

UNMET NEED FOR HEALTHCARE AMONG PEOPLE WITH HYPERTENSION IN INDONESIA

Unmet Need *Pelayanan Kesehatan pada Penderita Hipertensi di Indonesia*

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Abstract

Background: Hypertension is a worldwide public health problem, mainly due to its high frequency and risks leading to cardiovascular diseases. The prevalence of hypertension in the Indonesian population aged > 18 years in 2018 was 34.11%. The unmet need for healthcare has generally been explored in most empirical studies concerning people with hypertension.

Aims: This study investigated the determinants of unmet needs for healthcare among people with hypertension.

Methods: The design of this study was cross-sectional on data from the Indonesian Family Life Survey wave 5 (IFLS-5). The survey sample was 6,302 adults aged > 40 years stratified by rural/urban residence status. A three-level multilevel analysis was performed to estimate the individual, household, and community-level determinants of unmet needs for hypertension care.

Results: As many as 78.4% of the respondents with hypertension reported unmet needs for healthcare. Age, female, single, income, having insurance, urban residence, and the number of health-integrated posts for the elderly (*Posyandu Lansia*) were significantly associated with unmet needs for healthcare utilization among people with hypertension, while education and employment status showed no association with these variables.

Conclusion: Improvement in access to healthcare and reduction in health inequality is required to address this problem.

Keywords: healthcare, hypertension, IFLS, unmet need

Abstrak

Latar Belakang: Hipertensi merupakan masalah kesehatan masyarakat di seluruh dunia, terutama karena frekuensi dan risikonya yang tinggi terhadap penyakit kardiovaskular. Prevalensi hipertensi pada penduduk Indonesia usia > 18 tahun pada tahun 2018 sebesar 34,11%. Angka unmet need layanan kesehatan umumnya telah banyak dieksplorasi, tetapi studi empiris mengenai unmet need pelayanan kesehatan pada penderita hipertensi masih terbatas

Tujuan: Penelitian ini bertujuan untuk mengetahui determinan unmet need pelayanan kesehatan pada penderita hipertensi.

Metode: Desain penelitian ini adalah cross-sectional, menggunakan data dari Indonesian Family Life Survey gelombang 5 (IFLS-5). Sampel penelitian adalah 6.302 orang dewasa usia > 40 tahun, yang distratifikasi berdasarkan pedesaan/perkotaan. Analisis multilevel dilakukan untuk mengestimasi tingkat individu, tingkat rumah tangga, dan tingkat komunitas terhadap angka unmet need layanan kesehatan hipertensi

Hasil: Data menunjukkan bahwa 78,4% responden dengan hipertensi melaporkan unmet need pelayanan kesehatan. Umur, perempuan, belum menikah, pendapatan, memiliki asuransi, tinggal di perkotaan, dan jumlah Pos Kesehatan Lansia (*Posyandu Lansia*) secara signifikan berhubungan dengan pemenuhan kebutuhan akan pemanfaatan pelayanan kesehatan pada penderita hipertensi, sedangkan status pendidikan dan pekerjaan tidak menunjukkan keterkaitan.

Kesimpulan: Peningkatan akses ke pelayanan kesehatan dan pengurangan ketimpangan kesehatan diperlukan untuk mengatasi masalah ini.

Kata kunci: hipertensi, IFLS, layanan kesehatan, unmet need



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Introduction

Hypertension is regarded as a global public health problem in both developed and developing countries because of its high prevalence and risks leading to cardiovascular disease (Shah, Shah and Shah, 2018). It is also a major factor for noncommunicable diseases (NCDs) that continue to increase. NCDs in Indonesia was estimated to account for 73% of all deaths in 2016, and blood pressure was one of the hypertension factors in adults aged 18 years and above (22%) (World Health Organization, 2018). According to Indonesian Basic Health Research (*Riskesdas*) in 2018, the prevalence of hypertension in the Indonesian population aged 18 years and above was estimated at 34.11 (National Institute of Health Research and Development Republic of Indonesia, 2018).

The prevalence of hypertension significantly causes worldwide mortality and morbidity (Ezzati *et al.*, 2002; Yano *et al.*, 2018). It gradually damages the heart, blood vessels, and other organs without apparent symptoms, and thus, it is recognized as a silent killer (Yano *et al.*, 2018). People with resistant hypertension are more likely to be older, overweight, diabetic, and have uncontrolled blood pressure (Williams, 2009).

Therefore, prevention and control of NCDs have become one of the national priority programs in the health sector in Indonesia. In 2016, the Indonesian Ministry of Health issued a national program called Healthy Indonesia with a Family Approach (*PIS-PK*) (Department of Health Republic of Indonesia, 2009). The success of this program is measured by the Healthy Family Index (*IKS*) formulated from four national health priorities, which are reducing maternal mortality, reducing infant mortality and stunting prevalence, controlling communicable diseases (HIV/AIDS,

tuberculosis, and malaria), and controlling NCDs (hypertension, diabetes mellitus, cancer, obesity, and mental disorders) (Ministry of Health Republic of Indonesia, 2016)

The unmet need for healthcare is an undesirable feature of modern healthcare (Krútilová, 2016). Unmet need for healthcare is the proportion of people who suffer from illness but have not received health services. A recent study regarding hypertension among Indonesian adults aged 40-65 years using IFLS-4 from 2007 datasets described a low prevalence of antihypertensive medication. The research stated that 37% of people with hypertension were diagnosed or aware, and only 25% were treated with prescribed antihypertensive medication (Hussain *et al.*, 2016).

Other studies have discussed difficult access to health services influenced by various factors, such as reduction in consumer trust in hospital in-patient services, lack of continuity in the health system, culture and resources, inconvenient timing of appointments, and the long-term implications of accessing healthcare (Awofeso, Rammohan and Asmaripa, 2012; Adedini *et al.*, 2014; Turner, Szaboova and Williams, 2018; Meiqari *et al.*, 2019). Moreover, personal choice, waiting time, and cost become other contributing factors to unmet needs for healthcare (Sanmartin *et al.*, 2002; Shi and Stevens, 2005; Allin, Grignon and Le Grand, 2010; Connolly and Wren, 2017). Generally, unmet need for healthcare depends on the aspects of the healthcare system (timing of appointments, waiting time prior to treatment, and others) and, in certain situations on individual factors (personal choice, trust, cost, and others).

However, previous studies barely explored unmet need for health care among people with hypertension. Therefore, this current study investigated

the determinants of the unmet need for healthcare among people with hypertension.

Method

In this study, a cross-sectional design was adopted to collect data from the Indonesian Family Life Survey wave 5 (IFLS-5) database in the periods of 2014-2015. IFLS-5 contains detailed information collected at the individual and household levels, including multiple indicators of socioeconomics and health. It is the only large-scale longitudinal survey available for Indonesia; it was conducted through a multistage random sampling method across 13 provinces representing 83% of the population in Indonesia (Strauss, Witoelar and Sikoki, 2016).

The respondents were aged 40 years and older and had hypertension categorized by measurement systolic of > 140 mmhg or diastolic of > 90 mmhg. The blood measurement was taken three times. A sample of 6,302 people fulfilled the criteria. The dependent variable in this study was the unmet need for health services. If the respondents had hypertension but did not access health services either in primary healthcare centers, clinics, and hospitals in the last four weeks, they were considered to have unmet needs for healthcare.

Covariates

Some variables to investigate the unmet need for healthcare were based on socio-economic and demographic statuses at the individual level. Economic status was measured from variable log household expenditure and the number of health integrated posts for the elderly (*Posyandu Lansia*) at the community level. The health integrated posts are community-based health promotion centers at the village level supervised by staff from the nearest

primary healthcare center. Since the mid-1980s, the Indonesian Ministry of Health has launched services to older people through that program. To deal with the increasing prevalence of hypertension and other chronic conditions, several preventive and health promotion measures have been reinforced in local communities through that program (Madyaningrum, Chuang and Chuang, 2018). Older people frequently obtained anti-hypertensive medications (26%) through primary healthcare centers performed by staff members (midwives or nurses) (College and Deer, 2017). Other covariates at the individual level were age, sex (female and male as a reference), educational attainment (primary school or lower as a reference, secondary class, and college or higher), marital status (married as a reference, single, divorced, and widowed), employment status (casual workers as reference, government workers, private workers, self-employed, and unemployed), and health insurance ownership. This study also had descriptive statistics of ages in eight groups (40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, and +75).

Statistical analysis

Data analysis was carried out in two steps: bivariate analysis and multivariate analysis. The bivariate analysis assessed a relationship between two variables: 1) residence and 2) each of its determinants (separately). The Kruskal-Wallis one-way analysis of variance was used for numerical variables and ordinal chi-square tests for categorical variables. The multivariate analysis identified an association between the healthcare utilization and all risk factors using tree-level hierarchical logistic regression models accounting for the information on household and community levels available from the IFLS. The first level comprised individual characteristics; the second level was household

characteristics, and the third was community characteristics.

The multivariate analysis used two models. The first model included only the individual-level variables, including socio-demographic variables of age, gender, marital status, education, employment status, and health insurance ownership. Household expenditure was added to the household level determinant; rural/urban category and the number of *Posyandu Lansia* as the community level determinants were in the second model. The hierarchical logit regression using `xtmelogit` commands was performed in STATA 14.0 software (Wolfe, 2006).

Result and Discussion

A total of 6,302 respondents aged 40 years and over were included in the analysis. About 78.4% of the respondents with hypertension did not receive healthcare services (see Table 1). The average respondent's age was 57 years old. Meanwhile, 16.80% of the respondents were 50-54 years old. More than half of the respondents (56.50%) were female. Most of the respondents had low education attainment (63.4%); most were married (74.3%), and most were unemployed (90.7%); thus, nearly half had no health insurance (54.24%). The average household expenditure was Rp953,005.12, with a standard deviation of Rp606,991.47. The average household expenditure for urban areas was Rp968,233.01 with a standard deviation of Rp779,509.13 and for rural areas was Rp932,716.29 with a standard deviation of Rp221,659.79. The standard deviation value illustrated the variation in household expenditure in urban areas was higher than in rural areas. The

average number of *Posyandu Lansia* per village was two (Table 1).

The bivariate logistic regression model in Table 1 shows that four predictions are statistically significant with unmet needs at a 1% level. The proportion of respondents with unmet needs in urban was higher than in rural. At the individual level, age, educational level, employment status, and insurance ownership were all correlated positively with unmet needs. Household expenditure was statistically significant correlated with the unmet need for healthcare among people with hypertension at 5 % level. Sex and marital status failed to achieve the statistical significance with the unmet need for healthcare.

Factors associated with unmet need for healthcare among people with hypertension, as revealed by the multivariate analysis, are presented in Table 2. Older age was associated with lower odds of having unmet need for healthcare services (OR = 0.987; $p < 0.001$) in the first model, but this association diminished after household and community level variable were included in the second model (OR = 0.989; $p < 0.05$). Being female and having health insurance had significant and negative significant associations with unmet need for healthcare services. Unmarried respondents had higher odds of having unmet need for healthcare services than married ones. The respondents living in urban areas had lower odds of having unmet need for healthcare services than those in urban areas (OR = 0.774; $p < 0.001$). The number of the integrated-health posts for the elderly in the community had a negative and significant association with unmet need for healthcare services (OR = 0.72; $p < 0.001$) (Table 2).

Table 1. Characteristics of the participants

	Total n=6,302	Urban n=3,600	Rural n=2,702	P-value
Individual-level				
Healthcare utilization				<0.001
No	4,940 (78.40)	2,757	2,183	
Yes	1362 (21.60)	843	519	
Age (years)	57.17 (16.62)	56.53(19.31)	58.02 (12.10)	<0.001
Age group				<0.001
40-44	929 (14.70)	565	364	
45-49	1038 (16.50)	621	417	
50-54	1,056 (16.80)	602	454	
55-59	896 (14.20)	537	359	
60-64	823 (13.10)	476	347	
65-69	504 (8.00)	284	220	
70-74	498 (7.90)	251	247	
75+	558 (8.90)	264	294	
Sex				0.730
Male	2,741 (43.50)	1,573	1,168	
Female	3,561 (56.50)	2,027	1,534	
Educational level				<0.001
Primary school or less	3998 (63.4)	1901	2097	
Secondary school	1807 (28.7)	1330	477	
College or higher	497 (7.9)	369	128	
Marital status				0.068
Single	118 (1.9)	80	38	
Married	4682 (74.3)	2687	2004	
Divorced	1471 (23.3)	822	649	
Widower	31 (0.5)	20	11	
Employment status				<0.001
Casual workers	53 (0.8)	25	28	
Government workers	81 (1.3)	69	12	
Private workers	209 (3.3)	177	32	
Self-employed	241 (3.8)	124	117	
Not working	5718 (90.7)	3205	2513	
Health insurance ownership				<0.001
No	3,226 (54.24)	1,563	1,663	
Yes	3,076(45.76)	2,037	1,039	
Mean systolic BP (mmHg)	161.23 (21.26)	160.68 (21.18)	162.00 (21.35)	0.015
Mean diastolic BP (mmHg)	92.41 (12.62)	92.94 (12.19)	91.71 (13.13)	<0.001
Household-level				
Household expenditure	953,005.12 (606,991.47)	968,233.01 (779,509.13)	932,716.29 (221,659.79)	0.009
Community-level				
Number of integrated health posts for elderly	2 (0.00)	2 (0.00)	2 (0.00)	-

Table 2. Determinants of the unmet need of healthcare services among sample with hypertension

	Model 1	Model 2
<i>Individual-level</i>		
Age	0.987 (0.003)‡	0.989 (0.004)‡
Female	0.600 (0.046)‡	0.638 (0.059)‡
<i>Marital status, reference: Married</i>		
Single	5.201 (2.305)‡	6.941 (3.802)‡
Divorced	1.150 (0.108)	1.192 (0.132)
Widower	2.086 (1.223)	3.502 (2.855)
<i>Education, reference: Primary</i>		
Secondary	0.930 (0.079)	1.004 (0.109)
College and higher	1.024 (0.144)	1.298 (0.265)
<i>Employment status, reference: Casual workers</i>		
Government workers	1.136 (0.520)	1.428 (0.779)
Private workers	1.118 (0.445)	1.352 (0.600)
Self-employed	0.950 (0.368)	1.205 (0.501)
Not working	1.297 (0.463)	1.950 (0.744)*
Having insurance	0.693 (0.051)‡	0.721 (0.065)‡
<i>Household-level</i>		
Log household expenditure		0.610 (0.044)‡
<i>Community-level</i>		
Living in an urban area		0.774 (0.084)‡
Number of integrated health posts for elderly		0.864 (0.048)‡
Constant	11.290 (5.055)‡	8116.32 (9112.02)‡
Variance between households	0.18	0.17
Variance between communities	0.57	0.72
Log-likelihood	35.63	27.85

Note: Reported are odds ratios (standard errors). Sig.: *significant at 10% or less; †significant at 5% or less; ‡significant at 1% or less.

Hypertension is one of the NCDs that is commonly found in developing countries, including Indonesia. Therefore, the Indonesian Ministry of Health launched a programme concerning the implementation of *PIS-PK* in 2016 as hypertension care could be an indicator of healthy family. Various studies have reported the risk factors of hypertension. Previous research demonstrated that in university students in Thailand, older age, obesity and underlying morbidity due to diabetes, high blood lipids and kidney disease were strongly associated with increased risk of hypertension (Thawornchaisit *et al.*, 2013). Other similar research revealed that hypertension in the urban slum Nairobi, Kenya was a public health problem

affecting at least one in three adults aged 35–64 years; this study found several variables, such as age, marital status, wealth index, physical inactivity, and body mass index were important risk factors associated with hypertension (Olack *et al.*, 2015). An analysis of the SAGE dataset from households in China, Ghana, India, Mexico, Russia, and South Africa illustrated that obesity was noticeably correlated to hypertension, along with aging (Basu and Millett, 2013). In Varanasi, India, aging, and sex (specifically men) were likely independent risk factors for hypertension (Singh, Shankar and Singh, 2017). Other protective risk factors of hypertension in urban population were unemployment,

retirement, and student status (Wang *et al.*, 2018).

Several national studies investigated the determinants of unmet need for healthcare among people with hypertension in Indonesia. Identified from a recent national survey, poor access to healthcare facilities became one of the determinant factors of hypertension (Ibrahim and Damasceno, 2012). This study showed that unmet healthcare was found in more than three-quarter of people with hypertension in Indonesia. At the individual level, age, female sex, and health insurance ownership were important determinants of unmet need for healthcare among people with hypertension. The increasing number of health problems along with age will increase the probability of unmet need for healthcare (Herr *et al.*, 2013).

In regard to sex, females have a higher likelihood of healthcare than males. Previous research described a higher number of unmet healthcare needs among females (Nelson and Park, 2006; Pappa *et al.*, 2013). Health insurance ownership had a positive correlation with unmet need for healthcare. The study presented that respondents who owned health insurance were more likely to receive healthcare. According to a previous similar study, adults with long-term uninsured were significantly more likely to have unmet needs for preventive service than those with health insurance (Ayanian *et al.*, 2000).

This current study initiated an investigation on factors associated with unmet need for healthcare in people with hypertension in Indonesia from the national survey datasets. Focusing on household determinants, household expenditure was an important determinant of unmet need for healthcare among people with hypertension. It supports prior findings that

the poor individual increases the risk of unmet need for healthcare (Heo *et al.*, 2012).

Turning to community-level determinants, urban residence, and the number of the integrated-health posts for the elderly were important determinants of unmet need for healthcare among people with hypertension. Urban residence was correlated with a lower probability of unmet need for healthcare. Furthermore, the respondents in urban were more likely to receive healthcare services. The findings are consistent with the previous research in which residence was significantly associated with unmet need for cardiovascular treatment (Heo *et al.* 2012; Maharani and Tampubolon, 2014). The availability of healthcare facilities contributed to unmet healthcare (Diwan and Moriarty, 1995). Even the individual perception of healthcare availability could result in unmet needs for healthcare (Hwang *et al.*, 2017).

Above all, this study has some limitations. Firstly, it used a cross-sectional design which collected casual observation results. Secondly, some variables affecting unmet need for healthcare were not explored due to the unavailability of data on the quality of healthcare, while this factor could be associated with demand for that variable (Pappa *et al.*, 2013; Liu *et al.*, 2018; Wellay *et al.*, 2018).

Despite its limitations, this study has several strengths. Firstly, nationally representative samples derived a high response rate using a standardized methodology. Secondly, this study thoroughly observed determinants at all levels. Therefore, it could capture real conditions of the population using the multilevel modelling analysis to examine the clustering effect of the outcome variables.

Conclusion

Determinants of unmet need for healthcare among people with hypertension at the individual, household and community levels in Indonesia were age, female, single, income, having insurance, urban residence, and the number of health integrated posts for the elderly. With a multilevel regression analysis, this study clearly depicts the high prevalence of unmet need for healthcare in Indonesia. Therefore, the Indonesian government should improve equity in healthcare by expanding health insurance and providing more health posts for elderly that can be accessed in both rural and urban. Future studies are required to identify other factors associated with healthcare utilization among people with hypertension. Particularly, they can address the role of cadre, family, and health worker for the provision of healthcare.

Abbreviations

HIV/AIDS: Human immunodeficiency virus/ Acquired Immune Deficiency Syndrome; IFLS-5: Indonesian Family Life Survey Wave 5; IKS: *Indeks Keluarga Sehat* NCDs: Noncommunicable Diseases; PIS-PK: *Program Indonesia Sehat dengan Pendekatan Keluarga*; Posyandu Lansia: *Pos Pelayanan Terpadu bagi Lanjut Usia*; Riskesdas: *Riset Kesehatan Dasar*; WHO: World Health Organization;

Declarations

Ethical Approval and Consent Participant

This study has passed the ethics review from the Ethics Review Center of the Faculty of Public Health, Sriwijaya University with a letter of ethical qualification No. 176/UN9.1.10/KKE/2020.

Conflict of Interest

The authors declare that they have no competing interests.

Availability of Data and Materials

Data and material research can be provided upon request.

Authors' Contribution

AA conceptualized the study design and contributed to review and edit the manuscript. AM and AR collected the raw data for analysis and performed data interpretation. HI conceptualized the original draft of the manuscript. All authors read and approved the final manuscript.

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