

Religious Activity Participation and Self-Rated Health among Older Population in Indonesia

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Abstract

A number of studies have documented a positive and robust relationship between religious activity and health outcomes. The purpose of the study was to examine the relationship between religious activity participation and self-rated health (SRH) among older population in Indonesia. Data were obtained from 2,915 respondents 60 years and older from the Indonesian Family Life Survey 4 (2007). SRH was assessed by a single-item health measure with four options: "very healthy," "somewhat healthy," "somewhat unhealthy," and "unhealthy". Logistic regression were used to examine the relationship of the religious activity participation and SRH. Bivariate analysis revealed that religious activity participation was significantly associated with SRH. Multivariate analysis shows that among participants who participated in religious activity, the likelihood of a better SRH is increased (OR = 1.422; 95% CI = 1.203 to 1.682) after controlling for socio-demographic variables, socio-economic status (SES), health behaviour and number of Non Communicable Diseases (NCDs). This findings suggest that religious activity participation has an important effect on self-rated health status. Longitudinal studies are needed to help elucidate mechanisms and the order and direction of effects.

Abstrak

Partisipasi dalam Aktivitas Keagamaan dan Status Kesehatan Subjektif pada Populasi Lansia di Indonesia. Beberapa penelitian telah membuktikan hubungan yang positif dan kuat antara aktivitas keagamaan dengan hasil kesehatan. Tujuan dari penelitian ini adalah untuk mengetahui hubungan antara partisipasi aktivitas keagamaan dengan status kesehatan subjektif pada populasi lansia di Indonesia. Data diperoleh dari 2.915 responden berusia 60 tahun ke atas dari survei *Indonesian Family Life Survey* (IFLS) keempat yang dilakukan pada tahun 2007. Status kesehatan dinilai berdasarkan penilaian subjektif tentang status kesehatan lansia dengan empat pilihan jawaban: "sehat sekali", "cukup sehat", "kurang sehat" dan "tidak sehat". Regresi logistik digunakan untuk menguji hubungan antara partisipasi aktivitas keagamaan dan status kesehatan. Analisis bivariat menunjukkan bahwa partisipasi dalam aktivitas keagamaan berhubungan signifikan dengan status kesehatan subjektif. Analisis multivariat menunjukkan bahwa pada kelompok responden yang berpartisipasi dalam aktivitas keagamaan, meningkatkan peluang terhadap status kesehatan yang lebih baik (OR = 1.422; 95% CI = 1.203-1.682) setelah dikontrol dengan variabel sosial demografi, status sosial ekonomi, perilaku kesehatan dan jumlah penyakit tidak menular. Hasil penelitian menunjukkan bahwa partisipasi dalam aktivitas keagamaan memiliki efek penting pada status kesehatan subjektif. Penelitian longitudinal perlu dilakukan untuk menjelaskan mekanisme dan arah dari efek tersebut.

Keywords: Indonesia, older, religious activity participation, SRH

Introduction

Worldwide, the proportion of people age 60 and over is growing faster than any other age group. In 2025, there will be a total of about 1.2 billion people over the age of 60. By 2050 there will be 2 billion with 80 percent of them living in developing countries and over half of the world's older people live in Asia.¹ In Indonesia, 16.5

million persons (7.8%) are over 60, which makes it the country with the tenth largest older population in the world and the third largest in Asia in 2012.^{2,3} The older population in Indonesia will reach 28.8 million (11.3%) by 2020.² Thus, the impact of common problems in the elderly, such as chronic illness and disability, will have profound implications for healthcare in the future.

Self-rated health (SRH) is a widely used measure for health status in public health and epidemiological research due to strong associations with other subjective and objective measures of well-being, health outcomes and mortality.⁴ A large number of empirical studies have demonstrated that a single-item scale of self-rated health (SRH) has become a widely used indicator of general health and multiple studies have further supported the predictive validity of SRH in older populations concerning future health, functional decline, disability and mortality.⁵⁻⁸ Research indicates that SRH is consistent with objective health status and can serve as a global measure of health status in the general population.⁵ Self-rated health (SRH), generally captured by a single item inviting respondents to provide an overall assessment of their health using some form of a five-point scale (for example, very good, good, fair, poor, and very poor).⁹

Activities are important for successful aging. Older adults are involved in a variety of different activities and activities have been found to be beneficial in improving the quality of life and successful aging of older adults.¹⁰ A number of studies have documented a positive and robust relationship between religious activity and health outcomes, such as good self-rated health,¹¹ mental health.¹²⁻¹³ Studies assessing the effects of religious attendance have also found positive correlation with survival,¹³⁻¹⁴ and inverse correlation with mortality.¹⁵⁻¹⁶ Weekly religious attendance was also associated with improving and maintaining good health behaviour, increase social relationships and marital stability.¹³

The association between religious activity participation and SRH of older adults in rapidly aging nations of Asia is relatively unknown. The need to look at activity participation in late life among older Asians is recently reported.¹⁷ Although older adults of developing Asian countries are concerned with health issues and financial and caregiving problems, activity participation in late life may have a positive impact on aging-related problems and also enhance life satisfaction.¹⁷ As aging is a new phenomenon in Indonesia, no studies have been identified that examine the association of religious activity participation with SRH. Because religious activity has an impact on health outcomes, the knowledge about religious activity participation and SRH in Indonesian older need to be explored. The purpose of the study was to examine the relationship between religious activity participation and SRH among older population in Indonesia.

Methods

Data. The population used in these analyses is a subsample of the Indonesian Family Life Survey (IFLS). IFLS is a continuing longitudinal socioeconomic and

health survey. It is based on a sample of households representing about 83% of the Indonesian population living in 13 of the nation's 26 provinces in 1993. Within each of the 13 provinces, enumeration areas (EAs) were randomly chosen from a nationally representative sample frame used in the 1993 SUSENAS of about 60,000 households. The IFLS randomly selected 321 enumeration areas in the 13 provinces, over-sampling urban EAs and EAs in smaller provinces to facilitate urban-rural and Javanese–non-Javanese comparisons. Within a selected EA, households were randomly selected based upon 1993 SUSENAS listings obtained from regional BPS office.²⁵

The survey collects data on individual respondents, their families, their households, the communities in which they live, and the health and education facilities they use. This longitudinal study involved data collection from 1993 to 2007 for a total of four waves. The first wave (IFLS1) was administered in 1993, IFLS2 sought to reinterview the same respondents four years later. The next wave, IFLS3, was fielded on the full sample in 2000. IFLS4 was fielded in late 2007 and early 2008 on the same 1993 households and their splitoffs; 13,535 households and 44,103 individuals were interviewed.²⁵

The analytic sample used for this study was restricted to those participants in the 60 years old age and over with complete data on the demographic and socioeconomic indicators, health behaviour and health status. The final sample used in the analysis was therefore $n = 2,915$. Self reported general health (SRH) was assessed by a single-item health measure with four options: "very healthy," "somewhat healthy," "somewhat unhealthly," and "unhealthy". SRH was elicited by asking "In general, how is your health?". The responses were categorized as healthy (very healthy and somewhat healthy) = 0, and unhealthy (somewhat unhealthy and unhealthy) = 1. The religious activity participation was operationalized by involvement in religious activities. Activity participation was measured by asking the older adults "During the last 12 months did you participate in or use ...?"

In addition to age (in years) and sex, we selected three sets of covariates that are known to be related to SRH outcomes and might influence the association of religious activity participation and SRH. The first set consists of indicators of socioeconomic status, represented by measures of education, employment and household income. The second set includes measures of health behaviour and the third set a measure of multimorbidity.

Elderly age was classified into two groups (60-69 years and ≥ 70 years). Sex was categorized as male and female. Education was measured the highest grade they had complete, and education level was categorized as:

low (no education and Primary School), middle (Junior and Senior High School) and High (Diploma and University). Employment status was categorized as unemployed and employed. The household income was categorically coded into 5 quintiles, ranging from the poorest to the richest quintile as given in the data set.

Health behaviour included information on smoking, Body Mass Index (BMI), physical activity and consumption of fruit and vegetables. Smoking status was categorized as non smoker, ex smoker and current smoker. BMI was calculated as weight (kg)/height² (m²) and classified as underweight (<18.50 kg/m²); normal (18.50-24.99 kg/m²) and overweight/obese (≥25.00 kg/m²). Physical activity was assessed by using questions about how many days respondents doing activity at least 10 minutes of vigorous activity, moderately activity and mild activity. Physical activity was categorized as vigorous activity (at least 30 minutes a day and at least 3 days a week), moderately activity (at least 30 minutes a day and at least 3 days a week) and mild (all other). Consumption of fruit and vegetables was assessed by using questions on frequency of fruit and vegetable consumption with the question, "In the last week, how many times do you eat vegetables or fruit". Responses were on an eight point scale ('never' to 'seven times'). We classified participants as consuming fruit or vegetables at seven days, four to six times a week, and less than four times a week.

Multimorbidity was based on the number of respondents self-reported diagnosis of chronic Non Communicable Disease (NCDs) which was previously made by a health professional, examples of such NCDs are diabetes, hypertension, heart disease, stroke, lung diseases, asthma, cancer, arthritis and depression. There were assessed by self-reporting through answers to the question 'Has a doctor ever told you that you have any the following?' followed by a list of conditions. Multimorbidity was defined as two or more chronic NCDs.

The main characteristics of the sample were investigated through descriptive analysis and this was followed by bivariate analysis using Chi-square test to identify the variables significantly associated with SRH. The variables found significant in the bivariate analysis at the $p < 0.25$ level were entered into multivariate analysis. Logistic regression analyses were performed to estimate odds ratios (ORs) and 95% confidence intervals (CIs) of SRH associated with various factors, with and without adjustment for other covariates.

We first built model include all variables that found significantly associated with SRH (model 1) than built adjusted model for socio-demographic variables (age and marital status) (model 2). To assess religious activity

participation independent effects, we then built adjusted model for socio-demographic variables, SES variables, health behaviour and multimorbidity (model 3). Data were analyzed using the SPSS software for Windows.

Results and Discussion

Table 1 summarizes the distributions of individual characteristics. The majority (63%) of the sample were 60-69 years. Fifty four percent of participants were female, 82% had low education, 62% were married, more than half (55%) were unemployed. Seventy one percent of participants were categorized as non smokers, 56% had normal weight, 64% were categorized as mild physical activity, and 52% consumed vegetables or fruit at least once a day. Fifteen percent of the sample have two or more chronic NCDs (multimorbidity) and 75% were unhealthy SRH.

Table 2 presents the bivariate tests, indicated that older adults who unhealthy SRH were more likely to be represented among 70 years and older group. The proportion of unhealthy SRH was significantly higher among low education level and unemployed. The distribution of unhealthy SRH related to health behavioral revealed statistically significant differences proportion. Those with unhealthy SRH was higher among among ex smoker, underweight, consumed fruit and vegetables less than 4 times a week and mild physical activity. SRH varied by the number of NCDs, those with the number of NCDs is two or more NCDs (multimorbidity) were less likely to report unhealthy SRH. Religious activity participation were also related to unhealthy SRH, with lower proportions of those who were not participated in religious activity.

Table 3 confirmed 3 models in multivariate analysis. Model 1 was unadjusted models, included all variables that have p value < 0.25 in bivariate analysis. In the adjusted models (Model 2) for age and marital status, the association between education with SRH were slightly stronger (middle vs high OR = 2.713 (95%CI: 1.325 to 5.555); low vs high OR = 4.525 (95%CI: 2.275 to 9.000). Employment shown to be strongly associated with SRH (unemployed vs employed OR = 1.607 (95% CI: 1.321 to 1.954). The association between smoking and SRH were slightly stronger (ex smokers vs non smokers OR=2.519 (1.802 to 3.522); current smokers vs non smokers OR=1.254 (1.004 to 1.566). The association between BMI and SRH were strongly significant (underweight vs normal weight OR=1.497 (1.217 to 1.841); overweight/obese vs normal weight OR=0.883 (0.693 to 1.125). Physical activity was associated with SRH (moderate vs vigorous OR= 2.347 (1.529 to 3.604); mild vs vigorous OR=3.116 (2.068 to 4.693); consumption of fruit and vegetables also found associated with SRH (consumed less than 4 times a week vs at least once a day OR=1.3777 (1.090 to 1.739).

Table 1. Sample Characteristics

Characteristics	N (%)
Age (years)	
60-69	1856 (63.7)
≥ 70	1059 (36.3)
Sex	
Male	1340 (46.0)
Female	1575 (54.0)
Marital status	
Married	1810 (62.1)
Unmarried	1105 (37.9)
Education	
High	91 (3.1)
Middle	429 (14.7)
Low	2395 (82.2)
Employment	
Employed	1310 (44.9)
Unemployed	1605 (55.1)
Income (quintiles)	
Quintile 1	583 (20.0)
Quintile 2	583 (20.0)
Quintile 3	583 (20.0)
Quintile 4	583 (20.0)
Quintile 5	583 (20.0)
Smoking	
Non smoker	2069 (71.0)
Ex smoker	188 (6.4)
Current smoker	658 (22.6)
BMI	
Underweight	741 (25.4)
Normal	1637 (56.2)
Overweight/Obese	537 (18.4)
Physical activity	
Vigorous	329 (11.3)
Moderate	720 (24.7)
Mild	1866 (64.0)
Consumption of fruit and vegetables	
At least once a day	1518 (52.1)
4-6 times a week	898 (30.8)
< 4 times a week	499 (17.10)
Number of NCDs	
None	1631 (56.0)
One NCDs	826 (28.3)
Two or more NCDs (multimorbidity)	458 (15.7)
Religious activity participation	
Yes	1867 (64.0)
No	1048 (36.0)
SRH	
Healthy	2129 (73.0)
Unhealthy	786 (27.0)

The number of chronic NCDs was associated with SRH (one NCDs vs no NCDs OR = 2.083 (1.701 to 2.550); multimorbidity vs no NCDs OR = 4.379 (3.447 to 5.563). The association between religious activity participation and SRH were slightly stronger (no

participation vs participated OR = 1.278 (1.066 to 1.533). Model 3 shown the independent association between religious activity participation with SRH after adjusted for all variables. The association between religious activity participation and SRH were slightly strongly significant (OR = 1.422 (1.203 to 1.682).

This study used data from a national household survey to examine the association between religious activity participation with SRH. There was difference of unhealthy SRH among the oldest age group (32.2%) with the youngest age group (24.0%). This means that the subjective health status of the population significantly decreases with advancing age. Similar results were found in previous studies, which showed that age was a risk factor for poor SRH.^{5,18} In contrast, this study found no differences of multimorbidity among women and men also among married and unmarried.

Socioeconomic position (SEP), defined by education, income, occupation, or a combination of these variables, has been linked to health outcomes in epidemiological studies carried out in many countries.¹⁹ Present study shows that lower education is associated with higher rates of unhealthy SRH. This findings consistent with other studies which found that low educational level was statistically significantly associated with a worse SRH compared to higher educational level.²⁰⁻²¹

The proportion of unhealthy SRH was higher among unemployed persons compared to employed persons. There are two main reasons why unemployment could conceivably affect health. First, it is related to standards of living and the material conditions of life, and second it is a stressful event which may become chronic and deprive an individual of a social role, meaningful daily existence and contact with others.²² Income is surprisingly unrelated to unhealthy SRH, and this finding is inconsistent with many previous studies.^{5,23-24}

Present study found that being underweight, ex smokers, mild physical activity and consumed vegetables and fruit less than 4 times a week increases the risk of unhealthy SRH. Underweight is one risk factor observed in this study. This can be explained that underweight was linked to eating disorders such as anorexia nervosa, or consumptive diseases such as malignant tumors.⁵ Our observation that health behaviour has an impact on SRH is supported by study that found associations between lifestyle factors and disease.¹⁹ Smoking, physical inactivity, unhealthy diet, obesity and other lifestyle behaviors are associated with the development of diseases such as cancer, heart disease, stroke, and diabetes.²⁵

Multimorbidity was associated with self-rated health in this study. The participants without NCDs rate their health significantly better than those with one or more NCDs.

Table 2. Associations between SRH with All Variables

Determinants	SRH		p value
	Healthy (N=2,129)	Unhealthy (N=786)	
Age (years)			
60-69	1411 (76.0)	445 (24.0)	0.000
≥ 70	718 (67.8)	341 (32.2)	
Sex			
Male	978 (73.0)	362 (27.0)	0.054
Female	1151 (73.1)	424 (26.9)	
Marital status			
Married	1344 (74.3)	466 (25.7)	0.058
Unmarried	785 (71.0)	320 (29.0)	
Education			
High	80 (87.9)	11 (12.1)	0.000
Middle	333 (77.6)	96 (22.4)	
Low	171 (71.6)	679 (28.4)	
Employment			
Employed	1061 (81.0)	249 (19.0)	0.000
Unemployed	1086 (66.5)	537 (33.5)	
Income (quintiles)			
Quintile 1	436 (74.8)	147 (25.2)	0.402
Quintile 2	422 (72.4)	161 (27.6)	
Quintile 3	429 (73.6)	154 (26.4)	
Quintile 4	409 (70.2)	174 (29.8)	
Quintile 5	433 (74.3)	150 (25.7)	
Smoking			
Non smoker	1536 (74.2)	533 (25.8)	0.000
Ex smoker	100 (53.2)	88 (46.8)	
Current smoker	493 (74.9)	165 (25.1)	
BMI			
Underweight	506 (68.3)	235 (31.7)	0.002
Normal	1231 (75.2)	406 (24.8)	
Overweight/Obese	392 (73.0)	145 (27.0)	
Physical activity			
Vigorous	298 (90.6)	31 (9.4)	0.000
Moderate	561 (77.9)	159 (22.1)	
Mild	1270 (68.1)	596 (31.9)	
Consumption of fruit and vegetables			
At least once a day	1128 (74.3)	390 (25.7)	0.000
4-6 times a week	677 (75.4)	221 (24.6)	
< 4 times a week	2129 (73.0)	786 (27.0)	
Number of NCDs			
None	1338 (82.0)	293 (18.0)	0.000
One NCDs	560 (67.8)	266 (32.2)	
Two or more NCDs (multimorbidity)	231 (50.4)	227 (49.6)	
Religious activity participation			
Yes	1411 (75.6)	456 (24.4)	0.000
No	718 (68.5)	330 (31.5)	

This finding was similar with another studies.²⁶⁻²⁸ Consistent with prior research, this study provides evidence of the association between religious activity participation and SRH after adjusting for all variables. This finding is supported by study that found weekly religious attendance associated with improving and maintaining good health behaviour, mental health, increased relationship and marital stability.¹³ Religious activity participation significantly found improved mental health in older adults.^{12,29-31} As was the case with social participation, that low social participation is associated with an increased risk of low leisure-time physical activity, which means that social participation can modify health-related behaviour.¹¹

This study have several strengths and limitations. A major strength of this study was the use of data from a

large nationally representative sample. This made it possible to examine relationships between religious activity participation with SRH. The study also have some limitations. First, this study was largely based on the subjects self reports and not measured independently by an expert, which could have introduced some bias. Furthermore, it should be stated that the chronic conditions highlighted in this study were self-reported, and therefore this could have the effect of underestimating the effect of chronic diseases on SRH. The measure of religious activity participation was based on simply questions whether the participants participated in religious activity or not during the last 12 months. There was no assessment of the frequency of the activity, nor of the time spent on activity. Second, because the data are cross-sectional, so ability to understand the direction of the relationships among the

Tabel 3. Multivariate Regression Analysis

Characteristics	Model 1*		Model 2**		Model 3***	
	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value
Age (years)						
60-69	Ref.					
≥ 70	1.139 (0.945-1.373)	0.171				
Marital status						
Married	Ref.					
Unmarried	0.882 (0.729-1.069)	0.200				
Education						
High	Ref.		Ref.			
Middle	2.712 (1.325-5.551)	0.006	2.713 (1.325-5.555)	0.006		
Low	4.506 (2.262-8.976)	0.000	4.525 (2.275-9.000)	0.000		
Employment						
Employed	Ref.		Ref.			
Unemployed	1.618 (1.325-1.975)	0.000	1.607 (1.321-1.954)	0.000		
Smoking						
Non smoker	Ref.		Ref.			
Ex smoker	2.444 (1.744-3.426)	0.000	2.519 (1.802-3.522)	0.000		
Current smoker	1.220 (0.973-1.530)	0.085	1.254 (1.004-1.566)	0.046		
BMI						
Normal	Ref.		Ref.			
Underweight	1.484 (1.205-1.826)	0.000	1.497 (1.217-1.841)	0.000		
Overweight/Obese	0.896 (0.703-1.142)	0.374	0.883 (0.693-1.125)	0.314		
Physical activity						
Vigorous	Ref.		Ref.			
Moderate	2.356 (1.534-3.618)	0.000	2.347 (1.529-3.604)	0.000		
Mild	3.095 (2.052-4.669)	0.000	3.116 (2.068-4.693)	0.000		
Consumption of fruit and vegetables						
At least once a day	Ref.		Ref.			
4-6 times a week	0.905 (0.738-1.111)	0.341	0.906 (0.739-1.112)	0.345		
<4 times a week	1.378 (1.090-1.741)	0.007	1.377 (1.090-1.739)	0.007		
Number of NCDs						
None	Ref.		Ref.			
One NCDs	2.078 (1.697-2.545)	0.000	2.083 (1.701-2.550)	0.000		
Two or more NCDs (multimorbidity)	4.377 (3.445-5.561)	0.000	4.379 (3.447-5.563)	0.000		
Religious activity participation						
Yes	Ref.		Ref.		Ref.	0.000
No	1.276 (1.063-1.530)	0.009	1.278 (1.066-1.533)	0.008	1.422 (1.203-1.682)	

*Unadjusted

**Adjusted for age and marital status

*** Adjusted for age, marital status, employment, education level, smoking, BMI, physical activity consumption of fruit and vegetables and chronic condition

variables is limited. Longitudinal studies are needed to help elucidate mechanisms and the order and direction of effects.

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Conclusions

This findings suggest that religious activity participation has an important effect on self-rated health status. Public policy and health care interventions aiming at promoting religious participation for older adults represent a promising area for maintaining good health among a growing segment of Indonesian society. This study also demonstrated that most of the factors influencing the SRH can be changed so as to improve health, for example, by actively treating diseases, engaging in more physical activity in daily life, and promoting adoption of healthy behaviors. The present study focused on religious activity, and need for further research on another activity participation in developing countries so that it can be useful for health care practitioner and those involved with the activities of aged populations in developing countries.

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