

# Income-related Inequality in Health Outcomes among Older People in China: Measurement and Decomposition Analysis

Yixiao Wang (✉ [wangyixiao1001@gmail.com](mailto:wangyixiao1001@gmail.com))

King's College London, London

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## Research

**Keywords:** income-related inequality, self-rated health, activities of daily living, older people, China

**Posted Date:** December 31st, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-136452/v1>

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# **Income-related inequality in health outcomes among older people in China:**

## **Measurement and decomposition analysis**

Yixiao Wang<sup>1</sup> \*

<sup>1</sup> Department of Global Health & Social Medicine, King's College London, London, UK

\* **Corresponding author:** Yixiao Wang, Department of Global Health and Social Medicine, 3.01 Bush House NE, King's College, London, Strand Campus 30, Aldwych, London WC2R 2LS

Email: [yixiao.1.wang@kcl.ac.uk](mailto:yixiao.1.wang@kcl.ac.uk)

**Ethics approval and consent to participate:** The CLHLS study was approved by research ethics committees of Duke University and Peking University (IRB00001052–13074). All participants provided written informed consent. No experimental interventions were performed. An exempted Institutional Review Board (IRB) protocol was approved by Duke University (Pro00062871).

**Consent for publication:** Not applicable.

**Availability of data and materials:** The CLHLS datasets and questionnaires are publicly available at Peking University Open Research Data Repository (<https://opendata.pku.edu.cn/dataset.xhtml?persistentId=doi:10.18170/DVN/WBO7LK>). Researchers may obtain the datasets after sending a data user agreement to the

CLHLS team.

**Competing interests:** The authors declare they have no competing interests or financial relationships relevant to this article to disclose.

**Funding:** It is funded by PhD Research Scholarship by King's-China Scholarship Council (K-CSC) Programme.

**Authors' contributions:** Yixiao Wang initiated and designed the study, analyzed the data, wrote and revised the article.

**Acknowledgment:** The author thanks Peking University for providing the data.

**Declarations of interest:** Not applicable.

**Author's information:** Yixiao Wang, Department of Global Health and Social Medicine, 3.01 Bush House NE, King's College, London, Strand Campus 30, Aldwych, London WC2R 2LS

## **Abstract**

**Background:** The objective of this study is to examine income-related inequality in self-rated health and functional ability among older people in China, and to further examine the contribution of socioeconomic factors to health inequality.

**Methods:** Data was drawn from the 2018 wave of the Chinese Longitudinal Healthy Longevity Survey. Concentration curves, concentration index, and decomposition analysis, well-established tools in developed countries, were employed to demonstrate income-related inequality in health among the sample.

**Results:** The better-off are more likely to have better self-rated health, and are less likely to have functional limitations, compared to the worse-off. In addition, this inequality in health outcomes is mainly driven by socioeconomic factors, such as income and education, rather than demographic factors.

**Conclusion:** There is a pressing need for the government to protect older people in lower socioeconomic status to reduce income-related inequality in health, such as cash transfers, and provide formal long-term care directly.

**Keywords:** income-related inequality, self-rated health, activities of daily living, older people, China

## **Introduction**

Population ageing has become an unprecedented challenge in China. By the end of 2019, the number of people aged 65 and above was 176 million, accounting for 12.6% of the total population [1]. Furthermore, the speed of the population ageing is growing rapidly. It is estimated that there will be more than 400 million older people in China in 2050, accounting for over 30% of the total population [2]. Along with this dramatic pace, an increasing number of older people are faced with health challenges, such as bad self-rated health and limitations in their daily activities [3]. This means that the need for healthcare and long-term care (LTC) is rising rapidly. Therefore, it is necessary to first have a clear understanding of health outcomes among older people in China.

A specific problem in health outcomes is their socioeconomic distribution, since information about this is important for both individuals and the government. In terms of individuals, health outcomes burden older people in different socioeconomic status in different ways. Those socioeconomically advantaged have a better financial ability to afford huge healthcare costs or a formal LTC. By contrast, the worse-off are more likely to be under great pressure regarding high expenditures for medical or caregiver costs, and therefore become more socioeconomically disadvantaged. In terms of the government, reducing health disparities has become an important goal in making related policies. For example, the Health China 2030 Plan was released to provide equal access to healthcare to finally reduce health inequality [5]. A clear picture of

income-related inequality in health among older people is beneficial for policy makers in order to protect this vulnerable group.

Most prior studies about socioeconomic inequality in health provide mixed findings. Some researchers found that inequalities in health favor the rich [6-8]. In particular, the rich are less likely to have limitations on their physical abilities and mobility. Gu et al. [3] suggested that people in higher income groups are more likely to have good or excellent self-rated health (SRH) than their counterparts. These findings are supported by another study, conducted by Schetter et al. [9], suggesting that the poor tend to have higher stress and negative emotions, resulting in an increased risk of suffering from diseases. Moreover, education significantly influences health inequality. Zhong et al. [10] and Liu et al. [11] found that people with a lower level of education showed a significant correlation with higher risks of limitations in functional ability. Region is another significant socioeconomic factor related to health inequality. Living in Central or Western China has a close relationship with higher functional disability, compared to those living in Eastern China [8]. People living in rural areas are more likely to experience functional limitations in daily activities [11]. In addition, having medical insurance, a socioeconomic factor, has been identified as a powerful factor in explaining health inequality. Yang & Kanavos [7] and Gu et al. [3] concluded that people with higher levels of medical insurance are much healthier and report good SRH and better functional ability. However, some researchers showed different findings regarding these socioeconomic factors' part in explaining health

inequality. Bakkeli [12] found that income does not have significant influence on disparities in functional ability. The result of a study conducted by Sun et al. [13], revealed that medical insurance does not significantly contribute to health inequality.

Generally, there are several limitations in previous studies in China. Most focused on children or adult people, instead of just older people. Also, many researchers only used SRH, a subjective indicator of health outcomes, while inequality in objective indicators, such as functional ability, was underexamined. Additionally, compared to many studies using regression analysis, few studies used the concentration index and decomposition analysis, a well-established method developed by O'Donnell, Van Doorslaer [14], Wagstaff et al. [15], and Erreygers [16]. A large number of studies in developed countries used this method to analyze income-related inequalities in health [17], but this method is seldom used in Chinese studies. Moreover, many studies used regional data rather than national data, so the findings are not representative enough for all older people in China.

Against this backdrop, I extended current literature in several ways. Drawing on data from the 2018 wave of the Chinese Longitudinal Healthy Longevity Survey (CLHLS), I used the concentration curve, the concentration index, and decomposition analysis to explore income-related inequality in SRH and functional ability among older people in China, and to examine the contribution of socioeconomic factors to the total inequality in health outcomes.

## **Data and methods**

### ***Data and sample***

Individual-level data was drawn from the 2018 wave of the CLHLS, a nationally representative interview survey of healthy longevity in China, which is available in Peking University Open Research Data Repository (<https://opendata.pku.edu.cn/dataset.xhtml?persistentId=doi:10.18170/DVN/WBO7LK>). Using internationally compatible questionnaires, this survey was the first national survey to examine determinants of health among older people in China. In order to have a nationally representative sample, this survey selected sample of the Chinese older people aged 65 and above randomly from around half of all the counties and cities of the 22 provinces, whose populations together constitute approximately 85% of the total population in China [18]. I chose this wave because this is the latest wave to capture the latest health status of older people in China. After excluding cases with missing values in self-rated health, functional ability, income and other demographic and socioeconomic variables, the final sample size was 10,078. Table 1 shows the descriptive statistics of the sample.

[Table 1 about here]

### ***Variable specification***

#### ***Dependent variable: SRH, ADL ability***

The outcomes of interest are SRH and ability in activities of daily living (ADL). The

CLHLS asked an individual ‘how do you rate their health at present’. He/she was provided with five choices: ‘very good’, ‘good’, ‘so so’, ‘bad’, ‘very bad’. Based on previous studies, SRH was constructed as a binary variable to facilitate operation in the standard method [7]. 1 indicated ‘very good’ or ‘good’, and 0 indicates ‘so so’, ‘bad’ or ‘very bad’. Regarding ADL ability, the CLHLS asked an individual ‘do you have difficulties in bathing, dressing, toileting, indoor transferring, continence, and eating’. If an individual had difficulties in either of these six items, he/she was regarded as having ADL limitations. ADL ability was a binary variable, 1 indicated having ADL limitations, and 0 indicated not having ADL limitations.

***Independent variables of interest: income***

Income was analysed as a continuous variable based on the question, ‘What was the income per capita of your household last year’. As this study examined the individual level of inequalities in health, I took household size and demographic composition into consideration to adjust household income. The Equivalent Scale is the tool used in many studies to transform the household income into an equivalent individual income [7,14]. It follows the form:  $AE = (A + PK)^F$ , where  $A$  is the number of adults in the household,  $K$  is the number of children in the household,  $P$  is the proportion of a child treated as an adult, and  $F$  is the scale economy factor that converts these adult equivalents into comparable units in terms of their efficient use of the family's resources [19]. In this study,  $P$  is 0.3,  $F$  is 0.75 [7,20]. Thus,

Adjusted household income =  $\frac{\text{Household income}}{(A+PK)^F}$ . Moreover, because income-

related inequality is sensitive to the values at the bottom and top of the income distribution, the top 0.5% and bottom 0.5% of the adjusted household income were set to be trimmed [21].

### ***Other independent variables***

Based on current literature about health among older people in China [3,6-7], we controlled a set of demographic and socioeconomic variables. In this study, demographic factors included age and gender. Socioeconomic factors included education, medical insurance, marital status, residence, regions. Education was a categorical variable, which includes illiteracy (the reference group), elementary school, and middle school and above. Marital status was constructed as a binary variable, including married and other status. Medical insurance was a binary variable, indicating whether the individual had medical insurance. Residence comprised three groups: city, town, and rural areas, and city was the reference category. Region was a categorical variable, which included North (the reference group), East, South Central, Northwest, and Southwest China.

### **Empirical strategies**

Concentration curves, concentration index, decomposition analysis, which are well-established tools in developed countries, were employed to depict income-related inequality in health outcomes among the sample [22,23]. It compares the cumulative distribution of health with the cumulative distribution of older people ranked by

income, to show clearly the direction and degree of income-related inequality in health [14,24]. This method basically includes four steps: (1) estimating a model of the determinants of health, using demographic and socioeconomic variables; (2) calculating the unstandardized Concentration Index (CI); (3) calculating standardized CI, showing income-related inequalities in health only driven by socioeconomic factors; (4) decomposing the contribution of demographic and socioeconomic factors from the total health inequality.

In the first step, although SRH and ADL ability are binary variables, it is not suitable to use non-linear regression, since it is difficult to further implement decomposition analysis. Besides, many researchers found that the results of ordinary least squares (OLS) regression do not significantly differ from that of non-linear regression [7,25]. Therefore, OLS regression was used to find the determinants of SRH and ADL ability. The model is as follows.

$$y_i = \alpha + \sum_k \beta_k N_{ki} + \sum_j \gamma_j Z_{ji} + \varepsilon_i \quad (1)$$

where  $y_i$  represents the actual health variables i.e., SRH and ADL ability,  $N_k$  represents a set of demographic factors, and  $Z_j$  represents a set of socioeconomic factors.

I further calculated CI to show income-related inequality in SRH and ADL ability.

Following the method used by O'Donnell et al. [14], CI was calculated as follows:

$$CI =$$

$$\frac{2}{\mu} cov(y_{it}, R_{it}) \quad (2)$$

Where  $\mu$  represents the mean of SRH or ADL ability in the sample,  $y_{it}$  represents SRH or ADL ability by individual  $i$  and year  $t$ ,  $R_{it}$  represents the individual's rank within income distribution. A positive CI means that there is pro-rich inequality. A negative CI implies that there is pro-poor inequality.

However, if the dependent variable is binary, then the bounds of the CI depend on the mean of the dependent variable [26]. The bounds turn out to be wider for the sample with a low mean (i.e. close to 0) than for the sample with a high mean (i.e. close to 1). Therefore, following the corrected method developed by Erreygers [16], I used Erreygers's Concentration Index (EI) as follows:

$$EI = \frac{4\mu}{(b_n - a_n)} CI$$

(3)

Where  $b_n$  and  $a_n$  represent the maximum and minimum of the dependent variable, i.e., SRH or ADL ability;  $\mu$  is the mean of SRH or ADL ability in the sample, and  $CI$  represents the CI specified in (2). The value of EI is from -1 to 1. A positive EI indicates that the health variable is more concentrated among the rich. A negative EI indicates that the health variable is more concentrated among the poor.

The inequality EI shows is driven by both demographic factors and socioeconomic factors. In order to identify only socioeconomic-related differences in health, I used indirect standardization to calculate inequalities in health only driven by

socioeconomic factors [27]. The process of standardized health variables is as follows:

$$\hat{y}_i = \hat{\alpha} + \sum_k \hat{\beta}_k N_{ki} + \sum_j \hat{\gamma}_j \bar{Z}_{ji} + \varepsilon_i \quad (4)$$

where  $\hat{y}_i$  represents the predicted value of health variables. As the equation shows, the actual values of demographic variables are used for standardisation, while the mean values of socioeconomic variables are used as controls.

The indirectly standardized health variable was calculated using the difference between actual health variable ( $y_i$ ) and the predicted value of health variable ( $\hat{y}_i$ ), adding the sample mean value of health variable  $\bar{y}$ , to find the distribution of health variable only associated with socioeconomic factors. Thus, a positive standardized EI indicates pro-rich inequality, while a negative standardized EI indicates pro-poor inequality, after controlling for demographic factors.

Decomposition analysis was adopted in the final step to calculate the contribution of each determinant to the total inequality. The model is as follows:

$$DE = 4[\alpha\mu_y C_y + \sum_k \beta_k \mu_{Nk} C_{Nk} + \sum_j \gamma_j \mu_{Zj} C_{Zj}] \quad (5)$$

where  $\mu$  is the mean,  $k$  is a vector of variables  $N_k$ ,  $j$  is a vector of variables  $Z_j$ ,  $\beta$  is the coefficient of demographic variables  $N$ ,  $\gamma$  is the coefficient of demographic variables  $Z$ ,  $C_y$  is the CI for the residual,  $C_{Nk}$  is the CI for demographic

factors,  $C_{Zj}$  is the CI for socioeconomic factors.

## **Results**

### ***Descriptive analysis***

Figure 1 presents the standardized percentages for SRH and ADL ability by income quintile. The rich are more likely to have better SRH. The percentage reporting good SRH among the poorest group is 39.99%, while it is 43.54% among the richest group. The rich are less likely to have ADL limitations. The percentage having ADL limitations among the poorest group is 7.10%, while it declines to 6.03% among the richest group.

[Figure 1 about here]

### ***Determinants of health***

Table 2 presents the determinants of SRH and ADL ability using the linear probability model, where those coefficients are used to calculate and decompose the concentration index in the next step. As Table 2 shows, both demographic and socioeconomic factors have a significant impact on health. In terms of SRH, an increase in age is associated with a decline in the probability of having good SRH. Male older people have a higher likelihood of having good SRH. Income has a significantly positive association with SRH. The rich are more likely to have good SRH, compared to the poor. The relationship between education and SRH is also significant. In addition, residence and region are significantly related with SRH. In

particular, living in rural areas significantly increases the likelihood of having good SRH. Compared to those living in North China, those living in South Central and Southwest China show a decreased likelihood of having good SRH.

The main determinants of SRH are similar to those for ADL ability, except for gender and residence. In particular, with an increase in age, the probability of having ADL limitations significantly increases. Income is significantly associated with ADL ability. An additional increase in income reduces the likelihood of having ADL limitations. The relationship between education and ADL limitation is also significant. Compared to those without education, those with higher education have a higher likelihood of being independent in terms of ADL. Moreover, region has a close relationship with ADL ability.

[Table 2 about here]

### ***Income-related inequalities in health***

Figure 2 and Figure 3 show the concentration curves for SRH and ADL ability respectively, plotting the cumulative percentage of health variables against the cumulative percentage of the total population, ranked by income from the poorest to the richest. There are two curves in these two figures, one curve is the unstandardized concentration curve, showing inequalities driven by both demographic and socioeconomic factors; the other one is the standardized concentration curve, showing inequalities driven only by socioeconomic factors. If the curve is a 45-degree line

from the bottom left-hand corner to the top right-hand corner, the health variable is not related to socioeconomic status. If the curve lies below the 45-degree line, there is pro-rich inequality. By contrast, if the curve lies above the 45-degree line, there is pro-poor inequality. The farther the curve lies from the 45-degree line, the greater the degree of income-related inequalities in health variable is [14]. In Figure 2, both the unstandardized concentration curve and the standardized concentration curve lie below the 45-degree line, indicating that inequalities in having good SRH favor the rich. In Figure 3, both the unstandardized concentration curve and the standardized concentration curve lie above the 45-degree line, indicating that inequalities in having ADL limitations favor the poor.

[Figure 2 about here]

[Figure 3 about here]

These findings are supported by the concentration index in Table 3. For SRH, the unstandardized EI is 0.068, and the standardized EI is 0.033. This suggests that the rich are more likely to have good SRH, even controlling for demographic factors. For ADL ability, the unstandardized EI is -0.016, and the standardized EI is -0.003. This suggests that the poor are more likely to have ADL limitations, even controlling for demographic factors.

[Table 3 about here]

### ***Explaining health inequality***

The concentration curves and the concentration index show that older people with a lower income have a higher risk of reporting poor health. I further used the decomposition method to calculate the contribution of these determinants to total income-related health inequality, and the result is shown in Table 4. The first column shows the concentration index for each determinant, e.g., age, gender, indicating the distribution of the determinants across income. Older people of higher ages, those having medical insurance, those living in towns or rural areas, and those living in South Central, Northwest, or Southwest China were more likely to have lower incomes.

The other columns show the contribution and relative contribution of these determinants to total income-related health inequality. For SRH, income makes the greatest contribution to total inequality, at 127.05%. Demographic factors contribute 3.50% to total inequality, while education factors, residence factors, and region factors contribute -24.5%, -42%, and 18.77%, respectively, to total inequality, suggesting that the pro-rich inequality in good SRH is mainly driven by socioeconomic factors. For ADL ability, 100.95% of the total inequality disadvantaging the poor in regard to having ADL limitations is driven by income. The contribution of demographic factors to total inequality is much higher, reaching around 30%, compared to inequality in SRH. The contributions of education factors, residence factors, and region factors to total inequality are 28.76%, -35.71%, and -37.33%, respectively. In conclusion, a large share of the inequality in health among

older people is related to socioeconomic factors.

[Table 4 about here]

### ***Robustness checks***

I performed a set of robustness checks. The first robustness check replaced the binary variable in SRH with a categorical variable, including five dummy variables: 1, 2, 3, 4, and 5 representing very bad, bad, so-so, good, and very good, respectively. The second robustness check replaced the binary variable in ADL ability with the number of ADL limitations. These robustness checks showed similar results to the main results (see Supplementary Table 1, 2, 3).

### **Discussion and conclusion**

Using the 2018 wave of the CLHLS data, this study investigated income-related inequality in health among older people in China. I found that the better-off are more likely to have better SRH, and are less likely to have ADL limitations, compared to the worse-off. In addition, this pro-rich inequality in health is mainly driven by socioeconomic factors, rather than demographic factors.

Among those socioeconomic factors, income makes the greatest contribution to total inequality in health, which is consistent with many previous studies [3,7,28]. This could be explained in several ways. Researchers have found that the poor tend to have unhealthy behaviours, such as smoking and drinking, while the rich are more likely to

afford healthy behaviours in order to have a healthier body weight [29]. In addition, compared to the poor, the rich have a higher probability of paying more attention to their health in the long run, such that they use preventative healthcare services to invest in their health [30]. However, this is almost impossible for the poor. Although several medical schemes have been launched to help poor people get healthcare services, their impact is limited [20]. Put differently, the poor still cannot afford the high costs of medical care, not to mention preventative care services. In addition, lower income has a close association with mental stress, which may ultimately lead to poor health or even death [31].

Another key finding is that education plays different roles in explaining SRH and ADL ability in this study. Older people with more education had worse SRH but better ADL ability. One possible explanation is the difference between subjective and objective indicators of health, which has been found in other studies [32,33]. SRH is a subjective indicator of health, related to an individual's awareness. Those with higher education have a higher tendency to focus on their health, and have greater access to health information and healthcare [31]. With this additional knowledge about health and more frequent visits to the hospital, they may investigate some problems that are hard to find in normal life [33]. Therefore, those with more education might have a lower rate of good SRH. By contrast, those with less education have a lower awareness of their health and a lower financial ability to pay for screening. Without this awareness and affordability, they regard themselves as healthy instead. In

addition, SRH is related to many other factors, such as chronic disease, outdoor activities, and depression, not just ADL ability [34]. In other words, even if some older people with more education have bad or fair SRH, they may have other problems but still have good functional ability, according to these six items.

Moreover, it is interesting to find that having medical insurance does not have close relationship to health and makes only a small contribution to total inequality in health, which is consistent with some studies [13]. As Table 1 shows, the percentage of people who have medical insurance is particularly high, reaching around 90%, so it is reasonable that medical insurance is not significantly related to health in this study.

The findings from this paper provide the government with important policy implications with regard to LTC in China. Older people in lower-income groups are more likely to have ADL limitations. This indicates that the poor tend to have a greater need for LTC, but those who require LTC are those who are less likely to be able to afford it. In this way, the poor have to rely on informal caregivers. However, an increasing number of poor family members have moved to developed areas from underdeveloped areas in the wake of urbanization. Typically, those adult children can only provide financial support to their parents, instead of instrumental support [35]. In many European countries, such as Germany and France, poor older people can choose to receive a cash allowance, direct services, or a combination of both, so they can rely on formal LTC to meet their needs when informal care is not sufficient [36,37].

Learning from these lessons, the government should protect poor older people in order to reduce income-related inequalities in health. Furthermore, it is necessary for the government to improve people's educational attainment, so as to increase their health awareness. This may reduce income-related inequality in ADL disability in the long run. Last but not least, the Chinese government should pay more attention to objective indicators of health, since subjective indicators might cause bias. In order to accurately target those who with a poor health status and to meet their needs using limited resources, it is better to use objective indicators in order to have a precise picture of health among older people in China.

It is worth noting that there are several limitations to this study. First, the data used in this study are cross-sectional rather than longitudinal. However, it is reasonable to use cross-sectional data, since this study aims to capture the latest health status in China. Second, some independent variables may have been neglected in the analysis. It is possible that there are other factors influencing health that were not captured by the questionnaire. Third, this study examined the level of income-related inequality, but establishing the causal impact of income on health requires more sophisticated approaches that appropriately control for selection and unobserved confounding. Further research is needed to understand the causal mechanisms underlying the pro-rich inequality in health.

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Table 1. Descriptive statistics of the sample

<b>Variable</b>	<b>Definition</b>	<b>Mean</b>	<b>SD</b>
<b>Health variables</b>			
<b>Self-rated health</b>	Dummy variable: 1 good; 0 otherwise	0.432	0.495
<b>ADL ability</b>	Dummy variable: 1 having limitation; 0 otherwise	0.264	0.441
<b>Demographic variables</b>			
<b>Age</b>	Continuous variable	85.589	11.585
<b>Gender</b>	Dummy variable: 1 male; 0 female	0.438	0.496
<b>Socioeconomic variables</b>			
<b>Income</b>	Continuous variable	14540.140	13300.350
<b>Education</b>			
Illiteracy	Dummy variable: 1 illiteracy; 0 otherwise	0.817	0.386
Elementary school	Dummy variable: 1 elementary school; 0 otherwise	0.141	0.348
Middle school and above	Dummy variable: 1 middle school and above; 0 otherwise	0.041	0.199
<b>Having medical insurance</b>	Dummy variable: 1 having medical insurance; 0 otherwise	0.883	0.322
<b>Marital status</b>	Dummy variable: 1 married; 0 otherwise	0.392	0.488
<b>Residence</b>			
City	Dummy variable: 1 city; 0 otherwise	0.222	0.416
Town	Dummy variable: 1 town; 0 otherwise	0.332	0.471
Rural	Dummy variable: 1 rural; 0 otherwise	0.446	0.497
<b>Regions</b>			
North	Dummy variable: 1 north; 0 otherwise	0.058	0.234
Northeast	Dummy variable: 1 northeast; 0 otherwise	0.042	0.202
East	Dummy variable: 1 east; 0 otherwise	0.405	0.491
South Central	Dummy variable: 1 south Central; 0 otherwise	0.365	0.481

Northwest	Dummy variable: 1 northwest; 0 otherwise	0.011	0.103
Southwest	Dummy variable: 1 southwest; 0 otherwise	0.119	0.324

Figure 1. Standardized percentages for SRH and ADL ability by income quintile

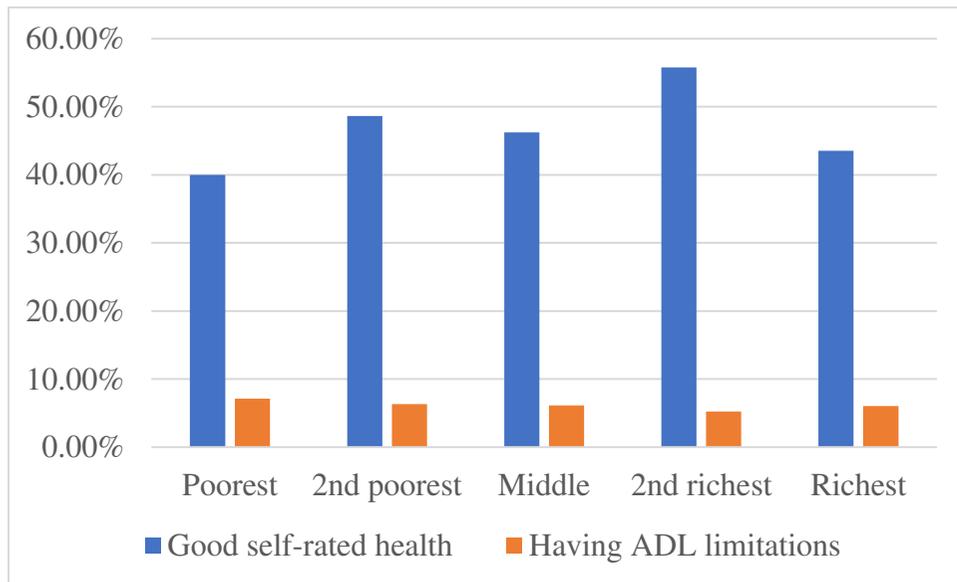


Figure 2. Concentration curves for standardized SRH

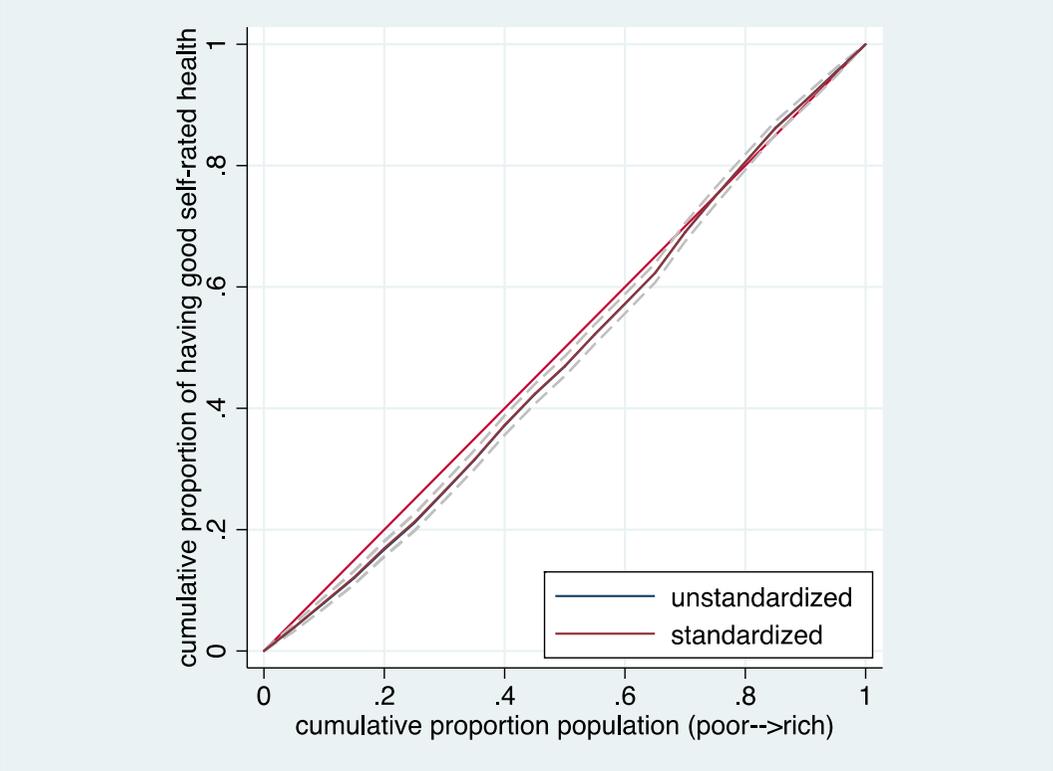


Figure 3. Concentration curves for standardized ADL ability

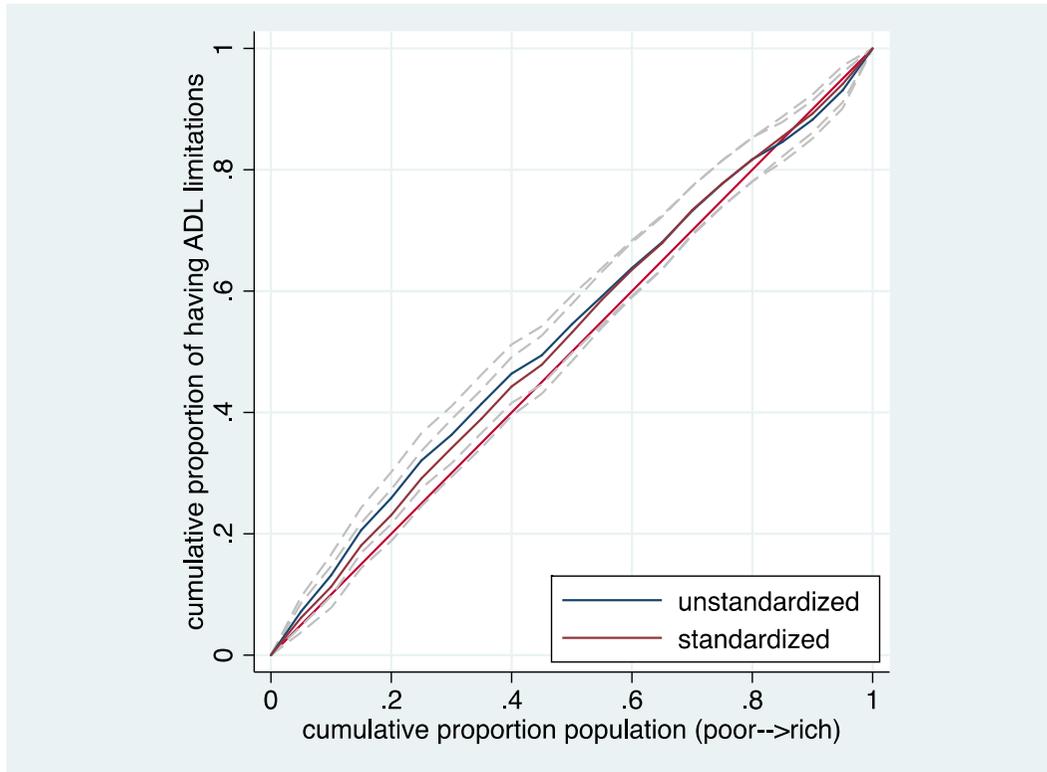


Table 2. Erreygers's concentration index for SRH and ADL ability

	<b>SRH</b>	<b>Having ADL limitations</b>
<b>Unstandardized EI</b>	0.068	-0.016
<b>Standardized EI</b>	0.033	-0.003

Table 3. Determinants of SRH and ADL ability

	SRH	ADL ability
<b>Demographic variables</b>		
Age	-0.003 (0.001) ***	0.009 (0.000) ***
Gender	0.065 (0.016) ***	0.001 (0.006)
<b>Socioeconomic variables</b>		
Income	0.028 (0.005) ***	-0.005 (0.002) **
<b>Education (ref=Illiteracy)</b>		
Elementary school	-0.039 (0.021) *	-0.017 (0.007) **
Middle school and above	-0.128 (0.034) ***	-0.027 (0.010) ***
Having medical insurance	-0.022 (0.027)	-0.007 (0.011)
Marital status	0.017 (0.018)	0.008 (0.006)
<b>Residence (ref=City)</b>		
Town	0.032 (0.023)	-0.008 (0.009)
Rural	0.074 (0.023) ***	-0.014 (0.009)
<b>Regions (ref=North)</b>		
Northeast	0.019 (0.049)	0.092 (0.028) ***
East	-0.036 (0.035)	-0.024 (0.015)
South Central	-0.091 (0.036) ***	-0.034 (0.015) **
Northwest	--0.097 (0.084)	0.017 (0.026)
Southwest	-0.083 (0.039) **	-0.029 (0.017) *
Constant	0.451 (0.110) ***	-0.471 (0.048) ***
N	10,078	

Table 4. Decomposition results of SRH and ADL ability

	CI	SRH		ADL ability	
		Contribution	Relative contribution	Contribution	Relative contribution
<b>Age</b>	-0.002	0.002	2.57%	-0.005	29.99%
<b>Gender</b>	0.005	0.001	0.92%	0.000	0.00%
<b>Income</b>	0.087	0.086	127.05%	-0.016	100.95%
<b>Education</b>					
Elementary school	0.163	-0.005	-7.39%	-0.002	13.43%
Middle school and above	0.385	-0.012	-17.11%	-0.002	15.33%
<b>Having medical insurance</b>	-0.004	0.000	0.48%	0.000	-0.60%
<b>Marital status</b>	0.006	0.000	0.45%	0.000	-0.88%
<b>Residence</b>					
Town	-0.106	-0.004	-5.99%	0.001	-6.68%
Rural	-0.172	-0.024	-36.01%	0.005	-29.03%
<b>Regions</b>					
Northeast	0.136	0.000	0.64%	0.002	-13.32%
East	0.020	-0.001	-1.85%	-0.001	5.16%
South Central	-0.091	0.011	16.05%	0.004	-25.23%
Northwest	-0.178	0.001	0.86%	0.000	0.64%
Southwest	-0.053	0.002	3.07%	0.001	-4.57%
<b>Demographic factors</b>		0.002	3.50%	-0.005	29.99%
<b>Main avoidable social factors</b>		0.055	80.24%	-0.009	55.20%
<b>Residual</b>		0.011	16.26%	-0.002	14.81%
<b>Total</b>		0.068	100.00%	-0.016	100.00%

## Figures

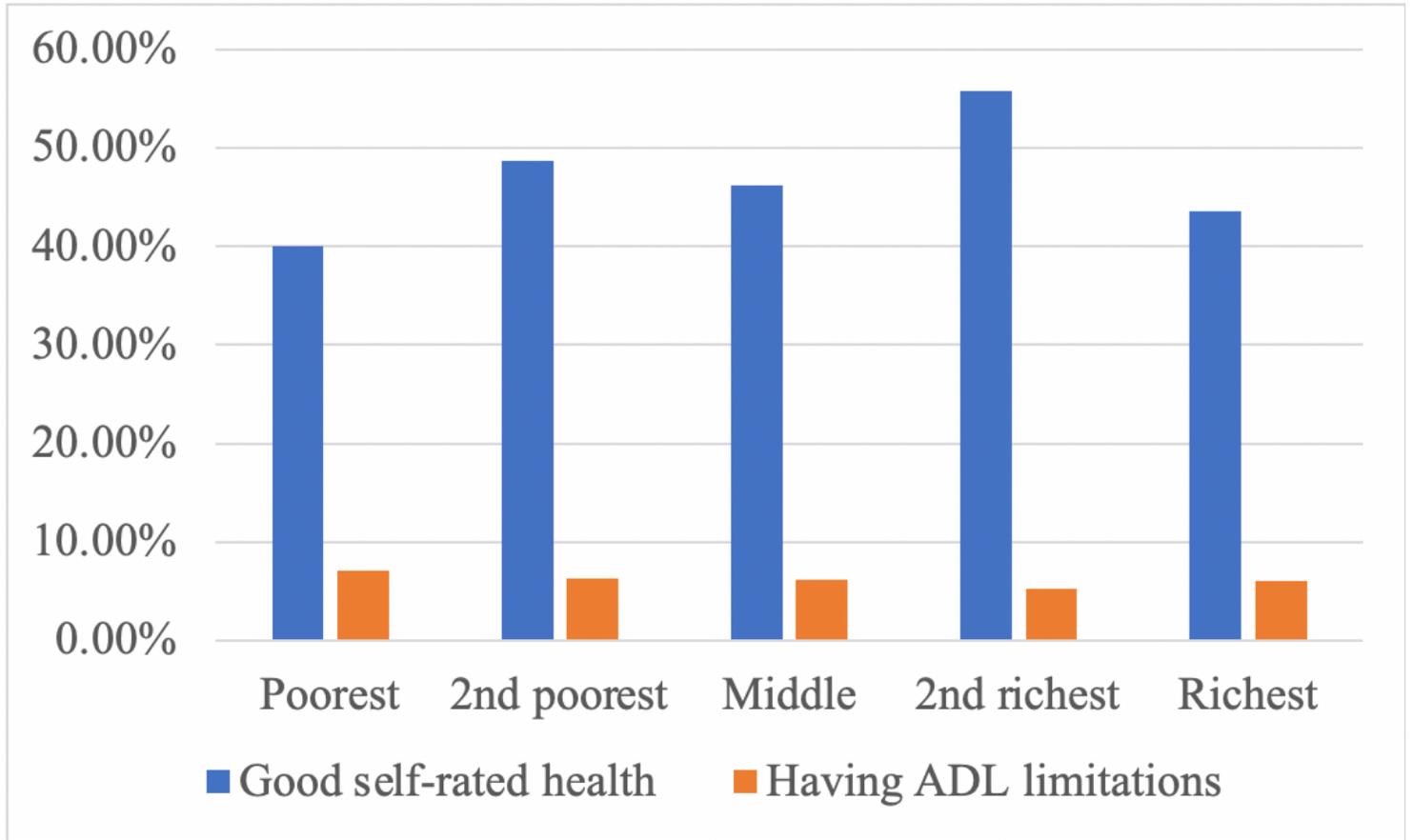


Figure 1

Standardized percentages for SRH and ADL ability by income quintile

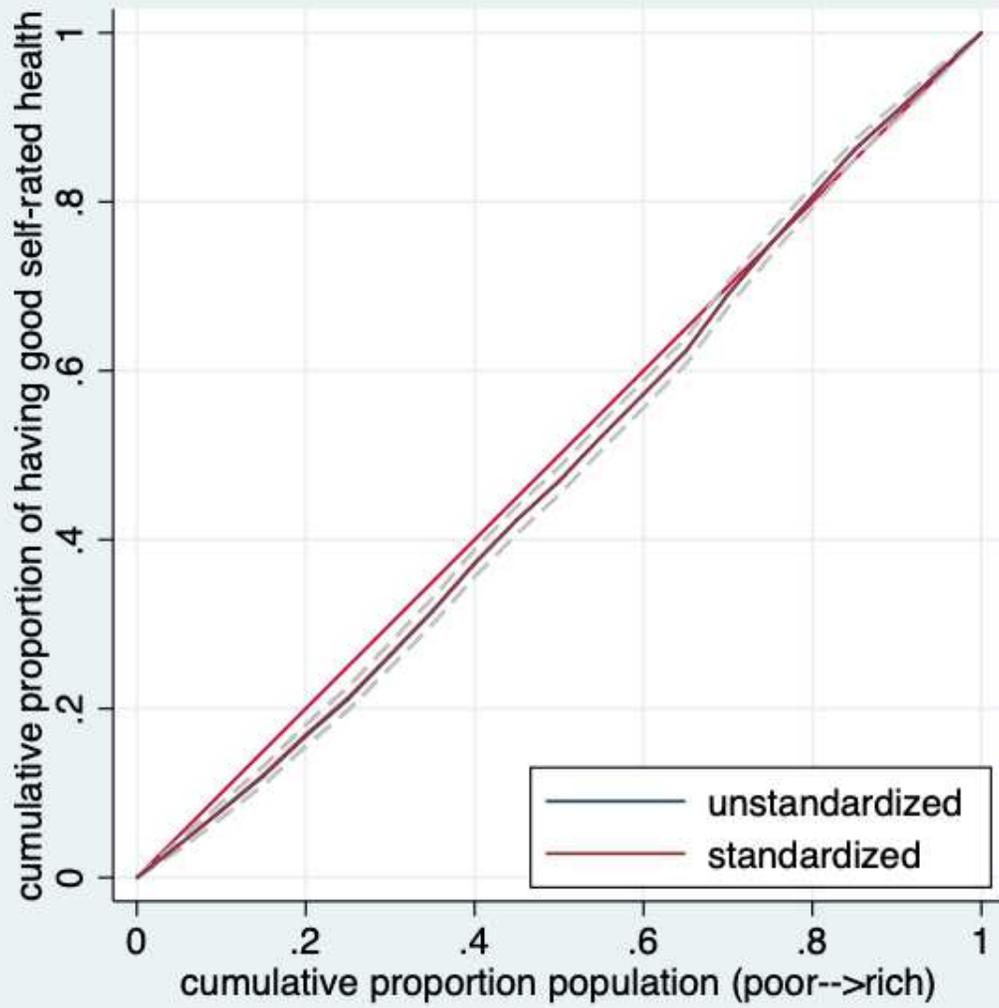


Figure 2

Concentration curves for standardized SRH

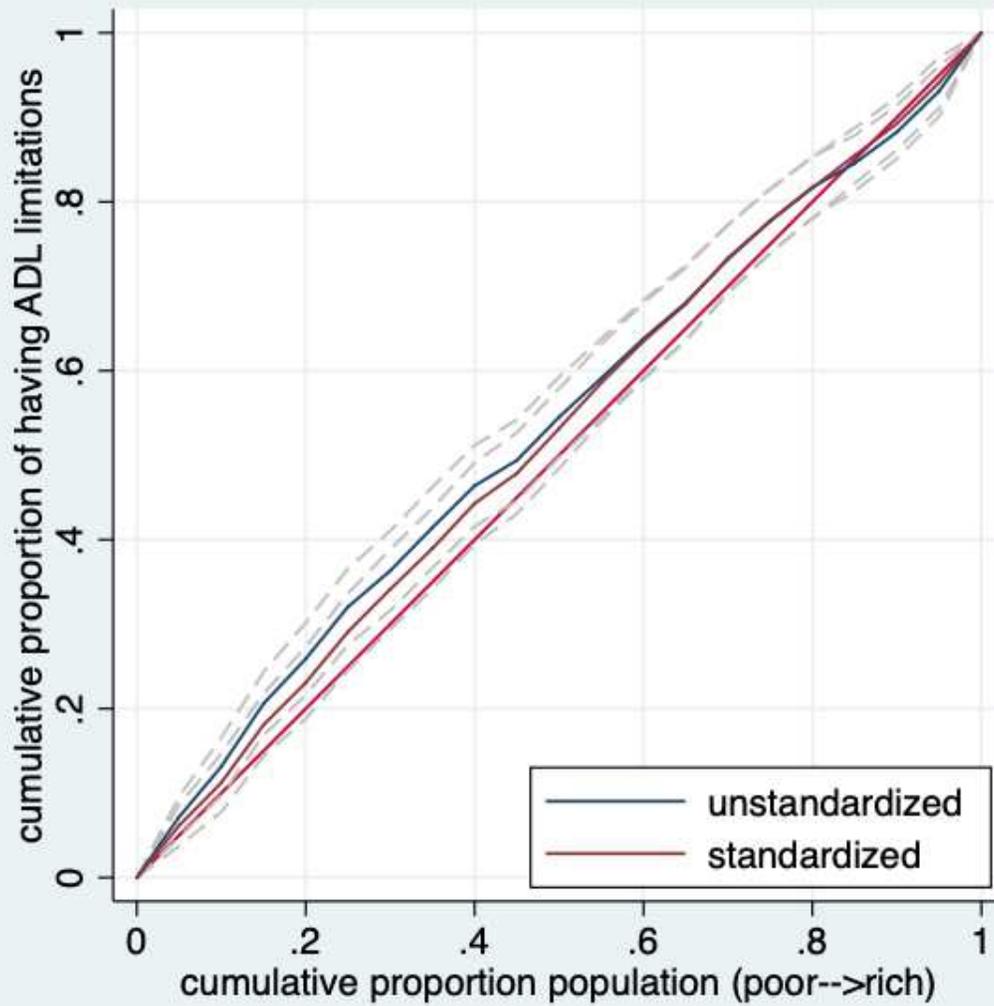


Figure 3

Concentration curves for standardized ADL ability

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