École des Hautes Études en Sciences Sociales

Universal social health protection in Indonesia: The effect of health insurance on healthcare access for the chronically ill

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Introduction

Horizontal equity in access to health care, which is the equal access to health care and underlying determinants of health, as well as to means and entitlements for their procurement,[1] is one of the major foci of contemporary justice driven policymaking. However, research across the developed and the developing world consistently shows that *de facto* horizontal equity in access to healthcare services remains an elusive goal.[2]

Securing equal access to healthcare is a priority in the face of the global chronic disease epidemic. Chronic diseases or non-communicable diseases (NCDs), such as cancer, diabetes, and Alzheimer's disease, are medical conditions that are not contracted from infectious pathogens and affect substantial amounts of the population in developed and developing countries.[3] With the diminished spread of infectious diseases, the problem facing populations and health systems is the global rise of chronic disease, which is among the most costly to treat due to its long-term symptoms.

The financial burden of chronic disease on patients can be lifted in part by social health protection. Social health protection schemes are "designed to … reduce the indirect costs of disease and disability".[4] Often, these schemes take the form of subsidized or expanded access to health insurance for low-income and marginalized groups. Being that the cost of caring for chronic disease, like dialysis for kidney failure, can generate an enormous financial burden on low-income households, such policies will be important in mitigating affordability and access to prescribed health treatment.

Indonesia, despite its status as a lower middle income country[5], provides a rich context to investigate the nexus between horizontal health equity, social health protection, and chronic disease management. In 2014, Indonesia launched one of the world's more ambitious social health insurance schemes: their universal social health insurance drive targets full insurance coverage of the Indonesian population by 2019.[6] This strategy is comprised of a mix of centralized and locally administered schemes that are financed by the state or contributions from the patient.[7]

Likewise touched by the global chronic disease epidemic, Indonesia's social health insurance expansion will likely impact health seeking behavior. Chronic diseases rank among the leading causes of mortality in Indonesia[8]: according to the World Health

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[1] Taken from the 1966 International Covenant on Economic, Social and Cultural Rights.

[2] See Arcaya, Arcaya and Subramanian (2015) for an overview of health inequities and inequalities. For some examples of disparities in horizontal health equity across the world, see: France (Berchet and Jusot, 2012), Mexico (Salinas 2010, Vargas Bustamante et al. 2012), India (Vadrevu and Kanjilal, 2016).

[3] See Hussein, Huxley and Al Mamun (2015), for example.

[4] ILO (2008).

[5] It can be argued that developing countries are not ideal to study horizontal health inequity. However, horizontal inequity in healthcare utilization is just as common a problem across the array of developed countries as it is across developing countries.

[6] Pisani, Kok and Nugroho (2014).

[7] For example, Indonesia has implemented a range of private commercial health insurance plans that cover richer Indonesians, health insurance for civil servants (PT Askes), programs for private workers in companies with more than 10 employees (Jamsostek), a range of community health schemes ("bapels"), microfinanced community-based risk sharing schemes, and various others. See Scheil-Adlung, (2005).

[8] WHO (2015).

Organization, stroke, heart disease, and diabetes (mellitus) accounted for 36.6% of total deaths in 2012, with an increased share of deaths for heart disease and diabetes since 2000.[9]

Yet, despite a burgeoning health burden and increased health coverage, horizontal inequity is still persistent in health consultation for chronic disease in Indonesia.[10] Ongoing research is revealing that despite a large-scale effort to render healthcare financially accessible, horizontal equity has not been achieved as of yet.[11] The management of chronic diseases is pertinent to the sociological discussion on inequality insofar as some of the risk factors contributing to chronic disease are socially determined.[12] In relation to horizontal access disparities, the cost of healthcare services, age, gender, educational attainment, location, occupational status, and religion are among the main sociological determinants that have been studied in the Indonesian context.[13]

This paper will attempt to look at both the determinants of health utilization for chronic disease patients and the impact of social health protection (in the form of any health insurance) on healthcare utilization in Indonesia. Using t-tests and logistic regression, it will attempt to measure differences in healthcare utilization for those with specific medical needs, then to assess the role that social healthcare protection, in the form of health insurance, plays in the likelihood that an individual with diagnosed medical needs consults with healthcare practitioners.

Research questions

Given the prevalence of chronic disease and health conditions requiring frequent medical service, to what extent does the presence of social health protection (health insurance) affect access to healthcare (defined as healthcare utilization)?

Data and methodology

Data

The Indonesian Family Life Survey (IFLS) is a longitudinal household survey launched in 1993/94. The study is undertaken by the RAND Corporation, a not-for-profit think tank based in the United States, and contains extensive information on health status, demographic information, household consumption and revenue, and subjective health and wellbeing indicators. This paper will look at the latest cross-sectional wave of the panel, which was completed in 2014-15.

The sampling method in IFLS1 (1993) stratified at the provincial level, and then enumerated urban/rural areas, then randomly sampled individuals within these strata (Frankenberg and Karoly, 1995). The IFLS1 sample was administered in 1993 to 7,224 households, which represented about 83% of the Indonesian population in 13 of its 26 provinces. While the original survey sampling plan is not fully nationally representative,[14]

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[9] *Ibid.*

[10] Susilo et al. (2014).

[11] Schröders et al. (2017).

[12] WHO (2017).

[13] *Ibid.*

[14] RAND's cross-sectional sampling weights, however, match the IFLS5 to the 2014 population, as sampled by the SUSENAS (2014).

each wave still covers around 30,000 individuals and collects data on individual respondents, their families, their households, and the communities in which they live. In IFLS5 (2014), the re-contact priorities were the 1993 main respondents and split-off households if the split-off member is a child of a household surveyed in the IFLS1.

Definition of key concepts

Access to healthcare based on health needs

Access to healthcare can and has been measured in a number of ways, of which ability to purchase healthcare services, healthcare utilization for healthcare need, and ability to receive consistent and quality care are the most prominent.

This project selects utilization of healthcare services to meet healthcare needs as the basis for the determination of equitable healthcare access. Because need for healthcare may also be subjectively determined, this report will prioritize two medical states for which a medical needs assessment is less controversial and easily captured: (1) individuals with chronic disease(s), and the (2) elderly with chronic diseases. For these populations, (non-)utilization of medical services will be considered an accurate proxy for access on the basis of medical need.

Individuals with chronic diseases are identified using the question CD05, wherein

"Have [*sic*] a doctor/paramedic/nurse/midwive [*sic*] ever told you that you had":

Arthritis/rheumatism	Cancer or malignant tumor
High Cholesterol (Total or LDL)	Hypertension
Prostate illness	Diabetes or high blood sugar
Kidney disease	Tuberculosis (TBC)
Stomach or other digestive disease	Asthma
Emotional, nervous, or psychiatric problems	Other lung conditions
Memory-related disease	Heart attack
Stroke.	

Although there is a large body of literature citing cost of healthcare services as a prominent reason for which medical treatment is usually forgone, it was not possible to include this variable in the model in a way that would not distort the data (*e.g.*, by filling in zero medical expenditure for patients who had not received care) without changing the method from multiple logistic regression to conditional logistic regression (allows for matching). With an unclear but likely non-standardized pricing structure for medical treatment in Indonesia, which is not only likely to vary due to the personalization of treatment plans that depends largely on physiological factors and the progression of the disease determined by biological test results (not extensively covered by the IFLS), the internal validity of such an attempt would likely be statistically invalid.

Socio-demographic characteristics

The primary socio-economic characteristics are included as controls: age, gender, educational attainment, employment status, and religion[15]. Although location (urban or rural) is also a strongly cited factor for disparities in accessing healthcare, a stronger predictor of propensity to utilize healthcare services is distance (also measured as the patient's travel time) from the patient's home to the healthcare facility. Educational

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[15] Religion has been cited by some as a reason for which healthcare need goes unmet in Indonesia (NRC, 2013).

attainment is classified in five categories: no education, primary level, lower secondary, upper secondary and tertiary education.

Physical and environmental health risk factors

The social determinants school of health emphasizes the importance of understanding individual health outcomes as a product of a dynamic process in which social interaction and social processes influence not only the health choices individuals make, but also the manifestation of certain non-communicable diseases. These environmental factors act as proxies for the ease of life and social standing of an individual in their society-at-large, which affect disease risk factors and biological processes (stress and high blood pressure, for example).[16] This view can be at odds with the "medical" school of health, which interprets health outcomes as solely the product of an individual's physiology and free choices. Social capital, living conditions/environmental determinants, such as the location in which the individual lives, the degree of social connection, amount of monetary and social investment in neighborhoods, and socio-demographic characteristics are seen as the main determinants of health.

While social capital can be difficult to capture in Indonesian society, given the multiplicity of potential social fractures by ethnicity/culture, income per capita will be used as a proxy for the recognition of "market value" of an individual's social and cultural background and access to resources. Any adverse conditions of the individual's shelter were captured in the model using data derived from the interviewer's observations of the home. The interviewer observed the following conditions: human or animal waste or trash near the house, stagnant water surrounding the house, proximity to a horse stable, sufficient ventilation, well-kept house, moderately sized yard, outdoor kitchen, room for cooking is the same for sleeping.

In addition, variables capturing proxies of physical health will be used as risk factors for poor health, such as body mass index (BMI), smoking behavior, physical activity, and will be added to the list of health risk factors. Theoretically, for the populations already suffering from chronic conditions, health risk factors will be highly correlated with their status as a chronic disease patient. To avoid multicollinearity, these controls will therefore be dropped for the subsequent groups.

Sample characteristics: demographic information

Table 1 provides a summary description of the variables used in the regression models.

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[16] Cockerham, Hamby, and Oates (2017).

Table 1. Summary of variables

Variables	N	Mean	SD	Min	Max
Received care	34,210	0.18	0.38	0	1
Has health insurance	34,227	0.49	0.50	0	1
Socio-demographic variables					
Female	75,593	0.50	0.50	0	1
Educational attainment	65,187	2.83	1.24	1	5
Location: Rural	75,680	0.41	0.49	0	1
Religious (Devout and moderate)	30,740	0.79	0.41	0	1
Employed	34,433	0.73	0.45	0	1
Quintile of per capita income	75,471	5.10	3.30	1	10
Health risk factors					
Age	71,623	33.07	22.10	0	119
Pregnant	75,680	0.01	0.09	0	1
Diagnosed with chronic illness	75,680	0.15	0.36	0	1
Follows prescribed treatment for chronic condition	75,680	0.04	0.19	0	1
Length of time lived with chronic condition	11,012	6.15	8.75	0	75
Mean length of time to nearest relevant health facility (minutes)	70,860	11.69	6.74	0	210
Takes non-prescribed health supplements	31,418	0.68	0.47	0	1
Shelter is not in good physical condition	75,671	0.33	0.13	0	1
Disabled	75,680	0.05	0.21	0	1
Feels healthy	31,603	0.80	0.40	0	1
Physically active	31,463	0.49	0.29	0	1
BMI	47,783	21.04	5.23	3.73	68.76
Felt health was poor as a child	31,421	0.07	0.26	0	1
Is/was a smoker	34,271	0.37	0.48	0	1
Socially active (in civic participation projects)	30,628	0.36	0.30	0	1
Is the head of household (elderly)	75,680	0.14	0.35	0	1
Spouse is the head of household (elderly)	75,680	0.11	0.31	0	1
Biological child is the head of household (elderly)	75,680	0.39	0.49	0	1
Child-in-law is the head of household (elderly)	75,680	0.01	0.11	0	1

Note: Mean length of time includes different health facilities depending on need. The facilities for pregnant women, for example, included midwives, traditional birth assistants, pharmacies, hospitals (public and private), physicians (public and private), private clinics, public health centers, and nurses or paramedics.
Source: Indonesian Family Life Survey 5 (2014).

Method

Determinants of health seeking behavior

In order to test the effect of health insurance on health seeking behavior, logistic regressions will be run in order to determine the intensity and the direction of a potential effect of the main independent variable for the general population, the chronically ill, and the elderly chronically ill samples.

The main determinants of health seeking behavior for this model are whether or not the individual is covered by health insurance, along with demographic information and subjective health assessments. The IFLS5 provides data on visits to a "public hospital,

puskesmas,[17] private hospital, clinic, health worker or doctor's practice or been visited by a health worker or doctor" in the past four weeks.

Basic model of health seeking behavior (general population)

The model for likelihood of healthcare utilization is as follows:

$$Y_i = \beta_0 + \beta_1' X_i + \beta_2' P_i + \beta_3 healthins_i + \beta_4 traveltime_i + \epsilon_i$$

where:

Y_i = individual's (i) likelihood of consulting a doctor

X_i = a vector of socio-demographic characteristics: gender, location, income decile, etc.

P_i = a vector of individual's health and risk factors: age, smoking status, self-assessed wellbeing, etc.

$healthins_i$ = individual's health insurance status

$traveltime_i$ = length of time (minutes) to the nearest place of healthcare service

Chronically ill

While the barriers to access may not necessarily change for the chronically ill, the determinants of health-seeking behavior might. Factors, such as the length of time the individual has lived with their chronic illness and their personal investment in treating it will likely play a role in the decision to check-in with their doctor in the past four weeks. The dummy variable indicating chronic illness was also removed.

$$Y_{ij} = \beta_0 + \beta_i' X_i + \beta_2' P_i + \beta_3 healthins_i + \beta_4 traveltime_i + \beta_5 investment_{ij} + \beta_6 duration_{ij} + \epsilon_i$$

where:

$investment_{ij}$ = individual's personal investment in keeping up with prescribed treatments for their condition (j)

$duration_{ij}$ = number of years the individual has lived with the diagnosis

Chronic disease among the elderly

The age bracket of the sample will be reduced to individuals aged 60 and over. The pregnancy variable is removed due to medical impossibility, given the age range of the restricted sample. Additionally, in a number of cultures, it is common to reduce the autonomy of aging and chronically ill individuals, and instead give this decision making power to their caretakers. A fifth hypothesis tested here is the propensity to seek care if the elderly do not enjoy a high social status in the household, or if the elderly do not enjoy decision-making power in the household. They may be less likely to be able to frequent a health practitioner as desired, despite having been diagnosed with chronic disease.

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[17] Puskesmas are government-mandated community health clinics.

$$Y_{ij} = \beta_0 + \beta_i' X_i + \beta_2' P_i + \beta_3 healthins_i + \beta_4 traveltime_i + \beta_5 investment_{ij}$$
$$+ \beta_6 duration_{ij} + \beta_7 statusHHH_i + \epsilon_i$$

where:

$statusHHH_i$ = a series of dummy variables that captures elderly individual's relationship to the household head (HHH): one's self is the HHH, one's spouse is the HHH, one's biological child is the HHH, or one's child-in-law is the HHH.

Results

Table 2 shows the percentage of persons who have seen a healthcare practitioner based on their status as a healthcare policy holder.

Table 2. Differences in care received based on health insurance status

| Care received | Total population | | | | Chronically ill | | | | Elderly chronically ill | | | |
| | Health insurance (%) | | | | Health insurance (%) | | | | Health insurance (%) | | | |
	No	Yes	Total	T-test	No	Yes	Total	T-test	No	Yes	Total	T-test
No	52.45	47.55	100		47.29	52.71	100		49.9	50.1	100	
	83.98	79.77	81.92		74.08	69.61	71.65		69.39	62.7	65.87	
Yes	45.34	54.66	100		41.83	58.17	100		42.47	57.53	100	
	16.02	20.23	18.08		25.92	30.39	28.35		30.61	37.3	34.13	
Total (N)	17,504	16,706	34,210	-10.14	5,216	6,186	11,402	-5.28	1,088	1,209	2,297	-3.39
	51.17	48.83	100	(0.0000)	45.75	54.25	100	(0.0000)	47.37	52.63	100	(0.0007)
	100	100	100		100	100	100		100	100	100	

Note: P-values for the t-tests are listed in parentheses.
Source: Author's calculations based on Indonesian Family Life Survey 5 (2014).

Patterns of healthcare utilization (within the past month) by health insurance status indeed vary significantly according to health insurance status, even for the populations of the chronically ill. For each sample population, the student's t-value is greater than the bounds of ± 1.96 (for an alpha value of 0.05), with a statistically significant p-value at the 99% confidence level (less than 0.001 for each t-statistic), allowing us to conclude that there is a general difference in health-seeking behavior of those who have and those who do not have health insurance, despite their status as a chronically ill, or elderly and chronically ill person (Table 2).

Health utilization and access, by medical need

Table 3 displays the logistic regression outputs, showing determinants of health-seeking behavior for the entire population, the chronically ill, and the elderly chronically ill.

Table 3. Differences in health-seeking behavior

	Total population				Chronically ill		Elderly chronically ill			
	(1)		(2)		(3)		(4)		(5)	
	Baseline		Including insurance		Including insurance		Including insurance		HHH status, including insurance	
Age	1.008***	(1.005 - 1.010)	1.008***	(1.005 - 1.010)	1.004*	(1.000 - 1.008)	0.996	(0.974 - 1.018)	0.997	(0.975 - 1.020)
Female	1.398***	(1.261 - 1.549)	1.404***	(1.267 - 1.556)	1.232***	(1.057 - 1.436)	0.638**	(0.439 - 0.929)	0.667*	(0.443 - 1.004)
Education: No education (reference: Tertiary)	1.025	(0.847 - 1.241)	1.072	(0.885 - 1.299)	1.504***	(1.138 - 1.988)	1.804*	(0.984 - 3.305)	1.832*	(0.997 - 3.366)
Education: Primary	0.921	(0.821 - 1.033)	0.955	(0.851 - 1.071)	1.170*	(0.986 - 1.389)	1.133	(0.688 - 1.868)	1.140	(0.691 - 1.880)
Education: Lower secondary	0.956	(0.851 - 1.074)	0.987	(0.878 - 1.110)	1.145	(0.959 - 1.368)	1.008	(0.568 - 1.788)	1.011	(0.570 - 1.795)
Education: Upper secondary	1.002	(0.903 - 1.113)	1.019	(0.918 - 1.132)	1.094	(0.936 - 1.278)	1.233	(0.718 - 2.119)	1.235	(0.719 - 2.122)
Location: Rural	0.990	(0.924 - 1.060)	1.019	(0.951 - 1.092)	1.031	(0.928 - 1.147)	1.201	(0.910 - 1.585)	1.193	(0.903 - 1.576)
Religious (Devout and moderate)	1.097**	(1.009 - 1.192)	1.097**	(1.009 - 1.193)	1.025	(0.903 - 1.164)	0.714	(0.448 - 1.138)	0.714	(0.448 - 1.138)
Employed	0.755***	(0.701 - 0.814)	0.756***	(0.701 - 0.814)	0.811***	(0.726 - 0.905)	0.739**	(0.562 - 0.971)	0.734**	(0.558 - 0.965)
Quintile: 1 (reference: 5)	0.804***	(0.719 - 0.899)	0.830***	(0.742 - 0.928)	0.831**	(0.705 - 0.979)	0.722	(0.415 - 1.254)	0.717	(0.412 - 1.249)
Quintile: 2	0.941	(0.775 - 1.143)	0.939	(0.773 - 1.141)	0.913	(0.675 - 1.236)	0.581	(0.208 - 1.627)	0.612	(0.217 - 1.725)
Quintile: 3	0.925	(0.838 - 1.021)	0.934	(0.846 - 1.031)	0.893	(0.768 - 1.039)	0.838	(0.550 - 1.276)	0.859	(0.562 - 1.312)
Quintile: 4	0.886***	(0.819 - 0.960)	0.899***	(0.830 - 0.973)	0.883**	(0.782 - 0.996)	0.846	(0.626 - 1.143)	0.862	(0.637 - 1.166)
Mean time to nearest health facility (min)	0.992***	(0.988 - 0.995)	0.991***	(0.988 - 0.995)	0.998	(0.993 - 1.003)	1.017***	(1.004 - 1.030)	1.017***	(1.004 - 1.030)
Takes non-prescribed health supplements	1.542***	(1.430 - 1.663)	1.548***	(1.436 - 1.669)	1.300***	(1.155 - 1.463)	1.147	(0.852 - 1.542)	1.162	(0.863 - 1.565)
Home is not in good physical condition	1.007	(0.817 - 1.242)	0.996	(0.807 - 1.228)	1.091	(0.793 - 1.502)	1.382	(0.606 - 3.150)	1.365	(0.598 - 3.118)
Disabled	1.323***	(1.198 - 1.460)	1.309***	(1.186 - 1.446)	1.293***	(1.137 - 1.471)	1.086	(0.801 - 1.473)	1.091	(0.804 - 1.481)
Feels healthy	0.875***	(0.807 - 0.948)	0.872***	(0.805 - 0.945)	0.799***	(0.712 - 0.896)	0.884	(0.677 - 1.154)	0.888	(0.680 - 1.160)
Physically active	1.024	(0.914 - 1.147)	1.027	(0.917 - 1.150)	0.864*	(0.727 - 1.028)	0.650*	(0.408 - 1.036)	0.644*	(0.404 - 1.025)

	(1)		(2)		(3)		(4)		(5)	
BMI	1.009**	(1.002 - 1.016)	1.009**	(1.002 - 1.016)	1.009	(0.998 - 1.019)	1.023	(0.993 - 1.053)	1.022	(0.992 - 1.052)
Felt health was poor as a child	1.245***	(1.110 - 1.396)	1.248***	(1.113 - 1.400)	1.133	(0.961 - 1.335)	1.102	(0.721 - 1.683)	1.096	(0.716 - 1.678)
Is/was smoker	0.825***	(0.743 - 0.916)	0.834***	(0.751 - 0.926)	0.853**	(0.730 - 0.997)	0.852	(0.603 - 1.205)	0.861	(0.608 - 1.220)
Socially/civically active	1.298***	(1.155 - 1.460)	1.282***	(1.140 - 1.442)	1.252**	(1.044 - 1.502)	0.609**	(0.381 - 0.974)	0.608**	(0.379 - 0.974)
Follows prescribed treatment for condition					2.780***	(2.500 - 3.092)	3.092***	(2.408 - 3.971)	3.085***	(2.402 - 3.962)
Length of time lived with condition					0.997	(0.992 - 1.003)	1.004	(0.994 - 1.015)	1.004	(0.993 - 1.015)
Has health insurance			1.255***	(1.175 - 1.340)	1.299***	(1.175 - 1.437)	1.345**	(1.036 - 1.748)	1.344**	(1.034 - 1.747)
Is the head of household									1.210	(0.843 - 1.736)
Spouse is the HHH									1.203	(0.800 - 1.809)
Biological child is the HHH									3.463	(0.186 - 64.373)
Pregnant	7.354***	(6.122 - 8.834)	7.364***	(6.129 - 8.848)	5.004***	(3.455 - 7.247)				
Diagnosed with chronic illness	2.191***	(2.049 - 2.342)	2.166***	(2.025 - 2.316)						
Constant	0.081***	(0.062 - 0.105)	0.070***	(0.053 - 0.091)	0.159***	(0.106 - 0.238)	0.406	(0.057 - 2.912)	0.311	(0.041 - 2.357)
Observations	27,257		27,257		9,023		1,273		1,273	

Note: Full tables available in Annex A. Statistic is odds ratios; confidence intervals in parentheses; *** p<0.01, ** p<0.05, * p<0.1.
Source: Author's calculations based on the Indonesian Family Life Survey 5 (2014).

Basic model of health seeking behavior

The first two models highlight the propensity to seek healthcare, without taking into account health insurance, and with health insurance. In the general population (column 1), we see a number of socio-demographic and health risk factors that are likely to increase the odds that one will seek treatment. As a reminder, the odds ratio should be interpreted as a probability with a linear relationship relative to the reference population, where an odds ratio of 1 denotes equal probability, an odds ratio less than one denotes a lower probability and a higher odds ratio denote a higher probability (always in regards to the reference population). At an odds ratio of 1.008, increases in age appear to only marginally increase propensity to seek health consultations. The odds of women seeking health treatment are generally 1.398 times than that of men. The low p value associated with this odds ratio allows us to reject the (null) hypothesis that there is no difference in the health seeking behavior between men and women. In other words, the p-value is less than 0.01, which implies that there is less than a 1% chance that the observed odds (or more extreme: either higher or lower) are due to random sampling error. The confidence intervals tell us with 95% probability the range of possible values for the sample mean of the odds ratio. If this confidence interval crosses 1, there is a chance that the odds ratio does not have any significant effect on the outcome of the dependent variable (healthcare utilization).

As compared to those with tertiary education, those with no education are just as likely, if not more likely to seek healthcare. This odds ratio dips for those with primary and secondary level education, and stabilizes around 1 again for those with upper secondary educational attainment. These effects are however, not statistically significant, and thus cannot be reliably or definitively interpreted. Although the p value does not indicate statistical significance, such a diverging trend may be due to health literacy barriers, which may necessitate seeing a doctor for those with no education but are easier to overcome with higher levels of educational attainment.

Having more income remains a significant factor in increasing the odds that one will visit the doctor (for the richest top 20% of the sample as compared to the bottom 20%): the odds of those within the first quintile of the income distribution seeing a health practitioner are 0.804 times less than those in the fifth quintile, a trend that is maintained for the remaining quintiles of per capita income. Notably, being employed reduces the odds that one will seek medical attention, likely due to the time commitment that would be necessary given their smaller range of free time.

The more time it takes to reach the nearest relevant health facility, the less likely individuals are to get a medical consultation, as opposed to those who receive home visits from the health practitioner. Similar results have been found in population across the world, for example in China,[18] India[19], and France[20].

Location is also a strongly cited factor for disparities in accessing healthcare, which fits with the direction of the reported odds ratio, despite being statistically insignificant.[21] In economic terminology, healthcare can be described as a market wherein a supply and a demand exist for health services. The supply side is comprised of the doctors, health clinics, hospitals, traditional healthcare practitioners, pharmacists, midwives, and others

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[18] Luo et al (2016).

[19] Vadrevu and Kanjilal (2016).

[20] Berchet and Jusot (2013).

[21] For example, Sibley and Weiner (2011).

who provide health care services. The demand side is comprised of the patients. In rural areas of developing countries, a non-existent supply of health services (healthcare inaccessibility) is a major reason for foregone medical needs. Due to sprawl (spatial deconcentration), location is also a proxy variable that can represent long distances between domiciles and healthcare facilities, a factor that can decrease the likelihood of forgone medical care. Potential reasons why the odds ratio for location is not statistically significant can be due to the survey sampling plan, which deliberately overrepresented the urban population in 1993, or a reflection of patchwork but concerted efforts to connect rural households to facilities in Indonesia starting in 2014.

Surprisingly, the environmental factors did not play a statistically significant role in the determination of health seeking behavior. Though the odds ratio does follow the direction hypothesized, the low significance may be due to a number of factors: multicollinearity between other variables, limited data points, or quality issues of the underlying data.

The psycho-social vector of health risk variables indicates intuitive trends. The disabled, the pregnant and the chronically ill are more likely to seek medical care as opposed to the general population (respectively 1.3, 7.3, and 2.1). Those who have self-assessed their health to be in good or acceptable condition are less likely to consult a physician (0.875 odds ratio). As opposed to those who assessed their childhood health as good or acceptable, those who felt health was poor as a child are more likely to seek health consultations (1.2 times more). Those who are physically active are not significantly more likely to seek health consultations. Those with higher BMIs are marginally more likely to seek health consultations (1.009 odds ratio). Present and previous smokers are less likely to consult medical professionals than non-smokers. Persons who express civic participation, or actively reinvest in the civic life of their villages are also more likely to seek healthcare.

Turning towards column 2, we see that in the total population, health insurance coverage plays a significant role in the decision to utilize health treatment services (increased odds by 1.255), while the trends in direction and significance of the other socio-economic and health risk factors on the dependent variable remain largely the same.

Chronically ill population

In column 3, we can see that chronically ill Indonesians appear to also be more likely to seek healthcare in the presence of health insurance (increased odds by 1.29). While the direction of the relationship between the control variables and the dependent variable remains the same, their statistical significance drops. This is likely due to a shift in the underlying dilemma: for the general population, in the face of an unknown probability of a negative health diagnosis, the decision to seek healthcare is largely dependent upon the individual's perception of whether their health symptoms have changed enough to warrant a health screening. For the chronically ill, their health diagnosis eliminates any uncertainty about their need to see a health professional, and thus psycho-social and environmental factors are bound to contribute less to the probability of seeking healthcare.

For example, the mean travel time to the nearest facility becomes less relevant given a diagnosis of chronic disease. Understandably, BMI scores and poor health in childhood become less or non-important factors in the decision to take up medical care. One's level of education no longer statistically significantly increases different likelihoods of seeking health treatment.

Evidently, the construction of the population of chronically ill is subject to a bias in information asymmetry and lack of training, which privileges those who are more proactive about their health. In other words, among those who are actually sick in the population (regardless of their knowledge of the medical condition), the group who pays more attention to their health symptoms or generally desire more frequent health information, will go to the doctor more often than the group of the non-attentive/not informed sick, and thus will certainly have a greater probability of being diagnosed (whether or accurately or inaccurately) than those who do not receive health screenings.

Investment in self-care is also generally a determinant in the health-seeking behavior of the sample. For the general population, those who supplement their routine with non-prescribed remedies and those who follow their prescribed treatment plans (for chronic illnesses) are more likely to take the initiative of consulting with a medical professional. Those who are physically active are less likely to schedule a consultation. However, as mentioned earlier, this may be due to an inherent bias: patients who are more invested in their health are more likely to pay attention to changes in their physiology and seek medical care for unusual symptoms, greatly increasing the likelihood of receiving a diagnosis for (chronic) disease in the process.[22] Similarly, the restrictions that chronic disease can impose on one's lifestyle, and one's enjoyment derived therefrom, can act as deterrents to seeking care: patients who are more inclined to circumvent their treatment plans (*e.g.*, reduced sodium for hypertension patients, or low to no sugar for diabetes patients) are obviously less likely to schedule appointments with their regular doctor.

Similarly, the patient's investment in following their prescribed health treatment increased the odds of visiting a medical specialist. This proactive demeanor, seen in the adherence to one's treatment plan, may be due to the patient's perception of the severity of the disease. In Ghana, for example, patients were more likely to seek healthcare for parasitic worms when they believed their diagnosis was severe.[23]

Elderly chronically ill

For the elderly chronically ill, health insurance is once again a proponent in seeking health services, even increasing the propensity to seek health care (increases the odds by 1.34 instead of 1.29 on average for the chronically ill). This may be due to the fact that on average, those aged 60 and up are no longer the primary earners of the household, and the financial help that health insurance coverage provides can help them decide to seek treatment on a more frequent basis for their chronic illness. It appears as though increased travel time may marginally increase the odds that the elderly seek care, but there are specific health and wellness centers that are dedicated to elderly patients (Posyandu Lansia)[24], the concentration of which may skew the odds for this variable.

However, at this stage in their lives, it appears that the most significant predictor of the elderly chronically ill seeking healthcare is their proactivity in following their prescribed treatment plans. This appears to potentially be moderated by the social standing enjoyed by the patient in the household: if the patient is the biological child of the head of household, he/she may be more likely to seek medical attention than if he/she were the head or the spouse of the head. It was not possible to see the effect of being the parent-in-law of the head of the household, as Table 4 illustrates, none of these elderly chronically ill sought medical treatment. This may be due to the financial burden that health care

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[22] Broutelle and Le Morvan (2009).

[23] Danso-Appiah (2010).

[24] Hoogerwerf and Saludung (2004).

treatment can represent (especially for dialysis), in combination with the lower emotional investment that children-in-law can have in their spouse's parents. Reduced decision making power enjoyed by either the elderly individual or both the elderly individual and their biological offspring in the household would thus reduce the likelihood of a chronically ill elder to schedule frequent medical appointments. The quality of such a regression would be vastly improved with a larger sample size focused on the elderly.

Table 4. Health-seeking behavior of chronically ill parents-in-law of the household head

	Child-in-law is the head of household		
Care received	No	Yes	Total (N)
No	1,406	1	1,407
Yes	725	0	725
Total	2,131	1	2,132

Source: Indonesian Family Life Survey 5 (2014).

Lastly, in an inversion of earlier trends, women appear to be less likely to seek medical treatment than men in this age bracket. Given the mortality rates by gender in Indonesia, this effect could be due to a substantially and relatively smaller population of men who live throughout elderly age, making this estimate more sensitive to outliers. Similarly, an increase in age reduces the likelihood of health-seeking behavior, which despite statistical insignificance, may be due to an acceptation of mortality or outliers. In the same vein, the elderly who are more civically active are less likely to see a health professional. This inversion might be due to limited energy, limited time, or an active prioritization of time spent in society versus on one's self.

Limitations of the model

In Indonesia, like in most developing countries, insurance coverage is provided mainly through formal channels, like employee status within the public sector.[25] This variable thus excludes the informal economy, which may be comprised of the poor who cannot afford to spare expenditure bandwidth on health (as opposed to food and transportation). This model also fails to capture the risk-sharing pools established at the commune or village level, wherein community members will contribute to a rotating credit union which helps to cover the health expenses of the neediest. Such effects would only be marginally captured in the models here: a fuller analysis would require a questionnaire that captures patient participation in such schemes.

A better exploration of the effect of cost on healthcare utilization could have been conducted. For example, with better health status data and better health services pricing data (blood, urine, blood pressure, and more) similar to what is collected by the Demographic and Health surveys [DHS] series of USAID), a conditional logistic regression could be performed to determine the effects of health insurance on health seeking behavior, matching individuals from the control and treatment group by province based on socio-demographic covariates and imputed health or cost values.[26] Approaching accuracy with such a regression would, however, be beyond the abilities of researchers without the benefits of expert medical guidance.

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[25] Lagomarsino et al. (2012).

[26] As of April 2017, dried blood spot data has been made available with the dataset.

A longitudinal study of health insurance utilization could also yield interesting results. Given that the social health insurance reform that changed the financial accessibility of healthcare was enacted in 2010, a differences-in-differences analysis of the IFLS4 (2007) and the IFLS5 (2014) could contribute to the body of knowledge about the potentially equalizing effects of health insurance on health-seeking behavior and health outcomes. Additionally, a more complete vector of lifestyle variables should be included for the future, which would include alcohol consumption, fruit and vegetable intake, and other indicators of nutrient choices.

Conclusion

Health disparities loom large in Indonesia. The IFLS5 data show that health seeking behavior does vary according to social location, where income is one of the more significant factors. Overall, health utilization differs by social location. For those with different levels of income, particularly the odds ratio of the highest as compared to the lowest quintile, health utilization rates differ, just as for levels of education (particularly among the chronically ill). Even for populations who have a marked health need, health-seeking behavior is different based on social location.

A cursory examination reveals that health insurance indeed plays a role in more prevalent health-seeking behavior in Indonesia. Consistently across each sample, the differences in utilization have been statistically significant, and the odds of seeing a health practitioner when covered by health insurance, as opposed to those who do not have any, are multiplied by an average of 1.3.

Besides health insurance, the only other predictor that remains consistent in the direction and significance of its effect on health seeking behavior is the employment status of the patient. Those who are employed have lower odds of seeing a doctor than those who are unemployed. This is likely due to the reduced free time enjoyed by the working population, which may force a prioritization of obligations that does not include seeking healthcare. More time spent interacting with others on civic participation projects and reduce the odds that the chronically ill will have seen a health professional, which may also be due to the effect of being in constant contact with others, who can complement one's subjective diagnosis of changes in health status, or encourage the chronically ill to increase frequency of health screenings given the physical manifestations indicating change in health status.

The potential for social health protection to positively affect health outcomes through increased health-seeking behavior is great in Indonesia, given the marked differences in health seeking behavior by income and by health status.

Bibliography and works cited

Abdmouleh, R. (2012), « Construction sociale de la maladie et rapport aux médecines. Une approche dynamique et intégratrice », Insaniyat / إن سان يات , Vol. 38, pp. 91-109, http://insaniyat.revues.org/3239.

Arcaya, M.C., A.L. Arcaya, and S.V. Subramanian (2015), "Inequalities in health: definitions, concepts, and theories," *Global Health Action*, 8, http://doi.org/10.3402/gha.v8.27106.

Berchet, C. and F. Jusot (2012), "Immigrants' Health Status and Use of Healthcare Services: A Review of French Research", Questions d'économie et de la santé, N° 172, http://www.irdes.fr/EspaceAnglais/Publications/IrdesPublications/QES172.pdf.

Broutelle, A. and F. Le Morvan (2009), « La construction sociale des maladies », Regards croisés sur l'économie, 5(1), pp. 61-64. doi:10.3917/rce.005.0061.

Cockerham, W.C., B.W. Hamby, and G.R. Oates (2017), "The Social Determinants of Chronic Disease", *American Journal of Preventive Medicine*, 52(1 Suppl 1), S5–S12. http://doi.org/10.1016/j.amepre.2016.09.010

Danso-Appiah, A. et al. (2010), "Health Seeking Behaviour and Utilization of Health Facilities for Schistosomiasis-Related Symptoms in Ghana", PLoS Neglected Tropical Diseases, 4(11), e867, http://doi.org/10.1371/journal.pntd.0000867.

Frankenberg, E. and L. Karoly (1995), "The 1993 Indonesian Family Life Survey: Overview and Field Report", RAND, Santa Monica, CA.

Hoogerwerf, A., and D. Saludung (2004), [Posyandu Lansia, a model for care of the elderly in Indonesia], *Tijdschrift voor gerontologie en geriatrie*, 35 6, 248-9.

Hussain, M. A., R. R. Huxley, and A. Al Mamun (2015), "Multimorbidity prevalence and pattern in Indonesian adults: an exploratory study using national survey data", *BMJ Open*, 5(12), e009810, http://doi.org/10.1136/bmjopen-2015-009810.

ILO (2008), "Social Health Protection. An ILO strategy towards universal access to health care", Social Security Policy Briefings, Paper 1, International Labour Organization, Geneva, http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---soc_sec/documents/publication/wcms_secsoc_5956.pdf.

Lagomarsino, G. et al. (2012), "Moving towards universal health coverage: health insurance reforms in nine developing countries in Africa and Asia", The Lancet, 380(9845), pp. 933-943, https://doi.org/10.1016/S0140-6736(12)61147-7.

Luo, L. et al. (2016), "Effects of distance on health seeking behaviors of outpatients in China's large hospitals: case of West China hospital of Sichuan university", *Int J Clin Exp Med* 9(6), pp. 11923-11933, www.ijcem.com/ISSN:1940-5901/IJCEM0022046.

National Research Council (2013), "The Indonesian Health Care System", in *Reducing Maternal and Neonatal Mortality in Indonesia: Saving Lives, Saving the Future*, The National Academies Press, Washington, DC, https://doi.org/10.17226/18437.

Pisani, E., M. Olivier Kok, and K. Nugroho (2017), "Indonesia's road to universal health coverage: a political journey", *Health Policy and Planning*, 32(2), pp. 267–276, http://doi.org/10.1093/heapol/czw120.

Salinas, J.J. et al. (2010), "The Rural – Urban Divide: Health Services Utilization Among Older Mexicans in Mexico", *The Journal of Rural Health : Official Journal of the American Rural Health Association and the National Rural Health Care Association*, 26(4), pp. 333–341. http://doi.org/10.1111/j.1748-0361.2010.00297.x

Scheil-Adlung, X. (2005), "Sharpening the Focus on the Poor: Policy Options for Advancing Social Health Protection in Indonesia", ESS Working Paper Series, No. 19, International Labour Organization, Geneva.

Schröders, J. et al. (2017), "How is Indonesia coping with its epidemic of chronic noncommunicable diseases? A systematic review with meta-analysis", PLoS ONE, 12(6), e0179186, http://doi.org/10.1371/journal.pone.0179186

Sibley, L.M., and J.P. Weiner (2011), "An evaluation of access to health care services along the rural-urban continuum in Canada", *BMC Health Serv Res*, 11(20), doi: 10.1186/1472-6963-11-20.

Susilo, D. et al. (2014), "Reducing health inequity in Indonesia through a comprehensive training on social determinants of health among researchers and policy makers", BMC Public Health, 14(Suppl 1), O2, http://doi.org/10.1186/1471-2458-14-S1-O2.

UN DESA (2017), "World Population Prospects: The 2017 Revision, Key Findings and Advance Tables", Population Division, United Nations Department of Economic and Social Affairs, United Nations, New York, https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf.

Vadrevu, L. and B. Kanjilal (2016), "Measuring spatial equity and access to maternal health services using enhanced two step floating catchment area method (E2SFCA) – a case study of the Indian Sundarbans", *International Journal for Equity in Health*, 15(87), http://doi.org/10.1186/s12939-016-0376-y

Vargas Bustamante, A. et al. (2012), "Variations in Healthcare Access and Utilization Among Mexican Immigrants: The Role of Documentation Status", Journal of Immigrant and Minority Health, 14(1), pp. 146–155, http://doi.org/10.1007/s10903-010-9406-9.

WHO (2017), "Noncommunicable diseases: fact sheet", World Health Organization, Geneva, http://www.who.int/mediacentre/factsheets/fs355/en/.

WHO (2015), "Indonesia: WHO Statistical Profile", World Health Organization, http://www.who.int/gho/countries/idn.pdf?ua=1.

Annex 1. Full regression output tables

Total population

Annex Table 1.1. Health seeking behavior, total population

	(1)		(2)	
	Baseline		Including insurance	
Age	1.008***	(1.005 - 1.010)	1.008***	(1.005 - 1.010)
Female	1.398***	(1.261 - 1.549)	1.404***	(1.267 - 1.556)
Education: No education (reference: Tertiary)	1.025	(0.847 - 1.241)	1.072	(0.885 - 1.299)
Education: Primary	0.921	(0.821 - 1.033)	0.955	(0.851 - 1.071)
Education: Lower secondary	0.956	(0.851 - 1.074)	0.987	(0.878 - 1.110)
Education: Upper secondary	1.002	(0.903 - 1.113)	1.019	(0.918 - 1.132)
Location: Rural	0.990	(0.924 - 1.060)	1.019	(0.951 - 1.092)
Religious (Devout and moderate)	1.097**	(1.009 - 1.192)	1.097**	(1.009 - 1.193)
Employed	0.755***	(0.701 - 0.814)	0.756***	(0.701 - 0.814)
Quintile: 1 (reference: 5)	0.804***	(0.719 - 0.899)	0.830***	(0.742 - 0.928)
Quintile: 2	0.941	(0.775 - 1.143)	0.939	(0.773 - 1.141)
Quintile: 3	0.925	(0.838 - 1.021)	0.934	(0.846 - 1.031)
Quintile: 4	0.886***	(0.819 - 0.960)	0.899***	(0.830 - 0.973)
Mean time to nearest health facility (minutes)	0.992***	(0.988 - 0.995)	0.991***	(0.988 - 0.995)
Takes non-prescribed health supplements	1.542***	(1.430 - 1.663)	1.548***	(1.436 - 1.669)
Shelter is not in good physical condition	1.007	(0.817 - 1.242)	0.996	(0.807 - 1.228)
Diagnosed with chronic illness	2.191***	(2.049 - 2.342)	2.166***	(2.025 - 2.316)
Disabled	1.323***	(1.198 - 1.460)	1.309***	(1.186 - 1.446)
Pregnant	7.354***	(6.122 - 8.834)	7.364***	(6.129 - 8.848)
Feels healthy	0.875***	(0.807 - 0.948)	0.872***	(0.805 - 0.945)
Physically active	1.024	(0.914 - 1.147)	1.027	(0.917 - 1.150)
BMI	1.009**	(1.002 - 1.016)	1.009**	(1.002 - 1.016)
Felt health was poor as a child	1.245***	(1.110 - 1.396)	1.248***	(1.113 - 1.400)
Is/was smoker	0.825***	(0.743 - 0.916)	0.834***	(0.751 - 0.926)
Socially/civically active	1.298***	(1.155 - 1.460)	1.282***	(1.140 - 1.442)
Has health insurance			1.255***	(1.175 - 1.340)
Constant	0.081***	(0.062 - 0.105)	0.070***	(0.053 - 0.091)
Observations	27,257		27,257	

Note: Statistic is odds ratios; confidence intervals in parentheses; *** p<0.01, ** p<0.05, * p<0.1.
Source: Author's calculations based on the Indonesian Family Life Survey 5 (2014).

Chronically ill

Annex Table 1.2. Health seeking behavior, chronically ill

	(3)		(4)	
	Baseline		Including insurance	
Age	1.004**	(1.000 - 1.008)	1.004*	(1.000 - 1.008)
Female	1.223***	(1.050 - 1.426)	1.232***	(1.057 - 1.436)
Education: No education (reference: Tertiary)	1.410**	(1.069 - 1.860)	1.504***	(1.138 - 1.988)
Education: Primary	1.113	(0.939 - 1.319)	1.170*	(0.986 - 1.389)
Education: Lower secondary	1.097	(0.919 - 1.309)	1.145	(0.959 - 1.368)
Education: Upper secondary	1.072	(0.918 - 1.252)	1.094	(0.936 - 1.278)
Location: Rural	0.997	(0.897 - 1.107)	1.031	(0.928 - 1.147)
Religious (Devout and moderate)	1.026	(0.904 - 1.165)	1.025	(0.903 - 1.164)
Employed	0.812***	(0.728 - 0.906)	0.811***	(0.726 - 0.905)
Quintile: 1 (reference: 5)	0.798***	(0.678 - 0.940)	0.831**	(0.705 - 0.979)
Quintile: 2	0.910	(0.673 - 1.230)	0.913	(0.675 - 1.236)
Quintile: 3	0.884	(0.760 - 1.028)	0.893	(0.768 - 1.039)
Quintile: 4	0.867**	(0.769 - 0.978)	0.883**	(0.782 - 0.996)
Mean time to nearest health facility (minutes)	0.998	(0.993 - 1.003)	0.998	(0.993 - 1.003)
Takes non-prescribed health supplements	1.287***	(1.144 - 1.448)	1.300***	(1.155 - 1.463)
Shelter is not in good physical condition	1.118	(0.813 - 1.538)	1.091	(0.793 - 1.502)
Disabled	1.305***	(1.147 - 1.484)	1.293***	(1.137 - 1.471)
Pregnant	4.933***	(3.410 - 7.137)	5.004***	(3.455 - 7.247)
Feels healthy	0.806***	(0.719 - 0.905)	0.799***	(0.712 - 0.896)
Physically active	0.861*	(0.725 - 1.023)	0.864*	(0.727 - 1.028)
BMI	1.009*	(0.999 - 1.019)	1.009	(0.998 - 1.019)
Felt health was poor as a child	1.134	(0.963 - 1.336)	1.133	(0.961 - 1.335)
Is/was smoker	0.841**	(0.721 - 0.983)	0.853**	(0.730 - 0.997)
Socially/civically active	1.275***	(1.063 - 1.528)	1.252**	(1.044 - 1.502)
Has health insurance			1.299***	(1.175 - 1.437)
Follows prescribed treatment for condition	2.792***	(2.511 - 3.104)	2.780***	(2.500 - 3.092)
Length of time lived with condition	0.997	(0.992 - 1.003)	0.997	(0.992 - 1.003)
Constant	0.190***	(0.127 - 0.284)	0.159***	(0.106 - 0.238)
Observations	9,023		9,023	

Note: Statistic is odds ratios; confidence intervals in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Author's calculations based on the Indonesian Family Life Survey 5 (2014).

Elderly chronically ill

Annex Table 1.3. Health seeking behavior, elderly chronically ill

	(5) Baseline		(6) Including insurance		(7) HHH status, baseline		(8) HHH status, including insurance	
Age	0.997	(0.975 - 1.019)	0.996	(0.974 - 1.018)	0.998	(0.976 - 1.021)	0.997	(0.975 - 1.020)
Female	0.633**	(0.436 - 0.921)	0.638**	(0.439 - 0.929)	0.668*	(0.444 - 1.005)	0.667*	(0.443 - 1.004)
Education: No education (*reference: Tertiary*)	1.584	(0.875 - 2.866)	1.804*	(0.984 - 3.305)	1.608	(0.887 - 2.916)	1.832*	(0.997 - 3.366)
Education: Primary	1.018	(0.624 - 1.662)	1.133	(0.688 - 1.868)	1.025	(0.627 - 1.673)	1.140	(0.691 - 1.880)
Education: Lower secondary	0.931	(0.527 - 1.645)	1.008	(0.568 - 1.788)	0.935	(0.529 - 1.652)	1.011	(0.570 - 1.795)
Education: Upper secondary	1.187	(0.693 - 2.035)	1.233	(0.718 - 2.119)	1.189	(0.694 - 2.038)	1.235	(0.719 - 2.122)
Location: Rural	1.150	(0.874 - 1.513)	1.201	(0.910 - 1.585)	1.143	(0.868 - 1.505)	1.193	(0.903 - 1.576)
Religious (Devout and moderate)	0.731	(0.459 - 1.163)	0.714	(0.448 - 1.138)	0.731	(0.459 - 1.163)	0.714	(0.448 - 1.138)
Employed	0.741**	(0.564 - 0.973)	0.739**	(0.562 - 0.971)	0.736**	(0.560 - 0.968)	0.734**	(0.558 - 0.965)
Quintile: 1 (*reference: 5*)	0.672	(0.389 - 1.161)	0.722	(0.415 - 1.254)	0.670	(0.386 - 1.160)	0.717	(0.412 - 1.249)
Quintile: 2	0.583	(0.209 - 1.626)	0.581	(0.208 - 1.627)	0.614	(0.219 - 1.725)	0.612	(0.217 - 1.725)
Quintile: 3	0.838	(0.551 - 1.274)	0.838	(0.550 - 1.276)	0.861	(0.565 - 1.313)	0.859	(0.562 - 1.312)
Quintile: 4	0.835	(0.618 - 1.127)	0.846	(0.626 - 1.143)	0.850	(0.629 - 1.150)	0.862	(0.637 - 1.166)
Mean time to nearest health facility (minutes)	1.016**	(1.004 - 1.029)	1.017***	(1.004 - 1.030)	1.017***	(1.004 - 1.029)	1.017***	(1.004 - 1.030)
Takes non-prescribed health supplements	1.141	(0.848 - 1.533)	1.147	(0.852 - 1.542)	1.156	(0.859 - 1.555)	1.162	(0.863 - 1.565)
Shelter is not in good physical condition	1.420	(0.623 - 3.233)	1.382	(0.606 - 3.150)	1.399	(0.613 - 3.194)	1.365	(0.598 - 3.118)
Disabled	1.082	(0.799 - 1.467)	1.086	(0.801 - 1.473)	1.089	(0.803 - 1.476)	1.091	(0.804 - 1.481)
Feels healthy	0.883	(0.677 - 1.153)	0.884	(0.677 - 1.154)	0.888	(0.680 - 1.160)	0.888	(0.680 - 1.160)
Physically active	0.646*	(0.406 - 1.027)	0.650*	(0.408 - 1.036)	0.639*	(0.401 - 1.017)	0.644*	(0.404 - 1.025)
BMI	1.021	(0.992 - 1.051)	1.023	(0.993 - 1.053)	1.020	(0.991 - 1.050)	1.022	(0.992 - 1.052)
Felt health was poor as a child	1.097	(0.718 - 1.675)	1.102	(0.721 - 1.683)	1.092	(0.714 - 1.670)	1.096	(0.716 - 1.678)
Is/was smoker	0.835	(0.591 - 1.179)	0.852	(0.603 - 1.205)	0.843	(0.596 - 1.194)	0.861	(0.608 - 1.220)
Socially/civically active	0.624**	(0.391 - 0.997)	0.609**	(0.381 - 0.974)	0.621**	(0.388 - 0.995)	0.608**	(0.379 - 0.974)
Follows prescribed treatment for condition	3.124***	(2.434 - 4.009)	3.092***	(2.408 - 3.971)	3.115***	(2.426 - 3.998)	3.085***	(2.402 - 3.962)
Length of time lived with condition	1.004	(0.994 - 1.015)	1.004	(0.994 - 1.015)	1.004	(0.994 - 1.015)	1.004	(0.993 - 1.015)

Is the head of household					1.229	(0.857 - 1.762)	1.210	(0.843 - 1.736)
Spouse is the HHH					1.200	(0.799 - 1.803)	1.203	(0.800 - 1.809)
Biological child is the HHH					3.141	(0.173 - 57.071)	3.463	(0.186 - 64.373)
Has health insurance			1.345**	(1.036 - 1.748)			1.344**	(1.034 - 1.747)
Constant	0.501	(0.071 - 3.557)	0.406	(0.057 - 2.912)	0.382	(0.051 - 2.865)	0.311	(0.041 - 2.357)
Observations	1,273		1,273		1,273		1,273	

Note: Statistic is odds ratios; confidence intervals in parentheses; *** p<0.01, ** p<0.05, * p<0.1.
Source: Author's calculations based on the Indonesian Family Life Survey 5 (2014).