

Knowledge of hypertension and its therapy in laypeople

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ABSTRACT

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Hypertension is one of the non-communicable diseases that is becoming a global health problem. Hypertension can be identified by systolic blood pressure of 140 mmHg and diastolic 90 mmHg. Uncontrolled hypertension can lead to complications such as stroke, ischemic heart disease, heart attack, heart failure, kidney failure, blindness, etc. According to Basic Health Research 2018 (*Riset Kesehatan Dasar 2018/Riskesdas 2018*) the prevalence of hypertension for >18 years old was 8.4%, and through measurements taken in health care facilities by 34.1%. Prevalence in the city was 34.4%, in the village was 33.7%, while according to gender 31.3% for male and 36.9% for female. The study aimed to find out the knowledge and awareness of laypeople on hypertension and its therapy. This was a cross-sectional online study with 11 questions. Respondents were recruited from social media groups. The results showed 500 respondents (62.8 % female and 37.2 % male) involved in this study. The most common age range was 21-40 years (36.2 %), followed by 41-55 years (38.2%), and the least was 56-65 years old (18.4%). Seventy-two percent of respondents did not have hypertension, and 9% said they did not know. Fifty-three percent of respondents knew about the value of high blood pressure, and 89% of the respondents said hypertension should be treated regularly. The most hypertension complications answered by respondents were stroke (40%), heart attack (26%), and heart failure (16%). Amlodipine was the most mentioned by the respondents, and the second was ACE-inhibitor. However, omeprazole and omega-3 were also mentioned as anti-hypertension. Genetics and a high salt diet were risk factors that many respondents chose. In conclusion, the respondents have a good understanding of hypertension. Information related to behaviour is needed to discontinue the increasing prevalence.

ABSTRAK

Hipertensi adalah salah satu penyakit tidak menular yang semakin menjadi masalah global. Hipertensi ditandai dengan tekanan darah sistolik 140 mmHg dan diastolik 90 mmHg. Hipertensi yang tidak terkontrol memberi dampak komplikasi ke semua organ dengan berbagai penyakit dan kondisi yang menyebabkan seperti stroke, penyakit jantung iskemik, serangan jantung, gagal jantung, gagal ginjal, kebutaan, dan lain-lain. Menurut Riset Kesehatan Dasar 2018 prevalensi hipertensi untuk usia >18 tahun adalah 8,4%. Menurut pengukuran yang dilakukan di fasilitas pelayanan kesehatan sebesar 34,1%. Prevalensi di kota adalah 34,4%, di desa itu 33,7%, sedangkan menurut jenis kelamin laki-laki 31,3% dan perempuan 36,9%. Tujuan penelitian untuk mengetahui pengetahuan dan kesadaran orang awam tentang hipertensi. Penelitian potong lintang ini dilakukan secara daring dengan mengajukan 11 pertanyaan terhadap responden dari group media sosial. Sebanyak 500 responden (62,8% perempuan, 37,2% pria), dengan kisaran umur terbanyak 41-55 tahun (36,2%), 21-40 tahun (38,2%), dan 56-65 tahun (18,4%) terlibat dalam penelitian. Sebanyak 69% responden tidak menderita hipertensi, sedangkan 21% menderita hipertensi dan 10% menyatakan tidak tahu. Sebanyak 53% responden (213 orang) tahu kriteria tekanan darah tinggi dan 89% responden tahu hipertensi harus diobati teratur. Komplikasi terbanyak menurut responden adalah stroke (40%), serangan jantung (26%) dan gagal jantung (16%). Amlodipin terbanyak disebut oleh responden sebagai antihipertensi, kedua adalah ACE-inhibitor. Masih ada yang menyebutkan omeprazole dan omega-3 sebagai antihipertensi. Faktor genetik dan diet tinggi garam merupakan etiologi dan faktor risiko yang banyak dipilih responden. Dapat disimpulkan responden memiliki pemahaman tentang hipertensi yang cukup baik. Perlu informasi terkait perilaku agar prevalensi hipertensi tidak terus meningkat.

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INTRODUCTION

Hypertension is one of the non-communicable diseases and its prevalence tends to rise steadily. Approximately 1.13 billion people worldwide have hypertension, and approximately 700 million people are untreated. Currently, the global prevalence for men is 31.9 (30.3–33.5) and for women is 30.1 (28.5–31.6), respectively,¹ while in Indonesia is 34.1.² Interestingly the increasing of the prevalence is higher in lower-income and middle-income countries compared to high-income countries. The rate of disability and death due to hypertension is also high, due to the cardiovascular diseases. The world’s biggest killer is ischaemic heart disease, it is responsible for 16% of the world’s total deaths. Since 2000, the largest increase in deaths has been for this disease, rising by more than 2 million to 8.9 million deaths in 2019. Stroke is the second leading causes of death and responsible for approximately 11% of total deaths. Type 2 diabetes mellitus (T2-DM) is also considered an important risk factor that could aggravate and accelerate complications in the target-organs.³ Most of these problems are due to changes in lifestyle.^{3,4}

Various drugs are available for the treatment of hypertension in which ACE-inhibitors are in the first line drug. Since hypertension is a chronic disease that can be controlled by medicaments, therefore adherence could be also an important issue to be considered.^{5,6} The aim of the

study was to observe the knowledge and awareness of laypeople on hypertension and its therapy.

MATERIALS AND METHODS

Subjects and design

This was a cross-sectional descriptive-analytical study that focused on the knowledge and awareness of laypeople on hypertension and its therapy. An online-questionnaire with 11 questions regarding the awareness and knowledge of hypertension and its treatment was developed in Microsoft Form (MS Form) and distributed through social media (WhatsApp) with a snow-ball approach.

Data analysis

The missing data get excluded and then transferred into SPSS ver. 25. The data were presented as frequency or mean ± standard deviation (SD) and then analysed using non-parametric statistics.

RESULTS

TABLE 1 shows that the most common range of the 500 respondents was the range 21-55 years old (246 respondents), while the respondents with hypertension were mostly in the age range of 41-60 years (86 respondents). As much as 66% (330) of respondents had higher education and most of them were undergraduate with female was higher than male (TABLE 2 and 3).

TABLE 1. Age distribution of respondents and distribution of respondents with hypertension

Age-period (years)	Number (%)		Hypertension*
	Female	Male	
< 20	4	4	1
21-40	131	50	7
41-55	115	76	43
56-60	54	45	43
61-70	8	6	7
>70	2	5	3
Total	314 (62.8)	186 (36.2)	104 (20.8)

*Femal = 48; male 56; **Mann-Whitney U test: 0.001; KS-test: 0.021

TABLE 2. Educational background of respondents

Education	n	Female (n)	Male (n)
Primary	7	4	3
Secondary	94	56	38
Diploma	71	53	18
Undergraduate	237	151	86
Graduate	77	44	33
Post-graduate	14	6	8
Total	500	314	186

TABLE 3. Respondents' answers on the right classification of hypertension (JNC 8: $\geq 140/\geq 90$ mmHg)

Gender	Right answer [n (%)]	Wrong answer [n (%)]	Total
Female	161 (52.9)	149 (47.1)	310
Male	109 (59.0)	76 (41)	185

*Chi square-test, p=0.043.

FIGURE 1 shows the answer of the respondent to the question of whether hypertension needs regular treatment. Respondents were also asked concerning medicine to be used for hypertension

treatment, the aetiology and risk-factors of hypertension and complications due to uncontrolled hypertension. The results are shown in FIGURE 2 - 4.

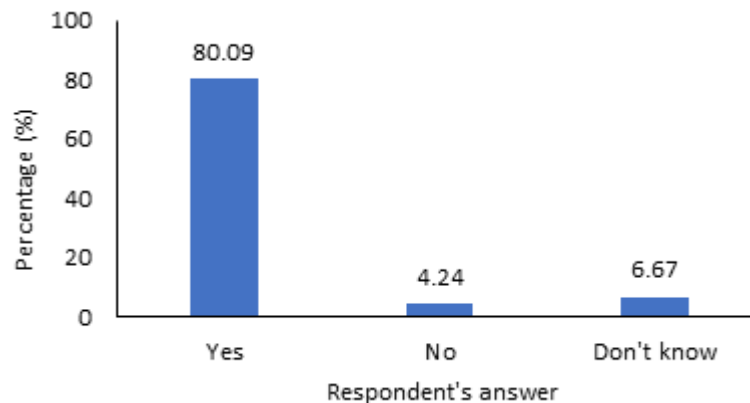


FIGURE 1. Respondent's answer on whether hypertension need a regular treatment

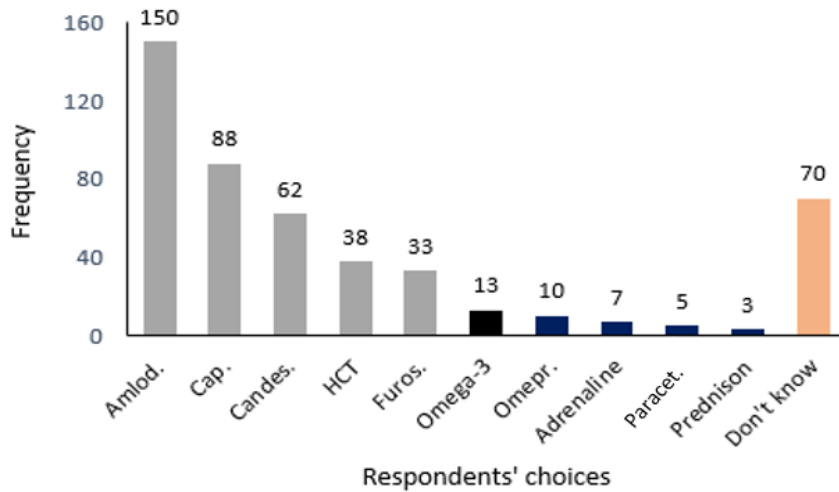


FIGURE 2. Respondents' choices on a question which of the following substances are for hypertension. Abbreviations: Amlod=amlodipine, Cap.=captopril, Candes.=candesartan, HCT=hydrochlorotiazide, Furos.=furosemide, Omepr.=omeprazole, Paracet. =paracetamol

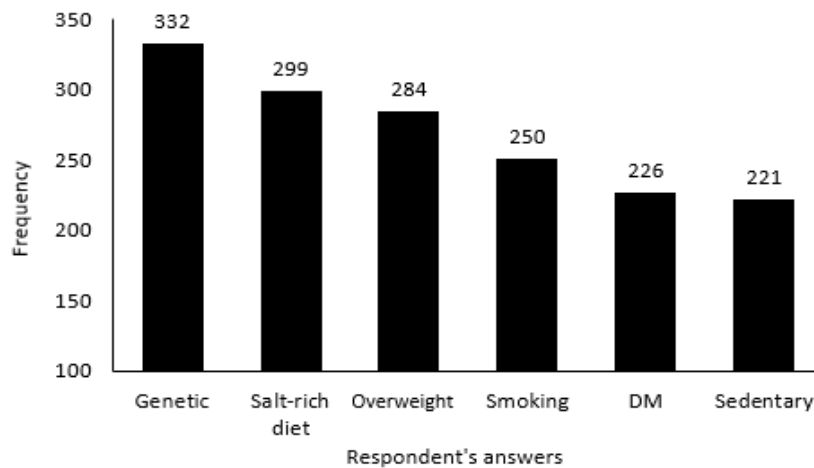


FIGURE 3. Respondents' answers on the aetiology and risk-factors of hypertension

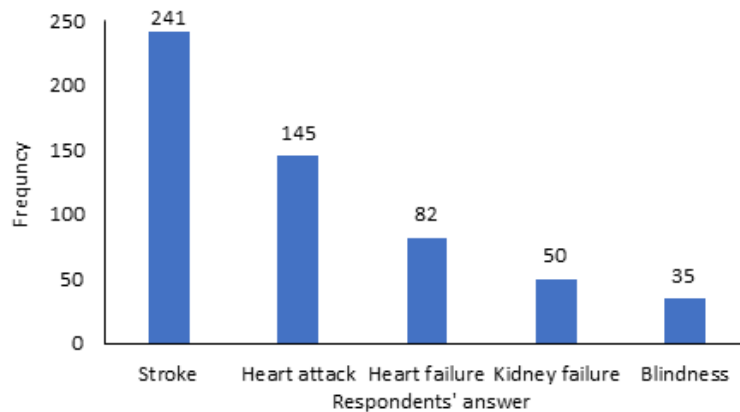


FIGURE 4. Respondents' answers to the question of complications that can arise due to uncontrolled hypertension

Thirty-two respondents from 50 out of 104 respondents who have hypertension answered that they take medicine regularly and 16 respondents did not take medicine regularly and

two respondents took no medicine at all. Responses of respondents who had hypertension to the factors that make hypertension closely controlled can be seen in TABLE 4.

TABLE 4. Respondents' answers to factors that can reduce hypertension

Answer	Physical exercise [n (%)]	Taking medicine regularly [n (%)]	Salt intake restriction [n (%)]	Stop smoking [n (%)]	Reduce weight [n (%)]	Reduce stress [n (%)]	Mean \pm SD [n (%)]
Yes	97(93)	96(92)	96(92)	94(90)	99(95)	102(98)	93.3 \pm 2.8
No	4(3.8)	6(5.7)	5(4.8)	6(5.7)	3(3.0)	2(2.0)	4.2 \pm 1.5
Not know	3(3.2)	2(4.3)	3(3.2)	4(4.3)	2(2.0)	0(0)	2.3 \pm 1.4

DISCUSSION

In comparison to our study, Jongen *et al.*⁸ using a mixed method approach, studied hypertension in rural community, South Africa, found that 74.3% of respondents have intermediate knowledge of hypertension, 14% good and only 11.8% poor knowledge, respectively. In addition, poverty was recognized as a major susceptibility in the community that limits choice for acquiring healthy lifestyles. It is also known that mean systolic blood pressure is highest in lower- and middle-income countries, and it has been increasing over years.^{9,10} As it is shown in TABLE 4, we concluded that our respondents' knowledge on some issues of hypertension such as the importance of salt restriction, taking medicine regularly, and physical exercise are quite high (93.3 \pm 2.8).

In terms of determining the limits of hypertension blood pressure (TABLE 3), male respondents know better than female respondents (p=0.043). This could be based on proportionally more male respondents have a higher education background than female respondents.

Therapy for hypertension

Rational therapy should be applied in any disease, likewise for hypertension treatment. Guidelines

are used as instructions for doctors so that therapy can be given rationally.¹¹ Initial therapy for mild hypertension is non-pharmacological treatment and monotherapy, and combination therapy will be given if it does not work. The class of hypertension drugs contained in all guidelines are diuretics, angiotensin converting enzyme-inhibitors (ACE-i), angiotensin receptor blockers (ARBs), β -blockers, α -blockers, and spironolactone. These drugs can be given alone or in combination depending on the diagnosis and progressivity of the disease.^{12,13} We asked the respondents which anti-hypertensive drugs do they know, and the answers result was amlodipine was the most answer (highest score), then successively captopril, candesartan, furosemide, HCT, etc. However, some respondents also ticked omega-3, omeprazole, paracetamol, prednisone, and even adrenaline as anti-hypertensive agents (FIGURE 2).

Risk factors and complication of hypertension

Genetic status and lifestyles such as high salt intake, overweight, T2DMT, smoking, and sedentary are known risk factors for hypertension.⁴ FIGURE 3 and 4 shows that most of the respondents the knew risk factors and complications of uncontrolled hypertension. This was also

found by Pirasath *et al.*¹⁴ and Malik *et al.*¹⁵ in hypertension patients. According to Mendelian randomization study high-density lipoprotein cholesterol, triglycerides, BMI, alcohol dependence, insomnia, and educational level as causal risk factors for hypertension.¹⁶ This implies that these modifiable risk factors are important targets in the prevention of hypertension. However, our respondents were not entirely hypertensive patients, therefore, their knowledge of hypertension risk factors is quite high. This can be seen in TABLE 4 since most of the respondents' answers to these questions answered with "yes" were around 93.3 ± 2.8 . The internet may have helped them to obtain the knowledge that they have regarding hypertension risk.¹²

Respondents with hypertension

There were 104 respondents out of 500 who have hypertension, and TABLE 4 showed that the respondents understood the factors that can reduce hypertension. This knowledge is useful to maintain therapeutic adherence to both non-pharmacotherapy and pharmacotherapy. Studies in patients with hypertension also reported that their respondents had knowledge of important hypertension factors and practice for blood pressure control.^{14,15} However, in practice they did not make efforts to get their hypertension under control, such as low levels of drug adherence, not checking weight regularly, not reducing salt intake, and not measuring blood pressure regularly. Although 104 of our 500 respondents were hypertensive patients, our respondents were not inpatients so we could not access their data from the clinic, primary health care center (*Puskesmas*), or hospital.

CONCLUSION

It can be concluded that the respondent's knowledge of hypertension, risk factors, complications that may occur due to hypertension, and treatment

is quite adequate. However, this can happen because 66% of the respondents have a higher education background, therefore it is necessary to conduct research on target respondents who have primary and secondary education.

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