Health Perception and Reporting among the Vietnamese Elderly: Implications for Understanding Gender Differences in Old-Age Health Outcomes*

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Abstract
Past research posits that gender is a significant marker of later-life health vulnerability in less-developed countries. In particular, researchers and policy makers are concerned that older women tend to be at risk of poor health. However, little is known about how older adults in resource-poor settings perceive and report health status and to what extent such patterns affect the observed health outcomes. Based on the Vietnam National Health Survey (VNHS), this study describes differences in health perception and reporting among elderly men and women in Vietnam and discusses the implications of such differentials on health outcomes. Two health indicators, self-rated health and hypertension, are examined. Unique data from the VNHS allow an assessment of subjective and objective measures of hypertension. Results demonstrate a complex picture of how actual health statuses and perception about health can differ among male and female elders. Evidence suggests gender is but one of several dimensions that differentiate health in later life. While older women are more likely to be vulnerable because of their survival to later ages and widowhood, they do not necessarily have poorer health than men.

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INTRODUCTION

While respect for the elderly has long been an explicit principle in Vietnam's social policies and legal frameworks, over the last decade the growing size of the country's older population has prompted the government to pay more attention to the wellbeing of its elders (Bui et al. 2000; Nguyen 1998; VCPFC 2002). Proportions of Vietnamese adults age 60 and over are projected to rise substantially from 8 percent in 2000 to 13 percent in 2025 and over 25 percent by the mid-21st century (United Nations 2007a). Female old-age vulnerability has been placed front and center in the government's social programs to improve the living standards of the old (HelpAge 2007; Mitchell and Khuat 2000; United Nations 2002, 2007b). Influenced by the dominant policy discourse on gender and ageing, Vietnamese policy makers are concerned that older women would be more susceptible than men to various forms of hardship because they tend to experience socioeconomic disadvantage in early life and to be widowed in older years (Giang and Pfau 2007a; Ofstedal et al. 2003).

Recently the disproportionate policy focus on older women's vulnerability has been increasingly criticised for its lack of consistent evidence and for its dismissal of men's potential disadvantages (Knodel and Ofstedal 2003). For example, while women might be inferior to men in the labor market, they are not necessarily more vulnerable in later life since female elders tend to be more protected socially by family and kin network support. These criticisms also extend to the prevailing perspective on gender and health equity which posits that women are more likely than men to have poor health at older ages. The issue is particularly relevant to Vietnam's recent efforts to address the healthcare needs of its older population. While healthcare provision for the elderly, especially for female elders who are less likely to receive pension and health insurance, have been discussed widely in the public sphere, little is known about the extent to which health

statuses in older years vary by gender and what mechanisms are behind the male-female differences (Thanh Nien News 2009; Vietnam News 2008).

To shed light on these questions, this study analyses nationally representative data from the 2001-2 Vietnam National Health Survey (VNHS) to examine gender differentials in two important indicators of old-age health status: 1) self-assessed health and 2) incidence of hypertension – one of the most common risk factors for cardiovascular diseases which are Vietnam's leading causes of death (WHO 2004a). Specifically, it investigates whether gender differences in these two health indicators are influenced by the differential socioeconomic characteristics and health-related behaviours of older men and women. Further, since gender differences in morbidity can be explained not only by biological and behavioural differences between men and women but also by how illnesses are differentially recognized and reported by each gender (Verbrugge 1989), the study includes both subjective and objective measures of hypertension to explore how the patterns Vietnamese men and women report an illness episode might have differed from their health outcomes observed objectively. Based on these multi-dimensional measures of health statuses, findings from this study are expected to contribute to timely discussions regarding whether female health vulnerability at older ages is warranted in the case of Vietnam and which segments of the older population are most in need of the country's limited healthcare resources.

BACKGROUND

The dominant perspective on gender, health, and ageing asserts that older women are more likely than older men to experience poor health (both physical and mental), more illness episodes, greater difficulty in physical activities, and more disabilities (e.g., Arber and Ginn

1991; Nathanson 1975). This influential view is derived primarily from research in developed societies and has not yet been examined systematically in the context of Vietnam. To date, a growing body of research on ageing in Vietnam has paid little attention to health statuses of the Vietnamese elderly. Social science studies tend to focus on socioeconomic wellbeing in older years, whereas health research is likely to examine health conditions in childhood and adult years rather than in older adulthood. To fill in this research gap, this study aims to address whether gender is an appropriate marker for differences in health status among Vietnam's older population.

The review of the literature indicates that there are three broad groups of factors that explain gender differences in health in older years: biological, behavioural, and reporting biases (Verbrugge 1989). First, the biological argument posits that gender health differences are attributable to male and female differences in biological predispositions. A biological component to the sex differentials in mortality and morbidity has been extensively documented so much so that there is a tendency to interpret male survival disadvantage as being natural and to view females' longer life expectancy as exposing women to more years of ill health (Knodel and Ofstedal 2003). Critics point to the need of ageing research on health disparities to examine gender-specific influences that disadvantage men with regards to survival and those that operate to women's disadvantage in health status.

Second, the behavioural approach argues that male-female health outcomes in older years can be accounted for by gender normative roles, socioeconomic characteristics, and personality traits, including gender variations in labor force participation, life style practices, health practices (e.g., doctor visits) and psychological state. To address this approach, I am mindful about the historical and societal contexts of Vietnam that shaped the life course of men and women and in

turn, their health and wellbeing. For example, while Vietnamese women's smoking habits tend to be frowned upon, there was no such social disapproval for men resulting in significant gender divide in tobacco use in Vietnam (Hoang et al. 2006). Further, Vietnam's wars between the 1960s and 1970s might have had long-term impact on physical and psychological health of the current cohorts of older Vietnamese men who were massively inducted into the military and exposed to combats earlier in their life course. Further, the country's recent shift from a collective to a market economy was accompanied by health-sector reforms that included the imposition of user fees at public health facilities (World Bank 2001). Since health benefits accrue more often to men who were more likely to be veterans or to work in the state sectors, the health reforms may have had adverse impact on women's healthcare (Goodkind et al. 1999). Nonetheless, female disadvantage might be mediated by the fact that family members, especially children, play a pivotal role in providing support for both male and female elders (Friedman et al. 2003; Ofstedal et al. 2003). Social scientists find little or modest gender differences in socioeconomic wellbeing of older adults in Vietnam and assert that factors such as location of residence appear to be more important in explaining old-age vulnerability than gender (Friedman et al. 2001; Knodel and Truong 2002).

The third argument indicates that gender differences in health are an artifact of how men and women differ in their reporting of illnesses rather than any observed clinical reality. This perspective posits that older women tend to be more aware of their health problems and/or more willing than men to report them. While this hypothesis has been tested quite extensively in the context of western societies (e.g., Anson et al. 1993; Davis 1981), it has rarely been applied to the populations of less-developed countries due to a lack of subjective and comparable objective

measures of health status in large scale data sets. Therefore, in the context of developing countries, the effects of reporting biases on gender health disparities have yet to be established.

Past studies demonstrate that neither biological, behavioural, nor reporting arguments are dominant in the sense that anyone explains all or most of the variations in gender health differentials among older people. The goal of this study is not to test these hypotheses. Rather, it considers combined effects of all three approaches when addressing gender differences in health status among older Vietnamese. More specifically, the study examines the extent and nature of gender differentials in health status in older years, focusing on how the effects of gender vary across the measures of health used. Second, it assesses how gender health differences can be explained by older men's and women's demographic, socioeconomic, and health-related behavioural characteristics. Using objective and subjective measures of health, this research addresses whether male-female variations in reporting of ill health might contribute to observed gender differences in health outcomes and discusses whether the policy emphasis on female health vulnerability at older ages is justified in the case of Vietnam.

DATA

Conducted by the Ministry of Health and General Statistics Office, the Vietnam National Health Survey (VNHS) is a population-based nationally representative sample data set that provides a unique resource for addressing gender differences in health status at older ages. Data are derived from a three-stage, stratified, cluster random probability sample of 36,000 households containing nearly 160,000 individuals from 1,200 communes nationwide. Due to a sampling design that produced unequal probabilities of cluster selection, the analyses adjust for

clustering and stratification effects. Further, I restrict the sample to adults age 60 and over (N=15,214).

The VNHS household questionnaire was designed so that one individual considered by the household to be most informed about health and expenditures of household members was designated as the key informant[1]. Information on chronic illnesses, including hypertension, was derived from direct interviews with the individuals or the people who knew most about these episodes. However, interviewers also accepted responses from key informants if it was difficult to make direct interviews (Bales 2003:4). In addition, each sample household was visited by an anthropometrist who implemented the health check questionnaire. Anthropometrists took a measurement of each household member's weight and height. For members age 15 and over, blood pressure was also taken. Since anthropometric measures require anthropometrists to meet the individuals directly, questions regarding self-assessed health and health-related habits were also probed during the occasion.

MEASURES OF HEALTH STATUS

One of the VNHS's most distinct features is its rich information that permits a construction of multiple measures of health status. This study focuses on two health indicators: self-assessed health and incidence of hypertension. What follows is the description of how each health status indicator is operationalised in this study.

Self-assessed health is a respondent's subjective evaluation of his/her own health[2]. Respondents were asked directly by an anthropometrist: "In general, how do you feel about your health?" To rate their health, respondents might answer very good, good, average, weak, or very weak. In the analyses, I combine older adults who rated their health "very good" and "good" as

"above-average". About 0.2 percent of the elderly in the sample who were reported too frail to answer the question during the interview, was coded as "very weak". About 5 percent of older adults rated their health as above-average, 43 percent average, 47 percent weak, and 6 percent very weak.

Hypertension: The VNHS contains information that permits a construction of subjective and objective measures of hypertension among older Vietnamese adults. The first measure is derived from the household survey in which the incidence of hypertension was subjectively reported for each household member by the individuals themselves (and occasionally by key informants). It is arguable that the presence of hypertension required a medical diagnosis and was not merely based on subjective assessment of disease. However, this self-report measure is subject to individuals' recognition of the medical condition and the fact that the individual received a blood pressure screening in the first place. According to this measure, approximately 23 percent of older adults were reported to have had hypertension.

The second measure is an objective assessment of hypertension, which is based on blood pressure readings taken during the health-check survey. Anthropometrists were instructed to monitor three readings of blood pressure from each eligible household member[3]. In assessing whether an older adult had hypertension, I average the three readings. Older adults are classified as not having hypertension if their average blood pressure readings were less than 140/90 mmHg. If their blood pressure levels were 140/90 mmHg or greater, they are categorized as having hypertension. According to this measure, nearly half of all older adults (48 percent) in the sample showed a sign of developing hypertension at the time of survey.

DESCRIPTION OF PREDICTOR VARIABLES

The VNHS provides data on demographic and socioeconomic characteristics and information regarding individuals' health-related behaviours such as smoking and alcohol consumption. Table 1 presents the distribution of older adults in the sample by each independent variable used in this study. Descriptive statistics are presented for all older adults and separately for male and female populations. Results from tests of significance are reported to indicate whether the differences observed between older men and women for each independent variable is statistically significant.

[Table 1 about here]

Women account for 59 percent and men 41 percent of all older adults in the sample. Like almost all countries, women represent a greater share of older populations largely because of their longer life expectancy. Further, age is incorporated in the study as a categorical variable indicating whether a respondent's age was 60-69, 70-79, or 80 and above at the time of survey. More than half of older adults were below age 70; one third between ages 70-79; and the remaining 12 percent were age 80 and older. The age distributions of older men and women show statistically significant differences. Among the oldest old (age 80 and above), the proportion of women is higher than that of men. This is relevant because age is hypothesised to have a strong influence on the health status of older adults.

Further, the analyses employ a categorical variable indicating whether a respondent was married, widowed, or divorced/never married at the time of survey. Over 60 percent of older Vietnamese in the sample were married, whereas one third was widowed. Proportions of older adults who were divorced or never married were very small (2 percent). There are significant gender differences in marital status. While 86 percent of older men were reportedly married, less than half of their female counterparts remained so. Half of older women were widowed,

compared to only 13 percent of men. Evidence indicates that marital status is an important indicator of elderly living arrangement and old-age support. In particular, marriage provides significant protection for the socioeconomic wellbeing of older adults in Vietnam (Knodel et al. 2000; Giang and Pfau 2007b). Therefore, I hypothesise marital status to have significant impact on health outcomes of older adults.

Besides demographic attributes, household characteristics are incorporated in the analyses. First, location of residence is a dummy variable indicating whether an older adult resided in an urban or rural area at the time of survey. About three quarters of older people lived in rural areas and the rest in urban areas. In addition, since Vietnam's economic development varies greatly by regions, region of residence is incorporated as a categorical variable indicating which region of Vietnam a respondent resided in, including the Red River Delta, Northern Uplands, Central, and South. Slightly over a quarter of older adults lived in the densely-populated region of the Red River Delta; 13 percent resided in the Northern Uplands which include northeastern and northwestern provinces. Twenty-eight percent were from the Central region, including the Central Coasts and Central Highlands. One third of older adults resided in the rapidly developed southern regions of the Mekong River Delta and Southeast. Tests of statistical significance show no distinct differences between male and female elders with regards to the location and region of their residence. I expect Vietnamese elders from urban and more developed regions such as the Red River Delta or the South to have better health status than their counterparts from remote, rural, and less developed areas in the Northern Uplands and the Central regions.

Further, education is measured as a categorical variable indicating whether an individual was illiterate, had some primary schooling, finished primary education, or had at least some

secondary schooling. Older women in Vietnam were significantly disadvantaged to men with regards to their educational attainment. Nearly half of older women in the sample were illiterate, whereas slightly over one third had some primary education. Only about one fifth of female elders completed primary education. An overwhelming majority of older Vietnamese men were literate. A quarter of them finished primary schooling and one third had some secondary education. Education is expected to positively affect old-age health and wellbeing and to mediate gender differences in health outcomes.

In addition, household wealth is incorporated as a categorical variable indicating whether a respondent's household economic status was considered poor, less poor, or well-off. Given Vietnam's recent health reforms that led to increasing privitisation of healthcare system, I expect older adults from economically well-off households to enjoy better health status than those with fewer economic resources. In the VNHS, household wealth is defined by per-capita expenditure. Households were stratified into five per-capita household expenditure quintiles of equal size defining relative living standards in the population (Bales 2003). Households in the lowest quintile are classified as "poor", while the second and third lowest quintiles are categorized as "less-poor" and the top two quintiles as "well-off". About 14 percent of older adults in the sample came from poor households, 43 percent from less-poor, and the rest from well-off households. I do not find significant gender differences in household economic status.

The analyses incorporate health-related behaviours, including tobacco use and alcohol consumption, to control for their effects on health outcomes at older ages. While researchers have yet to reach consensus regarding long-term effects of alcohol consumption on physical and mental health of older adults, it has well been established that smoking compromises the quality of life and health in old age (e.g., Strandberg et al. 2008). In this study, I expect alcohol

consumption and tobacco use to negatively affect health status of the elderly in Vietnam. In the analyses, tobacco use is measured as a categorical variable indicating whether an older adult never smoked, smoked in the past but no longer smoked, or continued to smoke at the time of survey[4]. Table 1 shows a significant difference between older men and women in tobacco use. While most women (93 percent) never habitually smoked in their lifetime, only one fifth of men were non-smokers. Half of male elders remained a regular smoker and about a third no longer smoked at the time of survey. Further, this study measures alcohol consumption as a dummy variable indicating whether an individual drank at least one can/bottle of beer or 100 ml. of liquor at least once a week. Like tobacco use, older women and men in Vietnam are significantly different in alcohol consumption. Nearly 40 percent of elderly men reported to have been a regular drinker, compared to only 5 percent among women[5].

RESULTS: DESCRIPTIVE ANALYSES

Self-Reported Health: Figure 1 describes trends in self-assessed health among older adults by gender and age groups. Results indicate three distinct patterns. First, older men and women differed significantly in how they rated their health. For every age group, female elders reported a negative assessment of their health more often than their male counterparts. For example, among older adults in their 60s, 44 percent of women and 35 percent of men rated their health as weak. Likewise, there were greater proportions of male than female elders who felt rather positive about their health. Fifty-five percent of men in their 60s rated their health as average, whereas half of the female counterparts did so.

[Figure 1 about here]

The second pattern shown in Figure 1 is that older Vietnamese adults had a tendency not to rate their health extremely positive. Relatively small proportions of the sample assessed their

health as above-average. While more males, especially those in their 60s, felt good about their health compared to female elders, the gender differences are rather modest. A similar trend is observed for a very negative assessment of health. Very small proportions of older adults reported that their health was very weak with an exception for the oldest old. One of the most striking findings is that a negative assessment of health increases considerably as older persons age. This is consistent for both genders. For instance, proportions of older women reporting weak health increased from 44 percent among those in their 60s to 56 and 61 percent respectively among female elders in their 70s and 80s. Among the oldest old, nearly four fifths of women and three quarters of men rated their health below-average.

Hypertension: Figure 2 presents proportions of the elderly with hypertension by gender and age group. The estimates are reported based on two measurements of hypertension, including subjective (left panel) and anthropometric measures (right panel). By and large, regardless of how one measured hypertension, results demonstrate no statistically significant gender differences in the prevalence of hypertension among older adults in Vietnam. There were two exceptions, including 1) the incidence of hypertension among the elders in their 60s based on the subjective reporting and 2) among the oldest old based on the anthropometric measure. In both instances, there were greater proportions of older women than men with a sign of developing hypertension.

[Figure 2 about here]

Findings indicate large discrepancies between prevalence of hypertension based on the subjective measure and those derived objectively from the health-check survey. For both genders and all age groups examined, the anthropometric measure of blood pressure indicated twice higher incidence of hypertension than the estimates based on self-reports. Further, unlike

trends in self-assessed health shown in Figure 1, percentages of hypertension based on the subjective measure did not show any upward trends by age. On the contrary, the incidence of hypertension derived from direct blood pressure readings demonstrated a linearly increasing trend by age. Slightly over 40 percent of elders in their 60s were found to develop high blood pressure disease. The percentages rose to over 50 percent among male and female elders in their 70s. Among the oldest old, 58 percent of men and 67 percent of women had blood pressure levels that suggested hypertension.

RESULTS: MULTIVARIATE ANALYSES

While the descriptive analyses provide some compelling findings on gender differentials (and lack thereof) in self-assessed health and hypertension, they have not yet taken into account demographic and socioeconomic differences observed among older Vietnamese men and women (Table 1), which might have affected their health outcomes. Within multivariate framework, I use binary logistic regressions to estimate the effect of gender on various indicators of health status at older ages, net of the influences of older adults' background characteristics. Research questions addressed here include: Do older women experience ill health more frequently than men? How do the gender differentials vary by the measures of health status used? Are the observed relationships between gender and each health status modified after an introduction of other covariates? To what extent do demographic and socioeconomic attributes of older adults influence their health outcomes? Do reporting biases exist and how do they affect observed gender health differentials?

Self-Assessed Health: In Table 2, the determinants of self-reported health status are assessed by estimating the odds of older adults rating their health status as "below-average" (i.e.,

weak and very weak) relative to the reference category, positive assessment of health (i.e., average and above-average). The analyses consist of five additive models. The first model presents self-assessed health as a function of gender; Model 2 incorporates a respondent's age and marital status; Model 3 adds household location and region of residence; Model 4 includes a respondent's education and household economic status; and the last model incorporates a respondent's tobacco use and alcohol consumption.

[Table 2 about here]

The exponentiated coefficients are shown in Table 2 as the ratio of the odds of rating one's health below-average for each category, relative to the comparable odds of reference category for each covariate. For example, in Model 1, the reference category of female elders had a standard odds ratio of 1.00. Male elders had the odds ratio of 0.61 suggesting that they were about 40 percent less likely than their female counterparts to rate their health below-average. Moreover, according to Model 2, older adults in their 70s had the odds ratio of 1.83 indicating that they had 83 percent greater likelihood of reporting poor health compared to those in the reference category who were in the age of 60s.

Findings indicate that older men were persistently less likely than their female counterparts to assess their health negatively. Although gender gaps in self-assessed health became narrower after an introduction of other covariates, the gender effect remained statistically significant. Other individual characteristics associated with the decreased likelihood of reporting poor health include marital status[6], educational attainment, and household wealth status. Holding other characteristics constant, older adults whose marriage remained intact at the time of survey were less likely than those who had never been married or had experienced marital dissolution to rate their health below-average. Proxies for socioeconomic status –

education and household wealth—were linearly associated with negative assessment of health. Older adults who were better-educated and those whose families were economically well-off tended to be more optimistic about their health status, compared to those with lower socioeconomic status.

Consistent with Figure 1, multivariate results show that age was a strong determinant of self-assessed health. Net of other effects, the likelihood of rating one's health status below-average increased considerably as an individual aged. Further, rural residents tended to report poor health more often than those in urban areas. This was also the case for older adults living outside the Red River Delta. Those in the South consistently assessed their health more negatively than their counterparts in other regions. In addition, I find that risky health behaviors such as smoking did not have any independent effects on how the elderly in Vietnam rated their health status; yet, regular alcohol consumption appeared to decrease the odds that older adults reported ill health.

[Table 3 about here]

Subjective Measure of Hypertension: Analogous to the analysis presented in Table 2, Table 3 uses binary logistic regression models to estimate the effects of gender and other covariates on the odds that the Vietnamese elderly reported having hypertension. Results demonstrate no gender differences in hypertension when the medical condition was self-reported. While the coefficient in Model 1 suggests that elder males were less likely than their female counterparts to report having hypertension, the net effects of gender disappeared when other covariates were introduced.

Compared to gender, socioeconomic characteristics and demographic attributes appeared to be more robust predictors of self-report hypertension. According to this subjective measure,

the odds of hypertension incidence increased, as older persons aged. Meanwhile, the elderly who had neither been married nor experienced marital dissolution were persistently more likely than those whose marriage remained intact at the time of survey to be identified with hypertension. Moreover, high education, better-off economic status, and residence in urban areas or more economically developed regions such as the Red River Delta or the South were associated with greater odds of self-report hypertension. Another interesting, yet perplexing, finding shown in Table 3 is diverse effects of risky health-related habits on the odds of hypertension. While former smokers were slightly more likely than non-smokers to report experiencing high blood pressure, the incidence of hypertension was significantly less frequent among current tobacco users and regular alcohol consumers than among elders who neither smoked nor drank habitually.

Objective Measure of Hypertension: While the analysis of self-report hypertension does not demonstrate independent effects of gender, findings from Table 4 show modest gender influences on the odds that the elderly were diagnosed with hypertension based on direct readings of their blood pressure. Gender effects demonstrate statistical significance only when smoking and drinking habits were taken into consideration in Model 5. Results indicate that older Vietnamese men experienced greater odds than women of being diagnosed with high blood pressure.

[Table 4 about here]

In addition to gender, other important individual attributes that were associated with elevated risks of hypertension include age and location of residence. According to this objective measure, there was a linear relationship between age and incidence of hypertension found in the anthropometry survey. Model 5, for instance, suggests that the likelihood of hypertension among

elders age 80 and over were higher than that of those ages 60-69 by over twofold. Meanwhile, urbanites were 22 percent more likely than rural residents to be diagnosed with hypertension. Further, results in Table 4 indicate strong effects of marital status on hypertension incidence. Marital dissolution and non-marriage appeared to aggravate the elders' risks of high blood pressure.

Risky health-related behaviors demonstrated varied, yet inconsistent, influence on hypertension. Tobacco use was associated with lower odds of hypertension, whereas regular alcohol consumption significantly aggravated the risks of having high blood pressure. Unlike prior multivariate analyses, I do not find the net effects of regions of residence, education, and household wealth when hypertension was measured using anthropometric tools. The only exception was observed among older adults in the South who experienced lower odds of having high blood pressure than those from the Red River Delta.

DISCUSSIONS AND CONCLUSIONS

Based on nationally-representative data from the Vietnam National Health Survey, this study examines determinants of two important health indicators among older adults in Vietnam: self-rated health and incidence of hypertension. In particular, it evaluates whether gender is a significant marker of later-life health vulnerability, after male-female differentials in socioeconomic characteristics, health-related behaviors, and patterns in health reporting are taken into account. Additionally, by using subjective and comparable objective measures of ill health, this research represents a few unique studies in non-western contexts that address how health reporting might have influenced observed health outcomes at older ages and thereby, gender differentials in health status.

While older women are more likely to be vulnerable because of their survival to later ages and widowhoods (United Nations 2002, 2007b), the present study extends this dominant policy perspective by showing nuances of gender health disparities and factors other than gender that lead to health vulnerability in older years. Evidence demonstrates a complex picture of how actual health statuses and perception about health can differ for male and female elders. First, when an encompassing measure of health status such as self-rated health was examined, results indicate that older women persistently assessed their health more negatively than their male counterparts. This perhaps reflects that the measure draws on the elders' overall perception of wellbeing, which may be influenced by mental health and fatigue. Vietnamese women might have felt more exhausted due to gender differences in production and social reproduction work. This perhaps leads to women's negative self-ratings of health and wellbeing. While beyond the scope of this study, one can further investigate this hypothesis with time use information.

Moreover, when a more specific health outcome such as incidence of hypertension was considered, the effects of gender were different and diverse. For self-reported hypertension, I do not find any significant gender differentials. However, when direct blood pressure readings were taken from the elderly, not only results show that the incidence of hypertension was much higher than the self-report measure, but evidence also indicates that older men were more likely to be diagnosed with hypertension. The discrepancy in subjective and objective measures indicates biases in self-report of ill health among older adults in Vietnam. It also implies older men's tendency to fail to recognize that they had high blood pressure. Such failure could harm their health and adversely affect their survival to later ages.

In addition to varied effects of gender, socioeconomic status is a powerful predictor of health status among older people in Vietnam. Elders who were better-educated and came from

wealthier households tended to rate their health more positively than those with lower education and inferior economic status. Contrary to self-rated health, results indicate that the rich and well-educated were more likely to report hypertension. However, this does not necessarily mean that they were less healthy. The evidence is rather indicative of better perception and more accurate reporting of the illness among this segment of the population. This is perhaps because they had greater awareness of hypertension and access to health examination. When hypertension was determined objectively based on blood pressure readings, the effects of socioeconomic status disappeared. Findings suggest that upper social status perhaps provides older Vietnamese adults certain optimism regarding their health status and also equips them with greater access to health screening which can lead to more accurate reporting and in turn, better care and health outcomes. This evidence also echoes widespread concerns regarding rising health inequality and adverse impact of recent health-sector reforms on the health of the poor.

Older adults' age and marital status are two demographic factors that significantly determine health status in later life. Recent data indicate that life expectancy at birth in Vietnam is 75 for female and 71 for male (United Nations 2007a), whereas estimates for healthy life expectancy are considerably lower – 63 years for women and 60 years for men (WHO 2004b). Evidence indicates that health status of the elderly deteriorated considerably as one got older. For all measures of health examined in this study, the oldest old were more likely to report and be identified with ill health than their younger counterparts. Regardless of gender and age, marriage appears to consistently provide protective influences on health and wellbeing of Vietnamese elders. Consistent with the literature, I find that the elderly whose marriage remained intact were more positive about their health, less likely to report hypertension, and

were less frequently diagnosed with high blood pressure. The net effects of marital status are consistent and rarely changed with an introduction of other covariates in the analyses.

While the effects of household wealth, marital status, and age on health in older years tend to be one-directional, the influences of location of residence are multi-faceted. Urban residents rated their health more positively than rural counterparts. Yet, they were more likely to have hypertension based on both subjective and objective measures of blood pressure. Two explanations are plausible. First, older adults in urban areas generally had greater access to health screening than rural residents, particularly in the context of Vietnam's health reforms. Second, given the country's market transition and recent economic success, residents in towns and cities were perhaps more exposed to affluent lifestyle and diets, thus leading to greater risks of hypertension (Ala et al. 2004)[7].

Not only are older adults' demographic and socioeconomic characteristics taken into account, but this study also considers the effects of their health-related behaviours. On one hand, results reveal mixed effects of smoking on the measures of health status under investigation. The analyses show no net effects of smoking on self-assessed health but they reveal that smoking was associated with decreased odds of being diagnosed with hypertension. On the other hand, older adults who consumed alcohol regularly tended to evaluate their health positively and less frequently reported hypertension. However, when blood pressure readings was taken, results indicate that alcohol consumers were about 20 percent more likely than non-drinkers to be identified with hypertension. While the relationships between these risky habits and health outcomes pointed out here are compelling, they should be considered as tentative because how "regular" tobacco use and alcohol consumption were defined in the VNHS questionnaire was arbitrary. Further, this evidence also suggests the biases associated with self-reporting. Smokers

and drinkers might be less likely to visit doctors and hence, have no knowledge about their blood pressure and thus, tend to guess (and guess optimistically).

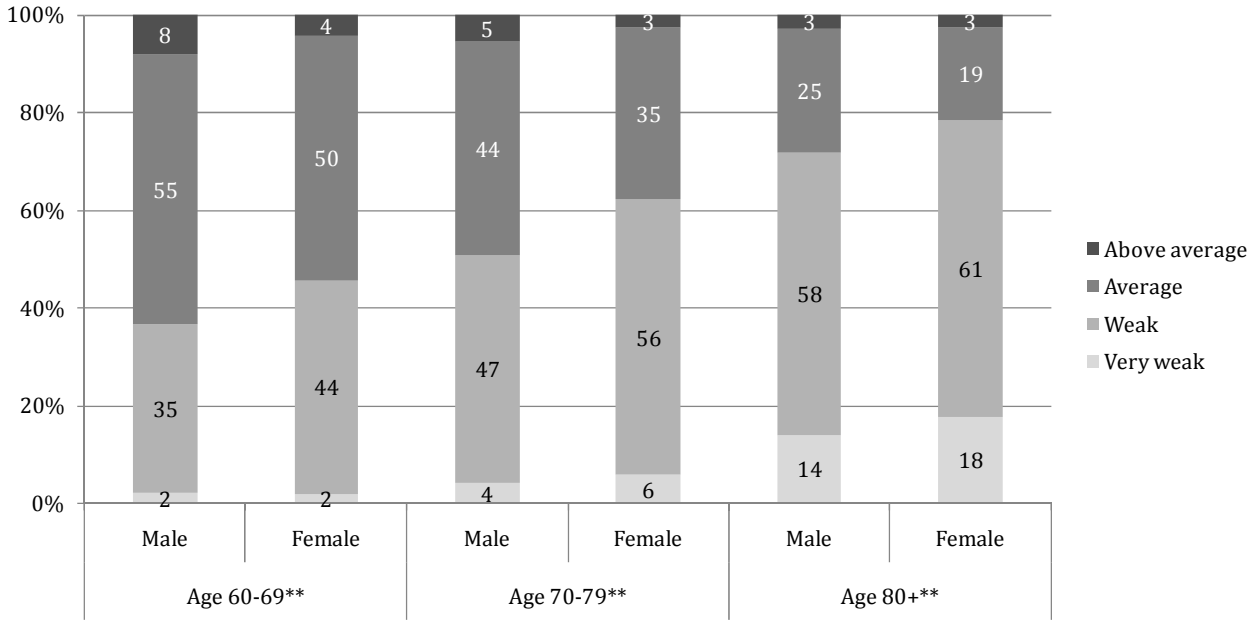
Findings from this study demonstrate that gender is but one of several dimensions that differentiate health in later life. In identifying older Vietnamese people who are most likely to be unhealthy and vulnerable, not only should researchers and policy makers be mindful about how women are more likely to be widowed, which in turn has an impact on mortality and morbidity, but they should also look beyond gender. Differential effects of gender across various health measures suggest that female health vulnerability may not necessarily be warranted in the case of Vietnam. While this study may be restricted to only a few measures of health, the analyses consistently show age, marital status, education, household wealth, location of residence, smoking and alcohol consumption to be important predictors of health outcomes among older adults. As Vietnam's health sector has become increasingly privatised, the health of disadvantaged elderly is of particular concern. They tend to be more pessimistic about their health and appear to have less awareness of health risks such as hypertension, and limited access to health screening. In addition to looking beyond gender, this study points out the importance of reporting on observed health outcomes in older years. Future studies will benefit from incorporating more objective assessments and biomarkers of health status among older adults.

Table 1. Descriptive statistics, characteristics of older adults age 60 and older in the VNHS sample.

Variable description	All (N=15,214)	Male (N=6,236)	Female (N=8,978)	Sig.
	Proportion			
Age				
60-69	0.55	0.59	0.53	**
70-79	0.33	0.32	0.34	
80+	0.12	0.09	0.13	
Current marital status				
Currently married	0.62	0.86	0.46	**
Widowed	0.36	0.13	0.51	
Divorced/never married	0.02	0.01	0.03	
Location of residence				
Urban	0.23	0.23	0.22	n.s.
Rural	0.77	0.77	0.78	
Region of residence				
Red River Delta	0.27	0.26	0.28	n.s.
Northern Uplands	0.13	0.13	0.12	
Central	0.28	0.28	0.27	
South	0.32	0.33	0.32	
Education				
Illiterate	0.32	0.11	0.46	**
Less than primary	0.34	0.31	0.35	
Primary	0.18	0.25	0.13	
At least some secondary	0.16	0.32	0.06	
Household economic status				
Poor	0.14	0.14	0.15	n.s.
Less poor	0.43	0.43	0.42	
Well off	0.43	0.43	0.43	
Tobacco use				
Never smoke	0.64	0.22	0.93	**
No longer smoke	0.13	0.29	0.02	
Smoking regularly	0.23	0.49	0.05	
Alcohol consumption				
Not drinking regularly	0.82	0.62	0.95	**
Regular consumption	0.18	0.38	5.00	

**Difference between male and female is significant at $p<0.01$; n.s.= not significant p-value.
Source: VNHS 2001-2.

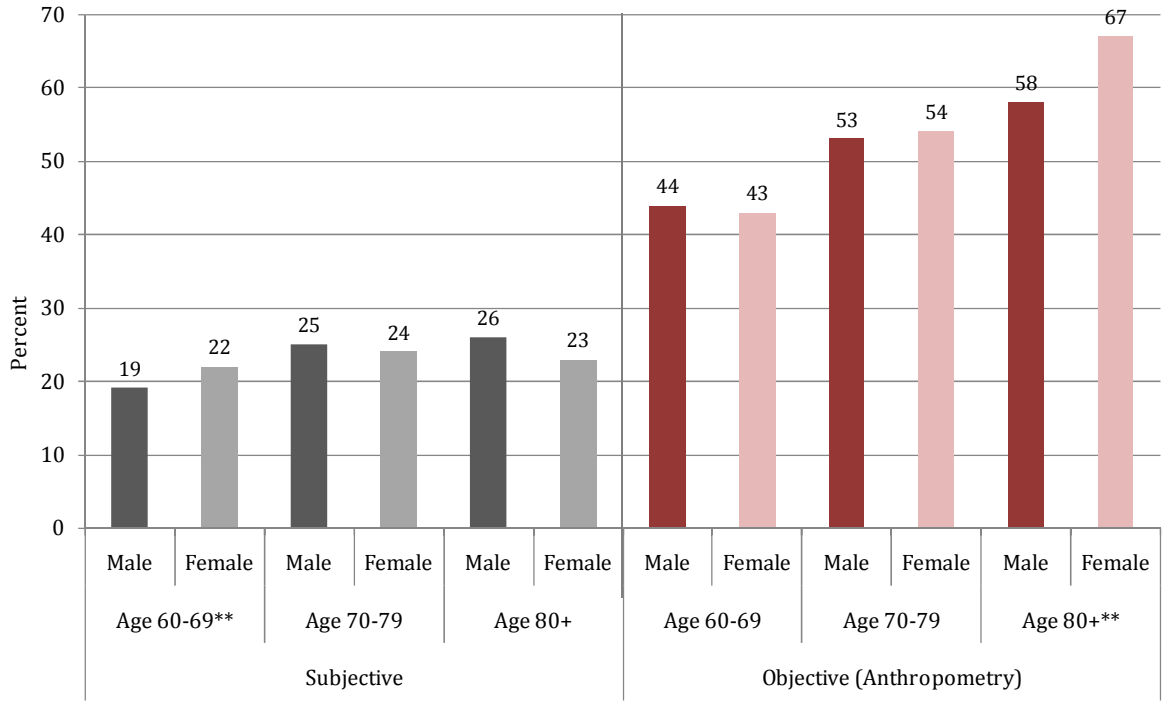
Figure 1. Trends in self-reported health among older adults age 60 and over in Vietnam by gender and age group



Source: VNHS 2001-2

**Difference betwen male and female is statistically significant at p<0.01.

Figure 2. Percent older adults in Vietnam having hypertension by gender, age group, and types of measurement



Source: VNHS 2001-2

**Difference between male and female is statistically significant at p <0.01.

Table 2. Binary logistic regression (coefficients expressed as odds ratios) indicating that the respondent rated their health as below-average: Older Vietnamese adults age 60 and over.

Individual and household characteristics	Model 1		Model 2		Model 3		Model 4		Model 5	
	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error
Male (Female=ref)	0.61 ***	0.02	0.69 ***	0.026	0.68 ***	0.03	0.79 ***	0.03	0.89 *	0.05
Age (60-69=ref)										
70-79			1.83 ***	0.068	1.87 ***	0.07	1.72 ***	0.06	1.69 ***	0.06
80+			4.07 ***	0.243	4.27 ***	0.26	3.70 ***	0.23	3.57 ***	0.23
Currently married (Widowed/divorced/never married=ref)			0.79 ***	0.031	0.83 ***	0.03	0.84 ***	0.03	0.84 ***	0.03
Urban (Rural=ref)					0.73 ***	0.03	0.90 **	0.04	0.89 **	0.03
Region of residence (Red River Delta=ref)										
Northern Uplands					1.43 ***	0.08	1.24 ***	0.07	1.26 ***	0.07
Central					1.78 ***	0.09	1.66 ***	0.08	1.61 ***	0.8
South					2.04 ***	0.09	2.07 ***	0.09	1.96 ***	0.09
Education (Illiterate=ref)										
Less than primary							0.80 ***	0.04	0.79 ***	0.04
Primary							0.71 ***	0.04	0.71 ***	0.04
At least some secondary							0.60 ***	0.04	0.60 ***	0.04
Household economic status (Poor=ref)										
Less poor							0.83 **	0.05	0.81 ***	0.04
Well off							0.56 ***	0.03	0.55 ***	0.03
Tobacco use (Never smoke=ref)										
No longer smoke									1.13	0.07
Smoking regularly									1.05	0.06
Regular alcohol consumption (Not drinking regularly=ref)									0.58 ***	0.03
df	1		4		8		14		17	
Log likelihood	-10388.541		-9926.490		-9769.262		-9628.669		-9571.396	
Number	15214		15214		15214		15214		15214	

*Significant at p<0.05, **Significant at p<0.01; ***Significant at p<0.001. Ref=reference category.
Source: VNHS 2001-2.

Table 3. Binary logistic regression (coefficients expressed as odds ratios) indicating that the respondent reported having hypertension: Older Vietnamese adults age 60 and over.

Individual and household characteristics	Model 1		Model 2		Model 3		Model 4		Model 5	
	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error
Male (Female=ref)	0.91 *	0.03	0.98	0.04	0.98	0.04	0.84	0.04	1.01	0.06
Age (60-69=ref)										
70-79			1.19 ***	0.05	1.19 ***	0.05	1.31 ***	0.06	1.26 ***	0.06
80+			1.06	0.06	1.09	0.07	1.28 ***	0.08	1.21 **	0.08
Currently married (Widowed/divorced/never married=ref)			0.82 ***	0.04	0.86 **	0.04	0.84 ***	0.04	0.84 ***	0.04
Urban (Rural=ref)					1.62 ***	0.07	1.36 ***	0.05	1.34 ***	0.06
Region of residence (Red River Delta=ref)										
Northern Uplands					0.51 ***	0.04	0.58 ***	0.04	0.59 ***	0.05
Central					0.92	0.05	1.00	0.06	0.99	0.06
South					1.76 ***	0.09	1.82 ***	0.09	1.79 ***	0.09
Education (Illiterate=ref)										
Less than primary							1.16 **	0.06	1.15 **	0.06
Primary							1.32 ***	0.09	1.29 ***	0.09
At least some secondary							1.70 ***	0.13	1.67 ***	0.13
Household economic status (Poor=ref)										
Less poor							1.45 ***	0.11	1.40 ***	0.10
Well off							1.85 ***	0.14	1.79 ***	0.14
Tobacco use (Never smoke=ref)										
No longer smoke									1.17 *	0.08
Smoking regularly									0.79 **	0.05
Regular alcohol consumption (Not drinking regularly=ref)									0.62 ***	0.04
df	1		4		8		14		17	
Log likelihood	-8182.064		-8159.862		-7850.941		-7761.069		-7711.156	
Number	15214		15214		15214		15214		15214	

*Significant at p<0.05, **Significant at p<0.01; ***Significant at p<0.001. Ref=reference category.
Source: VNHS 2001-2.

Table 4. Binary logistic regression (coefficients expressed as odds ratios) indicating that the respondent's average blood pressure reading suggested hypertension: Older Vietnamese adults age 60 and over.

Individual and household characteristics	Model 1		Model 2		Model 3		Model 4		Model 5	
	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error	Odds ratio	Std. error
Male (Female=ref)	0.93	0.03	1.06	0.04	1.06	0.04	1.03	0.04	1.15 **	0.06
Age (60-69=ref)										
70-79			1.43 ***	0.05	1.44 ***	0.05	1.46 ***	0.05	1.46 ***	0.06
80+			2.10 ***	0.11	2.10 ***	0.11	2.14 ***	0.12	2.12 ***	0.12
Currently married (Widowed/divorced/never married=ref)			0.77 ***	0.03	0.76 ***	0.03	0.76 ***	0.03	0.76 ***	0.03
Urban (Rural=ref)					1.26 ***	0.04	1.23 ***	0.05	1.22 ***	0.05
Region of residence (Red River Delta=ref)										
Northern Uplands					0.99	0.05	1.00	0.05	0.99	0.05
Central					0.87 ***	0.04	0.88 **	0.04	0.91	0.04
South					0.79 ***	0.04	0.79 ***	0.04	0.82 ***	0.04
Education (Illiterate=ref)										
Less than primary							0.98	0.04	0.97	0.04
Primary							1.06	0.06	1.05	0.06
At least some secondary							1.06	0.07	1.04	0.07
Household economic status (Poor=ref)										
Less poor							0.96	0.05	0.96	0.05
Well off							1.04	0.06	1.02	0.06
Tobacco use (Never smoke=ref)										
No longer smoke									0.86 *	0.05
Smoking regularly									0.75 ***	0.04
Regular alcohol consumption (Not drinking regularly=ref)									1.19 ***	0.06
df	1		4		8		14		17	
Log likelihood	-10538.552		-10352.773		-10316.719		-10310.227		-10291.869	
Number	15214		15214		15214		15214		15214	

*Significant at p<0.05, **Significant at p<0.01; ***Significant at p<0.001. Ref=reference category.
Source: VNHS 2001-2.

[1] Approximately 37 percent of the main respondents were male and the rest 63 percent female. They were mostly either the head of the household or spouse of the household head. I expect that the gender of the key informant affects neither health assessment rated by older adults themselves nor biometric measures of health.

[2] For this variable, there are 362 cases (2.4 percent of the total sample) that had missing values – mainly because they were not present during the implementation of the health-check questionnaire. These missing cases are excluded from the analysis.

[3] Anthropometrists were unable to read blood pressure from approximately 2.8 percent of older adults in sample households.

[4] In the VNHS, any household members age 6 and over were asked if they had smoked 100 cigarettes in their whole life. If they did, these smokers would be asked further if they smoked at least 7 cigarettes in a week on average. For those who smoked less than 7 hits in a week, they were asked if they have quit smoking.

[5] In the analysis not shown here, I find that among older men smoking and drinking are negatively associated with household wealth. Education is negatively related to smoking; yet, it is positively associated with older men's drinking habit. Among older women in Vietnam, both education and household wealth are negatively associated to smoking and drinking but the correlations are not strong.

[6] In multivariate analyses, since a very small proportion of older adults in the sample were never-married or divorced (2 percent), they were combined with elders who were widowed. The dummy variable of marital status reflects older adults with intact marriage versus those whose marriage dissolved or who were never married.

[7] Interpreting the effects of region of residence on health of older adults in Vietnam is more complicated because results do not show consistent patterns across the three measures of health status. For example, for self-reported health, findings indicate that residents of the Red River Delta were more optimistic about their health than those in other regions of Vietnam. When hypertension was determined using the anthropometric measure, regional differences were not significant, with an exception of southerners who were less likely than Red River Delta residents to be diagnosed with hypertension.

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