Determinant Factors Affecting Adherence of Hypertensive Patients to Taking Antihypertensive Drugs

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Abstract: A key success factor of hypertension management is adherence to taking hypertensive medications. However, little research has been done to explore determinant factors of hypertension management in adult patients. The study aimed to determine factors that affect adherence of hypertensive patients to taking antihypertensive drugs. This study was a descriptive-analytic study with a cross-sectional approach. The research sample was 133 hypertensive patients from a Primary Healthcare Center selected using a simple random technique. Inclusion criteria applied in sample selection were patients who visited Primary Healthcare Centers and were aged 18 years and above. Ethical clearance for this study was granted by ITEKES Bali Research Ethics Committee. Data collection was conducted in May 2022 using a valid and reliable questionnaire. Chi-square analyses were conducted for bivariate analyses. Variables with a p-value of < 0.25 were further analyzed with logistic regression. The results of bivariate analysis showed age, education, occupational, period of suffering, motivation, and family support had a significant influence on adherence to taking antihypertensive drugs (p < 0.05). The logistic regression test analysis showed that family support (p < 0.001; AOR: 14.050; 95% CI: 4.045-48.796) and age (p < 0.001; AOR: 0.038; 95% CI: 0.011 - 0.127) were significant determinant factors affecting adherence to taking antihypertensive drugs. Health care professionals need to continue supporting and educating families about hypertensive care.

1 INTRODUCTION

Hypertension is a major health problem. Hypertension is an increase in systolic blood pressure of about 140 mmHg and diastolic blood pressure of about 90 mmHg. Hypertension shows no specific symptoms, and thus being alert to this disease will prevent hypertension. With the invisible symptoms, hypertension is often called the *silent killer* (American Heart Association, 2020).

Based on the report of the Basic Health Research (2018), the number of people with hypertension in Indonesia who routinely took antihypertensive drugs (54.40%) was greater than those who did not take medication regularly (32.27%) and did not take medication at all (13.33%). Some areas of Bali Province show percentages of people who adhered to taking antihypertensive drugs. For example, Badung Regency (41.75%) had 2,224 compliant patients; Karangasem Regency (40.71%) showed 1,340 adhered patients, and Jembrana Regency (32.54%) showed 910 compliant patients. (Riskesdas, 2018). Data from the Badung Regency Health Office present the highest prevalence of hypertension in the Mengwi sub-district with 2,293 patients, followed by South Kuta sub-district with 2,212 patients. Meanwhile, the lowest of hypertension cases was found in the Petang sub-district with 597 patients. The working area of Mengwi I Primary Healthcare Center had the highest number of hypertension cases amounting to 987 people (Dinkes Kabupaten Badung, 2020).

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People with hypertension should take medication every day regardless pain and symptoms. Treatment adherence is aimed to control blood pressure of patients and avoid complications (Utami & Raudatussalamah, 2017). Uncontrolled consumption of antihypertensive drugs can result in therapy failures, one of which is unstable blood pressure, complications and organ damage (Nurmainah et al., 2014).

Research conducted by Pramana (2019), revealed that age, gender, level of education, therapy, and motivation affect adherence to taking antihypertensive drugs. However, in a study conducted by Handayani et al. (2019), age, gender, occupation, motivation, family support, and education have no relationships with adherence to taking antihypertensive drugs. With these different results, this study was focused on the identification of determinant factors associated with adherence to taking antihypertensive drugs.

2 SUBJECTS AND METHODS

This current study was quantitative with a cross-sectional design. The research was conducted in May 2022 at the Mengwi I Primary Healthcare Center. The population of this study was hypertensive patients that were selected through the simple random sampling with a sample size calculation recommended by the World Health Organization. It reached a total sample of 133 respondents after calculation. The inclusion criteria of respondents in this study were patients who were medically diagnosed with hypertension by doctors and hypertension patients who visited a primary healthcare center for seeking treatment.

In data collection phase, this study used a questionnaire consisting of the demographic characteristics of the respondents, a motivation questionnaire (Banifi, 2017), and a family support questionnaire (Nursalam, 2015); additionally, the MMAS-8 (Reynolds, 2012) questionnaire was used to assess medication adherence. All statistical analyses in this study were processed in SPSS version 21.0. Bivariate statistical analysis was performed using the chi-square test. Multivariate binary logistic regression was performed by inserting a predictor with a p-value of < 0.25. This study was given an ethical permission by the ITEKES BALI Ethics Committee with the No. 03.0286/KEPITEKES-BALI/III/2022 before data collection.

3 RESULTS

Table 1: Respondents' Characteristics (n = 133).

Characteristics	n	%
Age		
Non-elderly	71	53.4
Elderly	62	46.6
Gender		
Female	80	60.2
Male	53	39.8
Level of Education		
High	93	54.9
Low	40	45.1
Occupational		
Unemployment	93	69.9
Employee	40	30.1
Period of suffering		
<5 years	91	68.4
≥5 years	42	31.6
Motivation		
High	70	52.6
Low	63	47.4
Family Support		
Good	88	66.2
Poor	45	33.8
Adherence to taking medication		
Adherent	79	59.4
Nonadherent	54	40.6

Table 1 shows that most of the respondents are non-elderly (53.4%) and women (60.2%). A half of the respondents obtain higher education level (54.9%), and most of the respondents had unemployment status (69.9%). The majority of respondents develop hypertension for less than five years (68.4%) and have high motivation (52.6%). Respondents mostly receive family support (66.2%), and they took antihypertensive drugs regularly (59.4 %).

Table 2: Relationships between respondents' characteristics, motivation, and family support with adherence to taking hypertension medication (n = 133).

Variable	Adherence to Taking Antihypertensive Drugs				Total		P Value	OR (CI 95%)
	Nonadherent		Adherent					
	f	%	f	%	f	%		
Age							**<.001**	**.020 (0.007-0.060)**
Non-elderly	5	9.3	66	83.5	71	53.4		
Elderly	49	90.7	13	16,5	62	46.6		
Gender							0.862	1.065 (0.525-2.157)
Female	32	59.3	48	60.8	80	60.2		
Male	22	40.7	31	39.2	53	39.8		
Level of Education							**<.001**	34.088 (12.640-91.929)
High	7	13.0	66	83.5	73	54.9		
Low	47	87.0	13	16.5	60	45.1		
Occupational							**<.001**	7.795 (2.806-21.652)
Unemployment	49	90.7	44	69.9	93	69.9		
Employee	5	9.3	35	44.3	40	30.1		
Period of suffering							**0.002**	3.578 (1.543-8.341)
<5 Years	45	83.3	46	58.2	91	68.4		
≥5 Years	9	16.7	33	41.8	42	31.6		
Motivation							**<.001**	5.958 (2.774-12.798)
Hight	15	27.8	55	69.6	70	52.6		
Low	39	72.2	24	30.4	63	47.4		
Family Support							**<.001**	31.633 (11.367-88.029)
Good	15	27.8	73	92.4	88	66.2		
Poor	39	72.2	6	7.6	45	33.8		

In Table 2, this study presents that age (p =< 0.001), gender (p = 0.862), level of education (p =< 0.001), occupational (p =< 0.001), period of suffering (p = 0.002), motivation (p =< 0.001), and family support (p =< 0.001).

Table 3: Factors most related to adherence to taking antihypertensive drugs (n = 133).

Variables	B	S.E.	Wald	df	P Value	Adjusted Odds Ratio	OR (CI 95%)	
							Lower	Upper
Age	**-3.267**	**.615**	**28.216**	**1**	**<.001**	**.038**	**.011**	**.127**
Level of education	-.18.215	28162.150	.000	1	0.099	.000	.000	.
Ocupational	.350	.945	.137	1	0.711	1.418	.223	9.038
Period of suffering	-786	.829	.717	1	0.397	.456	.074	2.812
Motivation	-.604	.639	.759	1	0.384	.547	.141	2.126
Family Support	**2.643**	**.635**	**17.306**	**1**	**<.001**	**14.050**	**4.045**	**48.796**

Table 3 demonstrates that age (p =< 0.001) and family support (p =< 0.001) were the most dominant factors influencing adherence to hypertensive medication. Level of education (p = 0.099), occupational (p = 0.711), period of suffering (p = 0.397), and motivation (p = 0.384) are insignificant factors that influenced adherence to hypertensive medication.

4 DISCUSSION

4.1 Age and Adherence to Taking Antihypertensive Drugs

This study shows age had a significant relationship with adherence to taking antihypertensive drugs. Around half of the respondents (53.4%) were non-elderly aged <60 years old. They were more obedient to taking antihypertensive drugs than the elderly respondents (≥ 60 years). Research conducted by Samsudin and Maharani (2020) found a relationship between age and adherence to taking antihypertensive drugs. Non-elderly have more stable organs and sensory to respond to the treatment procedures.

However, age does not affect one's compliance with hypertensive medication. Elderly tends to experience physical and cognitive decline which can reduce their self-management in taking antihypertensive drugs (Wahyudi et al., 2017).

4.2 Gender and Adherence to Taking Antihypertensive Drugs

The results of this study show that gender did not have a significant relationship with adherence to taking antihypertensive drugs. This indicates that both women and men have an awareness of health regardless of their gender. Research conducted by Puspita (2017) found a similar finding to this study.

Both women and men are equally concerned about their health because they have the same social equality or social status. The social status includes education, which was equally distributed among male and female respondents. Therefore, both women and men have the same understanding and awareness of adherence to hypertensive medication (Liberty et all., 2018).

4.3 Level of Education and Adherence to Taking Antihypertensive Drugs

Given the analysis of education variable, this study found education level was significantly related to compliance with medication. Most of the respondents were highly educated (54.9%) and were more obedient to hypertensive medication than low-educated respondents. Research by Mardiana et al. (2021) is aligned with this current study. Education level is one of the factors that can affect one's adherence to treatment. A person who has higher education level will likely understand the purpose of the treatment, reinforcing their compliance with the treatment.

Education level becomes the basic capital in decision-making. Once a person holds higher education degree, he/she will receive and understand information at hand. As a result, she/he can develop their self-management and awareness to comply with medication (Pamungkas, 2015; Pratama & Ariastuti, 2016; Mahardika et al., 2021).

4.4 Occupation and Adherence to Taking Antihypertensive Drugs

Besides age and education level, occupation was also found to be significantly related to compliance with medication. This study shows that most unemployed respondents were more obedient to taking antihypertensive drugs than employed ones. According to previous research by Nurhani et al. (2020), someone who works tends to have less time to schedule their medication compared to someone who does not work (Rajasati et al., 2018). Doctor's recommendations are not taken for further medication as working patients infrequently visit primary healthcare centers.

4.5 Period of Suffering and Adherence to Taking Antihypertensive Drugs

The results of this study show that the period of suffering had a significant relationship with adherence to taking antihypertensive drugs. In this study, the majority of the respondents (68.4%) suffered from hypertension for <5 years and were more compliant to taking antihypertensive drugs than those who suffered from hypertension for >5 years. A similar finding is stated in research conducted by Balqis and Nurmaguphita (2018). Curiosity and strong motivation to recovery make respondents improve their awareness and efforts to comply with the recommendations and prohibitions from incompliance with medication (Wahyudi et al., 2018).

4.6 Motivation and Adherence to Taking Antihypertensive Drugs

The results of this study show that a significant relationship was found between motivation and adherence to taking antihypertensive drugs. The majority of respondents (52.6%) had high motivation and were more likely compliant with taking antihypertensive drugs compared to those who had low motivation. Research conducted by Hanum et al. (2019) reveals that intrinsic motivation i.e., hope and

interest is the key factor for patient recovery and compliance with treatment. Motivation comes from family support (Nuratika et al., 2020).

4.7 Family Support and Adherence to Taking Antihypertensive Drugs

Family support turns out to be associated with adherence to taking antihypertensive drugs. The results show that the respondents (66.2%) had high family support and mostly adhered to medication compared to respondents who had low family support. Family support has a very important role to provide emotional support and informational support (Serinadi et al., 2021). Determining individual health beliefs and values needs to be included into treatment programs (Widowati, 2019). According to Kamaryati and Malathum (2020), family support is very effective in increasing medication adherence. Family support can provide emotional and financial support such as peace and compliance with medication. Someone who has high family support will provide peace and reduce burden of the patients. Family support can control self-confidence in problem-solving and self-management in medication (Ningrum & Sudiasih, 2019).

5 CONCLUSION

Family support and age are the determining factors that influence adherence to taking antihypertensive drugs. A person with high family support has a greater chance of adhering to taking antihypertensive drugs than respondents with low family support. Health workers need to provide support and education about hypertensive treatment to families.

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