4.182* | 0.72 | 0.75 | 1.36 |
| Combatant (noncombatant = ref) | 0.764 | 0.46 | – | – | 0.707 | 0.55 | 0.462 | 0.62 | – | – |
| Male (female = ref) | | | 0.482 | 0.54 | 0.441† | 0.56 | – | – | – | – |
| Age | | | 1.102*** | 0.02 | 1.107*** | 0.02 | 1.127** | 0.04 | 1.110*** | 0.03 |
| Currently married (widowed/divorced/ single = ref) | | | 1.353 | 0.34 | 1.361 | 0.34 | 1.289 | 0.71 | 1.281 | 0.41 |
| Highest education completed (primary = ref) | | | | | | | | | | |
| Lower secondary | | | 0.664 | 0.37 | 0.667 | 0.37 | 1.197 | 0.69 | 0.490 | 0.48 |
| Upper secondary and tertiary | | | 0.381 | 0.68 | 0.388 | 0.68 | 0.186 | 0.13 | 0.526 | 0.88 |
| Communist Party member (nonmember = ref) | | | 1.321 | 0.47 | 1.272 | 0.48 | 1.784 | 0.62 | 0.724 | 0.90 |
| Major work in nonfarm sector (farm = ref) | | | 1.307 | 0.45 | 1.295 | 0.45 | 0.745 | 0.69 | 2.700 | 0.63 |
| Sense of income adequacy (inadequate = ref) | | | 0.461** | 0.30 | 0.468** | 0.30 | 0.232 ** | 0.56 | 0.634 | 0.39 |
| Having smoked (never smoke = ref) | | | 0.923 | 0.52 | 0.823 | 0.52 | 0.513 | 0.60 | – | – |
| Habitually consuming alcohol (None/not regularly = ref) | | | 0.807 | 0.47 | 0.783 | 0.47 | 0.778 | 0.56 | – | – |
| Exercising almost daily (irregularly = ref) | | | 0.769 | 0.31 | 0.754 | 0.31 | 0.522 | 0.56 | 0.926 | 0.39 |
| Visiting family at least weekly (less often = ref) | | | 0.380* | 0.31 | 0.389** | 0.32 | 0.618 | 0.56 | 0.279** | 0.40 |
| Socializing with friends at least weekly (less often = ref) | | | 0.601 | 0.37 | 0.574† | 0.37 | 0.148* | 0.78 | 0.906 | 0.44 |
| Attending community activities at least monthly (less often = ref) | | | 0.487* | 0.32 | 0.513* | 0.32 | 0.789 | 0.58 | 0.445* | 0.42 |
| Number | 405 | | 405 | | 405 | | 186 | | 219 | |

Significance level: ***$p \leq 0.001$; **$p \leq 0.01$; *$p \leq 0.05$; †$p \leq 0.1$.
[a] For the female only analysis, given that very few women report having been exposed to combat ($n = 1$), having smoked habitually ($n = 1$), and having consumed alcohol habitually ($n = 5$), we do not consider these three covariates in Model 5. Source: VLS Health and Aging Pilot Study 2010.

negatively and less likely to report functional limitations and depressive symptoms. However, once control variables were introduced, as evidenced in Model 3, the statistical significance observed earlier disappeared. When stratifying the sample by gender of respondents (Models 4 and 5), similar findings held for the effects of veteran status with an exception for functional limitations among older adult men. According to Table 3 (Model 4), holding other characteristics constant, men who served in the VPA were four times more likely than their nonveteran counterparts to report problems in daily functioning. Apart from this, it appears that differentials in health outcomes later in life were explained, in part, by differences in demographic, socioeconomic, and lifestyle characteristics of individuals, regardless of the extent of their war involvement.

Age was a consistent predictor of later-life health. As expected, age had significant adverse effects on all three health outcomes (excepting Models 4–5, Table 2 where male and female respondents are analyzed separately). For instance, the odds of respondents exhibiting negative self-assessed health and functional limitations increased by 3 and 11 percent, respectively, for every year increase in age. Further, while marital status did not demonstrate statistically significant effects on self-assessed and functional health, it was a robust determinant of mental health in older adulthood. Older adults who remained married at the time of survey showed significantly fewer depressive symptoms. Unlike other demographic variables, gender showed some significant, yet weak, effects on functional and mental health. Consistent with the literature, older women demonstrated greater functional limitations and worse mental health than men.

A sense of income adequacy was one of the most important determinants of health status among northern Vietnamese war survivors. Feeling financially-secure was consistently associated with positive self-rated, functional, and mental health in later adulthood. The effects of this covariate were largely unchanged after service and combat experience were taken into account. Other characteristics being equal, financially-secure older adults experienced 57 and 53 percent less likelihood of reporting negative self-assessed health and functional limitations, compared to those who were financially worse off (Model 3, Tables 2 and 3).

Besides sense of income adequacy, other socioeconomic controls have limited and inconsistent effects on health outcomes. The effects of education, for example, were particularly salient in explaining differences in self-rated and mental health among women but not among men. Women with high education (i.e., upper secondary and beyond) rated their health more positively and were less likely to show depressive symptoms. The net effects of Communist Party membership and nonfarm employment on health were largely negligible.

Aspects of lifestyle stood out as important determinants of health among Vietnamese older adults. Community involvement consistently showed net positive impacts on the three dimensions of later-life health. Respondents attending community functions regularly reported almost 35 percent less likelihood of negative self-rated health (Model 3, Table 2). While community activities appeared positively associated with the functional and mental health of older women (Model 5, Tables 3 and 4), social network ties to friends gave comparable benefits to men's health. Results showed that regular exercise was significantly related to reduced depressive symptoms and that unhealthy habits such as smoking were associated with greater depressive symptoms.

## Discussion

Based on life course perspectives and previous research conducted largely among US veterans of the Vietnam War, we hypothesized that northern Vietnamese veterans, especially those who engaged in combat, would exhibit poorer self-assessed, functional and mental health in later adulthood compared to nonveterans. While studies conducted among American veterans frequently identify health disadvantages associated with military

**Table 4**
Multivariate analyses (OLS regressions), determinants of index of depressive symptoms among older northern Vietnamese adults.

| Covariates | Model 1 All respondents | | Model 2 All respondents | | Model 3 All respondents | | Model 4 Male only | | Model 5 Female only[a] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coef. | Std. error | Coef. | Std. error | Coef. | Std. error | Coef. | Std. error | Coef. | Std. error |
| Constant | 16.162*** | 0.25 | 14.339*** | 2.12 | 14.163*** | 2.17 | 13.712*** | 3.51 | 14.868*** | 3.08 |
| Veteran (nonveteran = ref) | −1.840** | 0.62 | – | – | 0.233 | 0.64 | 0.555 | 0.67 | −0.909 | 1.96 |
| Combatant (noncombatant = ref) | 0.237 | 0.71 | – | – | 0.039 | 0.65 | −0.201 | 0.64 | – | – |
| Male (female = ref) | | | −1.586* | 0.75 | −1.685* | 0.76 | – | – | – | – |
| Age | | | 0.092*** | 0.03 | 0.095*** | 0.03 | 0.102** | 0.04 | 0.079* | 0.04 |
| Currently married (widowed/divorced/ single = ref) | | | −1.311** | 0.51 | −1.300** | 0.51 | −1.658† | 0.92 | −1.288* | 0.63 |
| Highest education completed (primary = ref) | | | | | | | | | | |
| Lower secondary | | | −0.468 | 0.51 | −0.457 | 0.51 | −0.940 | 0.76 | −0.085 | 0.71 |
| Upper secondary and tertiary | | | −1.598* | 0.74 | −1.587* | 0.74 | −1.004 | 0.97 | −3.302** | 1.25 |
| Communist Party member (nonmember = ref) | | | 0.457 | 0.58 | 0.420 | 0.60 | 0.773 | 0.66 | −1.055 | 1.20 |
| Major work in nonfarm sector (farm = ref) | | | −0.150 | 0.55 | −0.149 | 0.55 | −1.064† | 0.66 | 1.081 | 0.93 |
| Sense of income adequacy (inadequate = ref) | | | −2.108*** | 0.42 | −2.105*** | 0.42 | −2.087*** | 0.60 | −2.226*** | 0.59 |
| Having smoked (never smoke = ref) | | | 1.111† | 0.64 | 1.075† | 0.65 | 0.874 | 0.63 | – | – |
| Habitually consuming alcohol (None/ not regularly = ref) | | | −0.239 | 0.60 | −0.258 | 0.60 | 0.385 | 0.61 | – | – |
| Exercising almost daily (irregularly = ref) | | | −0.985* | 0.39 | −0.992** | 0.39 | −0.841† | 0.55 | −1.181* | 0.57 |
| Visiting family at least weekly (less often = ref) | | | −0.562 | 0.39 | −0.552 | 0.39 | −0.632 | 0.54 | −0.725 | 0.58 |
| Socializing with friends at least weekly (less often = ref) | | | −0.634 | 0.61 | −0.655 | 0.61 | −2.699** | 1.07 | 0.063 | 0.76 |
| Attending community activities at least monthly (less often = ref) | | | −0.606† | 0.40 | −0.599† | 0.40 | 0.082 | 0.55 | −0.953† | 0.59 |
| Number | 386 | | 386 | | 386 | | 183 | | 203 | |

Significance level: ***$p \leq 0.001$; **$p \leq 0.01$; *$p \leq 0.05$; †$p \leq 0.1$.
Note: For the analyses of depressive symptoms, we exclude 19 proxy interview cases.
[a] For the female-only analysis, given that very few women report having been exposed to combat ($n = 1$), having smoked habitually ($n = 1$), and having consumed alcohol habitually ($n = 5$), we do not consider these three covariates in Model 5. Source: VLS Health and Aging Pilot Study 2010.

service, increased premature death rates, and negative mental health outcomes decades after service, we observed no such association in our sample of northern Vietnamese war survivors, with an exception for greater functional limitations among male veterans compared to male nonveterans. While this suggests that wartime service may exert some effects on functional health in the long run and calls for further investigation into functioning and health trajectories of veteran survivors, it is important to note that psychological resilience remains intact, as evidenced both in how male veterans viewed their overall health status and in the index of depressive symptoms. While largely contrary to expectation, especially given that Vietnamese and American veteran survivors were fighting in "the same war," we have arrived at several plausible explanations for near absence of military service effects on later-life health.

Our foremost explanation for the insignificant relationship between war involvement early in the life course and health in older adulthood relates to the encompassing nature of war as experienced in northern Vietnamese society. War's sufferings were endured not in overseas tours of duty, but by wide swathes of population, young and old, for over a decade. Consequently, soldier, militia member and civilian may, specific to their experience and exposure, witness long-term effects of war on physical and psychological health. By comparison, when the health of US veterans is compared to that of their nonveteran counterparts, the comparison is usually being made to individuals whose lives were not directly impacted by the upheaval of war. Military service as a dimension of experience and stage in the life course may be less salient for health status in later adulthood when war's traumas and physical devastation, as experienced through bombing campaigns, forced migration, shortages of food, and other disruptions, impacts not only military personnel, but the population overall.

Related to war's pervasiveness, we note that in northern Vietnam the line between soldier and civilian was marked by gradations of service and exposure to war's dangers. Retrospective reports of distress experienced in the wake of wartime trauma among members of our sample, illustrated in Fig. 1, indicate that a greater percentage of surviving nonveterans reported having experienced distress associated with wartime atrocities as compared to veterans. While an elaborate discussion of traumatic event exposure is beyond the scope of this paper, Fig. 1 suggests that veterans and nonveterans alike endured traumatic events as a result of war and that members of both groups experienced immediate and lingering distress as a result of such exposure. In future work we intend to explore traumatic experience related to war and current mental health outcomes within a wider sample of Vietnamese older adults.

The second explanation relates to the notion that "time heals." The Vietnam War commenced over three decades ago. Thus, especially with respect to emotional health, veterans (and others) who endured wartime hardships may have seen their negative symptoms dissipate, or heal, with the passage of time. Related to this, previous research conducted among Vietnamese refugees in Australia observes that poor mental health outcomes became weaker the longer the duration of time since the traumatic events occurred (Steel et al., 2002). Furthermore, since the end of war did not mark the end of social upheaval for northern Vietnamese, it is possible that broad-based social changes related to the country's

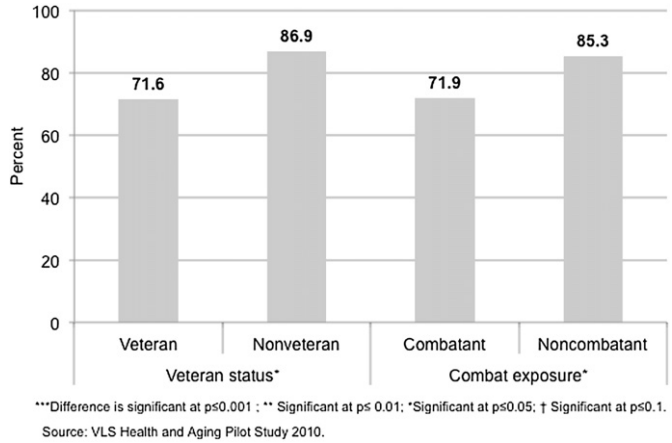


**Fig. 1.** Percent of northern Vietnamese respondents having witnessed wartime atrocities who reported to have experienced distress and severe distress. ***Difference is significant at $p \leq 0.001$; **Significant at $p \leq 0.01$; *Significant at $p \leq 0.05$; †Significant at $p \leq 0.1$. Source: VLS Health and Aging Pilot Study 2010.

reunification, socialist collectivization and subsequent market reforms, also weighed negatively on population health (World Bank, 2001). If veterans were relatively well protected during difficult transitional periods (e.g., through provision of health insurance and preferential access to other resources), then any negative health impacts associated with veteran status in the immediate aftermath of war may have "evened out," to more closely resemble the nonveteran population over the course of time.

Our third explanation speaks to the concepts of hardiness and resilience. When the ill effects of war on health and other aspects of wellbeing are examined among the US veteran population, mention is often made to the poor reception that greeted Vietnam-era veterans when they reentered society. This absence of a "hero's welcome" perception, while it may not have generalized to all US veterans across all contexts, may have created further vulnerability and undermined health and healing (Frey-Wouters & Laufer, 1986). Compared to their American and southern Vietnamese counterparts, northern Vietnamese veterans were afforded relatively positive treatment and status in the society, as were their family members. Awards were given to "heroic mothers" whose children died in service (Ho-Tai, 2001). The postwar socialist government reinforced VPA veterans' status through various social programs to ensure their welfare, including early pension and health benefits that exceeded those commonly available in the general population (Bureau of International Affairs, 2002). The accrual of such postwar benefits, coupled with the notion that veterans, especially those with combat exposure, had been toughened by war circumstances, may account for their ability to weather traumas more successfully than nonveteran counterparts (Fig. 1). From the vantage point of Vietnamese veterans and nonveterans alike, the violence and trauma of war, when viewed through a lens of moral certainty (that the war was justified), common purpose (fighting for independence), and victorious outcome, can lend resilience that heals and buffers from physical and psychological ills in the long run (Eggerman & Panter-Brick, 2010).

Aside from the results related to our main hypotheses, we observed several significant predictors of older adult health that warrant elaboration. Among the most prominent health predictors was income adequacy, which exhibited a significant, positive association with self-reported and functional health and a significant, negative association with depressive symptoms. Those reporting income inadequacy, a full 33 percent of the sample, were likely to experience both structural barriers to accessing adequate care in the face of illness and/or disability, and emotional difficulties, such as worries about making ends meet or feelings of marginalization. Both sets of factors serve as potential mechanisms linking military service, socioeconomic status, and health over the life course.

Measures of social relationships and social participation also emerged as important positive correlates with all three dimensions of older adult health. While much research on older adult wellbeing emphasizes family support, our research points to the significance of not only ties to family but also friendship ties and community involvement. The cross-sectional design of our study prohibits definitive theorizing on the direction of the causal relationship. However, we suspect that the positive relationship between social capital and health is reciprocal, with good health and social connectedness reinforcing one another. Further analyses that utilize a longitudinal perspective and more detailed measures of social network ties would be beneficial for teasing apart this relationship. These preliminary results are telling, however, particularly in the context of rapid urbanization and the implications that urbanization, rural-urban migration, and market-economic development may have for rural adults' social relationships.

Drawing on our findings and study limitations, we propose the following avenues for future research. First, to address mortality selectivity more effectively requires more systematic and detailed information about family members' demographic characteristics, their roles during wartime, and their survival status. Information about decedents' age-, sex-, and cause-specific mortality could assist in pinpointing the nature and direction of biases related to mortality selection. Secondly, in moving beyond the pilot study we recognize the importance of exploring and validating various instruments (e.g., the Katz ADL approach) for assessing trajectories of functional, cognitive and other dimensions of health (Katz et al., 1963). The SF-36, and adaptations thereof which have been implemented in Vietnam, suggest a promising route for moving forward. Further, a study with a larger sample will permit investigation of details of service and wartime trauma as they relate to older adult health, and further illuminate the often-hidden variable of military service in our understanding of aging (Wilmoth et al., 2010).

## Conclusion

This study provides glimpses into the history of war and military participation among the northern Vietnamese and the relationship between war involvement in the early life course and health in older adulthood. While military service has been widely examined and theorized as a life course turning point, previous investigations have concentrated heavily upon US servicemen and women. War's long-term consequences among Vietnamese survivors are not well understood. As Merli (2000) notes, "the ramifications of this war for *Vietnamese* society are absent from public discourse…[and] social science literature." We therefore aim to begin to fill a crucial gap in our understanding of the long-ranging impacts of war, including the consequences of military service in the life course. Comparing and contrasting US and northern Vietnamese veterans of the same war is instructive, as their outcomes, vis-à-vis civilian society, are distinct.

Our main finding is that veteran status bears little influence on the current health status of Vietnamese war survivors. This stands in contrast to several US-based studies which observe distinct health profiles for American veterans, including greater rates of chronic illness, premature death, and PTSD. In the context of northern Vietnam, not only did mobilization for war define the adolescence and young adulthood of a generation of men and

women now reaching older adulthood, but the mobilization also encompassed the entire society as "the war effort enlisted each and every stratum" (Van Dyke, 1972). Bombing campaigns and evacuations meant war was experienced directly by the entire population – be it veterans, civilians, or militia members. Additionally, these shared experiences continued as the war ended victoriously for the northern Vietnamese, yet left behind staggering death tolls, devastating costs as a result of infrastructure damage, and needs for massive social and economic reorganization. For northern Vietnamese survivors, resilience protective of health is another likely, albeit underappreciated, long-term consequence of wartime. Whether wartime experiences continue to influence older adults' lives is a core question motivating this study and a broader research agenda around elements of healthy aging in Vietnam. Given that life course researchers have recently described military service as a hidden variable that aids an understanding of aging process in the US (Wilmoth et al., 2010), formal service in the VPA and other experiences related to war may also prove important for understanding life course trajectories and wellbeing in later adulthood in Vietnam.

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