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Gender, Socioeconomic Status, and Self-Rated Health in a Transitional Middle-Income Setting: Evidence From Thailand

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Abstract

Poor self-rated health (SRH) correlates strongly with mortality. In developed countries, women generally report worse SRH than males. Few studies have reported on SRH in developing countries. The authors report on SRH in Thailand, a middle-income developing country. The data were derived from a large nationwide cohort of 87 134 adult Open University students (54% female, median age 29 years). The authors included questions on socioeconomic and demographic factors that could influence SRH. The Thai cohort in this study mirrors patterns found in developed countries, with females reporting more frequent “poor” or “very poor” SRH (odds ratio = 1.35; 95% confidence interval = 1.26-1.44). Cohort males had better SRH than females, but levels were more sensitive to socioeconomic status. Income and education had little influence on SRH for females. Among educated Thai adults, females rate their health to be worse than males, and unlike males, this perception is relatively unaffected by socioeconomic status.

Keywords

self-rated health; self-assessed health; gender; socioeconomic status; Thailand

Introduction

Self-rated health (SRH) has been shown to be a powerful independent predictor of mortality in numerous longitudinal studies of representative populations.¹ Moreover, its measurement is straightforward, is less expensive, and is holistic, approximating the World Health Organization’s definition of health as a “complete state of physical, mental, and social well-being.”²

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Poor SRH in populations is negatively correlated with social status and positively correlated with mortality.³ Many studies have shown that women tend on average to have worse SRH than men even though they paradoxically usually have longer life expectancy. Correlation of SRH and mortality is quite strong for women but usually even stronger for men. At the population level, SRH paradoxically tends to get worse as countries undergo economic development and experience falling mortality and increasing human longevity. This development-related SRH paradox has been explained as a cultural phenomenon—as people get richer and better educated they are culturally encouraged or “permitted” to notice or report ill-health at progressively lower thresholds of suffering than their more stoical forebears.⁴

These culture and gender effects highlight the difficulties of cross-population comparisons of health indicators where language, culture, and social environments may influence the way respondents answer these types of questions.⁵ The gender paradox has been explored in relation to the prevailing social welfare arrangements in Western European countries, but relationships were blurred. In 2 countries (the United Kingdom and Finland), men reported worse health, and in all other countries studied women had lower SRH scores, regardless of the prevailing social and gender equity that was known to vary substantially from one country to another.⁶

There have been few reports of SRH and gender from developing countries although the gender paradox has been noted in recently developed settings including Brazil, Singapore, and Korea.⁷⁻¹⁰ In this article, we report from Thailand, an Asian country that has recently acquired middle-income status but which has a per capita GDP less than one third of Brazil and which is ranked 74 for its Human Development Index. Mortality has fallen remarkably in Thailand, with life expectancy of 70 for men and 76 for women.¹¹ We report our analysis of gender and SRH for a large cohort of Thai adults, and we also examine the overall socioeconomic influences on SRH scores in this middle-income setting.

Methods

Data

We analyze 2005 baseline data for an ongoing population-based cohort study on the Thai health risk transition among adult Open University part-time distance learning students residing all over the country. Detailed methodology and population selection have been reported.¹² In brief, a 20-page questionnaire was mailed out to each of 200 000 registered names and addresses, of whom 87 134 (44%) responded; 54% were females, and the average age was 30.5 years (SD = 8.3). The data reported here include most of the socioeconomic status (SES) variables, related demographic data, and SRH questions, analyzed using SPSS. The number of persons with data on sex and SRH was 86 851. Individuals with missing information were excluded from analyses involving those variables.

Measures

Self-rated health during the past 4 weeks was assessed on a descending 6-point scale (excellent, very good, good, fair, poor, and very poor) in response to the question, “Overall, how would you rate your health over the last 4 weeks?” This question is the first one asked in the standard 8-item Short-Form Health Survey. Information on other self-reported details chosen for this analysis included age, sex, marital status, urban or rural residence in 2005 and when aged 10 to 12 years, and SES indicators (highest level of education, personal monthly income, household assets, and occupation).

Definitions

Binary categories for SRH were categorized as “good health” (excellent, very good, good, and fair) and “poor health” (poor and very poor). Age-groups were divided into 3 bands: a younger group (15-25 years), a middle-age group (26-39 years), and an older age group (40 years and more). These age-groups have been adopted as they fit the social demography of Thailand and have been used in other reports emerging from this cohort. Marital status was classified as single or partnered. Self-reported urban or rural residence in 2005 and when aged 10 to 12 years was used to create 4 life course urbanization categories: rural to rural, rural to urban, urban to rural, and urban to urban.

SES indicators were defined by educational attainment, personal monthly income, and household assets classified by replacement values (S. Seubsman et al, unpublished data, April 23, 2009). Briefly, highest education attainments before enrolment at Sukhothai Thammathirat Open University (STOU) were classified into 3 categories: high school or lower, diploma or equivalent, or university education. Personal income in Thai baht was grouped into the following categories: 7000, 7001 to 10 000, 10 001 to 20 000, 20 000 and more. The household assets assessed for replacement value included general domestic items: a microwave oven, electric fan, air conditioner, computer, radio, video/VCD recorder, washing machine, water heater, and telephone. The estimated total value of all assets for each respondent was categorized into 1 of 3 groups: low (<30 000), middle (30 001-60 000), and high (>60 000). Occupations were classified into 6 categories: manual worker, office assistant, skilled worker, middle manager, professional, and senior manager.

Statistical Analysis

Self-rated health categories were averaged for groups across the 6-point rating scale and proportions noted and compared for each category. The prevalences of demographic and socioeconomic attributes with 95% confidence intervals were calculated for males and females. Differences between means and proportions were tested by analysis of variance or χ^2 tests, respectively. All *P* values were based on 2-tailed tests, and the significance level was set at 5%.

Odds ratio (OR) associations of SRH with each SES indicator (education, personal income, household assets, and occupation) and with each demographic indicator (urbanization and marital status) were assessed by logistic regression models for males and females. Each model was adjusted for age as a continuous variable. ORs used the lowest category for each indicator as the reference. Tests for trend were performed using SES and demographic indicators as ordinal variables. Interactions between sex and each indicator's association with SRH were revealed by comparing the results obtained separately for males and females.

Ethical Issues

Informed written consent was provided by all participants, and ethics approval was obtained from Sukhothai Thammathirat Open University Research Committee and the Australian National University Human Research Ethics Committee.

Results

Demographic details for the cohort have been reported earlier.¹² Briefly, men were older (mean age in years 32.2 vs 29.1) and more frequently partnered than women (51% vs 37%). Urbanization since age 12 years had affected about one quarter of the cohort, and less than half were rural when our study began (average time lag since age 12 of 18-19 years). On average, women had moderately higher educational achievements and men had substantially

higher personal incomes, but replacement values for household assets for males and females were similar.

Table 1 summarizes the SRH and other attributes of the Thai Open University national cohort. The overall SRH mean score was 3.9 (SD = 0.87); it was statistically significantly lower for females (3.82) than males (3.98). The percent prevalence of poor SRH (combining poor and very poor) was higher for females than males (5.2 vs 3.8), and more males reported good health, which fell into 1 of the top 3 categories ($P < .001$).

The (unadjusted) prevalence of self-rated poor health for each sex was calculated in bivariate analyses for each independent variable—age-group, marital status, urbanization, and SES indicators (Table 2). In females, the middle age group (26-39 years) was more likely to report poor health. Single males had worse SRH than those who were partnered. For both sexes, those who migrated from urban to rural areas had substantially worse SRH than those in other groups, and those currently living in urban areas also reported poor health. Rural dwellers reported the best health. Education had little effect on SRH for females, but university educated males reported substantially worse health than other less educated groups. Income had little effect on SRH for females and an adverse effect on SRH for males in the lowest income group. For both sexes senior managers reported better health, and manual workers reported worse health. In males, replacement value of household assets when more than 60 000 baht adversely affected SRH, but there was little influence of such asset values on SRH for females.

A logistic regression analysis of sex effects on SRH, adjusted for age, urbanization, marital status, and income, showed females had substantially higher odds of poor SRH than males (OR = 1.35; $P < .001$; see Table 3). Separate logistic regression models for males and females, also adjusted for age, urbanization, and marital status, showed pronounced sex-modified patterns of association for SRH. For males with higher education levels there was a statistically significant trend of increasing poor SRH; for females there were no education effects. Higher income among males showed a statistically significant relationship with better SRH but there was no such effect for females. For both males and females manual workers were likely to have poorer SRH, and the converse was noted for senior managers who had the best SRH. Adjusted ORs showed that current urban dwellers were much more likely to report worse SRH for both males and females than those born in and remaining in rural areas. Both males and females who moved from urban to rural settings reported even worse health. Partnered males reported much better SRH than single males ($P = .001$), but partnering had almost no influence on SRH for females.

Discussion

In this study of a large national cohort of adult distance learning Open University students aged 15 to 87 years and distributed throughout Thailand, SRH was associated with sex, marital status, urbanization, and SES. A sex effect was prominent with overall scores for SRH in females significantly lower than in males. Good SRH was also strongly associated with living with a partner for males, but partnering had no effect for females. Current urban residents had significantly worse SRH; however, the group worst off consisted those who had moved from urban to rural areas. More income among males was associated with improvements in SRH, whereas more education had an opposite effect. Neither of these variables affected the SRH of females. A potential explanation for the differing direction of SES effect on SRH between income and education may be that those who receive a higher education may be considered to be overall more conscious of their health. Those who are educated to be aware of certain health conditions may be more likely to report poorer overall

health. Income, on the other hand, is a more short-term indicator of social class and does not reflect overall development of a change in attitudes or attitudes toward health.

The few studies reporting on SRH in Thailand are not directly comparable with the results of this study because they do not analyze the combined effects of gender and SES. Previous Thai studies have however observed, as has this study, that overall Thai females have worse SRH than males^{13,14} and that Thais of lower SES also have worse SRH based on the Thai National Health and Welfare Survey 2003.^{15,16} Our study found that the SRH of lifetime rural dwellers was better than SRH for their urban counterparts, in contrast to a previous study that found the opposite result.¹⁵ This discrepancy may be explained by the perhaps atypical sociodemographic features of our rural respondents who though living in rural areas had completed at least a high school level of education and were studying further by correspondence.

Few cross-national comparative studies on SRH have been carried out because it is difficult to interpret quantitative patterns. Cultural and social differences have an effect on how people report their health. Apart from this, small differences in the way a study is carried out and the exact questions asked can have large effects on the results even within relatively homogenous populations.⁵ However, overall our results agree with those found in Western nations, where most research has been carried out, in that women usually self-report worse health than men and SES has a strong effect on SRH, especially for males.

We noted that STOU men overall report better health but their SRH is very sensitive to socioeconomic variables, whereas the SRH of STOU females is not. This agrees with a report from Singapore that showed the worse SRH noted for females was relatively insensitive to income, whereas SRH for males improved substantially with rising income.⁹ Also, several other studies have found similar gender differences in the way SES interacts with SRH.¹⁷⁻¹⁹ Other studies have found that part of the reason for this difference may lie in the questions asked and the measures of SES used. Women may be more sensitive to variations in household assets or income than to those in their own individual incomes reflecting the fact that husband's occupations or SES may strongly influence that of their female partners.²⁰ Other studies have found that for females occupation may be a better SES variable to associate with variations in SRH than income or other traditional measures.²¹⁻²³ This to some extent agrees with our findings in that among females in our cohort those with occupations involving manual labor did report worse SRH than those with other occupations.

What is clear from our data is that income and socioeconomic inequality affect SRH among males and females differently in our large Thai adult cohort of Open University students. But we cannot shed evidentiary light on the mechanism underlying this gender difference. However, we can surmise that work and SES have quite different effects on well-being for males and females. Indeed from an evolutionary perspective males have been more engaged in family protection whereas females focused on cooperative child rearing, and it is possible that the gendered patterning of SRH today reflects such basic human attributes.

A notable feature of our study is that it involves high school educated people engaged in distance education through an Open University. Our cohort members are better educated than the general population but are not any better off socioeconomically. We have also found that they adequately represent the geographic distribution of the general Thai population.¹² As SRH has been found to be sensitive to SES measures including education, results from our cohort may vary somewhat from the general population. However, given the increasing emphasis on education in Thailand and ever-increasing enrollment rates our cohort represents to some extent future trends among Thais for education in the population.

We have shown that the overall pattern of SRH in a middle-income transitioning nation such as Thailand is largely comparable with developed nations. Furthermore, we can expect SRH among Thais will slowly worsen as the country continues to develop its economy and other vital statistics improve. SRH will be a useful and cheap method to track holistic health trends within and between groups as well as across regions. But we should be cautious when interpreting SRH differences noted across generations in countries undergoing health risk transitions as SRH scores may be perceived differently by successive age cohorts. This study also provides direct evidence that gender modifies SES effects on SRH and that this effect modification occurs worldwide, including in Thailand.

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Table 1
Self-Rated Health, Demographic Attributes, and Socioeconomic Status in a National Cohort of Open University Adults in Thailand

	Male			Female		
	N	Mean (SD)	Percentage	N	Mean (SD)	Percentage Difference
Self-rated health						
Average self-rated health score ^a	39 357	3.98 (0.87)		47 489	3.82 (0.87)	<.0001
Self-rated health classification						
Excellent	1503		3.8	1268		2.7 <.0001
Very good	8167		20.8	7345		15.5
Good	19 506		49.6	23 243		48.9
Fair	8683		22.1	13 146		27.7
Poor	1328		3.4	2152		4.5
Very poor	170		0.4	335		0.7
Demographic attributes						
Age (years), total	39 478	32.2 (8.8)		47 636	29.1 (7.5)	<.0001
15-25	10 036		25.4	19 029		39.9 <.001
26-39	21 432		54.3	23 519		49.4
40	8010		20.3	5088		10.7
Marital status						
Single	18 765		49.0	29 078		62.9 <.001
Married/living with a partner	19 567		51.0	17 160		37.1
Urbanization status						
Rural-rural	17 609		45.3	20 127		42.7 <.001
Rural-urban	12 616		32.4	14 812		31.4
Urban-rural	1699		4.4	2007		4.3
Urban-urban	6977		17.9	10 170		21.6
Socioeconomic status						
Education						
High school	21 748		55.2	20 699		43.6 <.001
Diploma	8902		22.6	14 560		30.6
University	8734		22.2	12 247		25.8

	Male			Female		
	N	Mean (SD)	Percentage	N	Mean (SD)	Percentage
Personal income (Baht/month) ^b						Difference
<7000	13 612		35.4	22 019		47.4 <.001
7001-10 000	8821		22.9	10 973		23.6
10 001-20 000	10 920		28.4	9643		20.8
20 001+	5147		13.4	3804		8.2
Occupation classification						
Manual worker	4749		16.3	5341		15.2 <.001
Office assistant	9707		33.3	15 203		43.1
Skill worker	4201		14.4	2051		5.8
Middle manager	4592		15.7	2850		8.1
Professional	3991		13.7	7855		22.3
Senior manager	1934		6.6	1937		5.5
Household assets (Baht) ^c						
<30 000	15 917		40.5	19 263		40.4 <.001
30 001-60 000	12 328		31.4	14 267		29.9
>60 000	11 018		28.1	13 883		29.1

^aRating scale: 6 = *excellent*, 5 = *very good*, 4 = *good*, 3 = *fair*, 2 = *poor*, 1 = *very poor*.

^bUS\$1 = 40 Thai Baht at the time of survey (2005).

^cReplacement value.

Table 2
Self-Rated Poor Health^a by Demographic, Socioeconomic Status in National Cohort of Open University Adults in Thailand

	Males (N = 38 825)			Females (N = 47 061)		
	No. With Poor Health	Prevalence (%)	95% CI	No. With Poor Health	Prevalence (%)	95% CI
All study population	1498	3.8	3.6-4.0	2487	5.2	5.0-5.4
Age group (years)						
15-25	388	3.9	3.5-4.3	963	5.1	4.8-5.4
26-39	832	3.9	3.6-4.2	1285	5.5	5.2-5.8
40	278	3.5	3.1-3.9	239	4.1	4.1-5.3
Marital status						
Single	796	4.3	4.0-4.5	1507	5.2	4.9-5.5
Partnered	647	3.3	3.1-3.6	891	5.2	4.9-5.5
Urbanization status						
Rural-rural	598	3.4	3.1-3.7	934	4.7	4.4-4.8
Rural-urban	497	4.0	3.6-4.3	822	5.8	5.2-5.9
Urban-rural	84	5.0	3.9-6.0	132	6.6	5.5-7.7
Urban-urban	304	4.4	3.9-4.9	576	5.7	5.2-6.1
Educational level						
High school	801	3.7	3.4-3.9	1078	5.2	4.9-5.5
Diploma	315	3.6	3.2-3.9	754	5.2	4.8-5.6
University	377	4.3	3.9-4.8	644	5.3	4.9-5.7
Personal income (Baht)						
7000	600	4.4	4.1-4.8	1131	5.2	4.9-5.4
7001-10 000	325	3.7	3.3-4.1	594	5.4	5.0-5.9
10 001-20 000	351	3.2	2.9-3.6	513	5.3	4.9-5.8
>20 000	182	3.5	3.0-4.1	185	4.9	4.2-5.6
Occupation classification						
Manual worker	216	4.6	4.0-5.2	296	5.6	4.9-6.2
Office assistant	308	3.2	2.8-3.5	804	5.3	4.9-5.7
Skill worker	165	3.9	3.4-4.5	120	5.9	4.8-6.9
Middle manager	152	3.3	2.8-3.8	132	4.7	3.9-5.4

	Males (N = 38 825)			Females (N = 47 061)		
	No. With Poor Health	Prevalence (%)	95% CI	No. With Poor Health	Prevalence (%)	95% CI
Professional	170	4.3	3.6-4.9	412	5.3	4.8-5.8
Senior manager	74	3.8	3.0-4.7	90	4.7	3.7-5.6
Household assets (Baht) ^b						
<30 000	593	3.7	3.4-4.0	989	5.2	4.8-5.5
30 001-60 000	451	3.7	3.3-4.0	769	5.4	5.0-5.8
>60 000	445	4.0	3.7-4.4	720	5.2	4.8-5.6

Abbreviation: CI, confidence interval.

^aPoor health defined by self-rating as "poor" or "very poor" on the 6-point scale.

^bReplacement values.

Table 3

Associations of Socioeconomic Status and Self-Rated Poor Health by Sex in a National Cohort of Open University Adults in Thailand

	Crude OR			Adjusted OR ^b		
	Crude OR	95% CI	Adjusted OR ^b	95% CI	Adjusted OR ^b	95% CI
Sex						
Male	1		1			
Female	1.40	1.31-1.49	1.35	1.26-1.44		
			<i>P</i> < .001			
SES factors						
Educational level						
High school	1		1		1	
Diploma	1.03	0.96-1.11	0.96	0.84-1.10	1.01	0.91-1.11
University	1.10	1.02-1.19	1.20	1.05-1.36	1.00	0.90-1.08
<i>P</i> trend			.017		.928	
Personal income (Baht/month)						
7000	1		1		1	
7001-10 000	0.95	0.88-1.04	0.85	0.73-0.98	1.04	0.93-1.15
10 001-20 000	0.86	0.79-0.93	0.73	0.63-0.86	1.01	0.89-1.14
>20 000	0.84	0.75-0.94	0.76	0.62-0.93	0.91	0.76-1.10
<i>P</i> trend			<.001		.642	
Household assets (Baht)						
<30 000	1		1		1	
30 001-60 000	1.02	0.95-1.10	1.01	0.88-1.15	1.04	0.94-1.15
>60 000	1.04	0.96-1.12	1.10	0.95-1.26	0.95	0.85-1.06
<i>P</i> trend			.244		.405	
Occupation classification ^f						
Manual worker	1		1		1	
Office assistant	0.87	0.79-0.97	0.67	0.56-0.80	0.95	0.82-1.10

	Crude OR	95% CI	Adjusted OR ^b	95% CI	Adjusted OR ^d	95% CI
Skill worker	0.90	0.77-1.04	0.80	0.65-0.99	1.08	0.86-1.35
Middle manager	0.74	0.64-0.86	0.70	0.56-0.88	0.82	0.66-1.02
Professional	0.97	0.86-1.09	0.90	0.73-1.11	0.93	0.79-1.09
Senior manager	0.83	0.69-0.99	0.78	0.59-1.03	0.81	0.63-1.04

	Adjusted OR ^d	95% CI	Adjusted OR ^d	95% CI
Urbanization status ^f				
Rural-rural	1	1	1	1
Rural-urban	1.19	1.11-1.29	1.26	1.01-1.43
Urban-rural	1.46	1.26-1.69	1.52	1.19-1.94
Urban-urban	1.28	1.18-1.39	1.36	1.17-1.57

	Adjusted OR ^e	95% CI	Adjusted OR ^e	95% CI
Marital status				
Single	1	1	1	1
Partnered	0.91	0.84-0.98	0.81	0.71-0.92
P value			.001	.758

Abbreviations: OR, odds ratio; CI, confidence interval; SES, socioeconomic status.

^aPoor health defined by self-rating as "poor" or "very poor" on a 6-point scale.

^bOR from a logistic regression model for sex adjusted for age, urbanization, marital status, and income.

^cOR for each SES factor adjusted for age, urbanization, and marital status.

^dOR for urbanization adjusted for age, marital status, and income.

^eOR for marital status adjusted for age, urbanization, and income.

^fNo natural order for occupation and urbanization status so P trend was not calculated for these variables.