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Holistic Education of Hypertension, Treatments, and Diets to Support The Community Health

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Abstract

Hypertension is one of the most frequent conditions found in the primary health care setting, with a prevalence of 34.1% in 2018. One of the factors that may cause the high rate of hypertension in Indonesia is lack of comprehensive information regarding the disease, the risks, the treatment, the prevention, and the family support. This program was a holistic seminar that comprehensively give education to the community regarding the pathophysiology, risk factors, the importance of the treatment, and the lifestyle adaptation for prevention and treatment of hypertension. Out of 66 participants, only 5 people were diagnosed with hypertension at the time of the online seminar. Pre-test was conducted before the online seminar to gauge participants knowledge on pathophysiology, risk factors, and treatment of hypertension, as well as healthy lifestyle for hypertensive patients. Majority of the participants had fair knowledge for the pre-test result which showed a statistically significant difference with the post-test where majority of the participants displayed good knowledge. The online seminar managed to increase the participants knowledge on the pathophysiology, risk factors, the importance of the treatment, and the lifestyle adaptation for prevention and treatment of hypertension as proven with the statistically significant increase of the post-test scores.

Keywords— *hypertension, holistic education, community health*

Abstrak

Hipertensi merupakan salah satu kondisi yang paling sering ditemukan di fasilitas pelayanan kesehatan primer, dengan prevalensi sebesar 34,1% pada tahun 2018. Salah satu faktor yang dapat menyebabkan tingginya angka hipertensi di Indonesia adalah kurangnya informasi yang komprehensif mengenai penyakit, risiko, pengobatan, dan pencegahan hipertensi. Program ini merupakan seminar holistik yang secara komprehensif memberikan edukasi kepada masyarakat mengenai patofisiologi, faktor risiko, pengobatan, dan adaptasi gaya hidup untuk pencegahan dan mengobati hipertensi. Dari total 66 peserta, 5 orang peserta terdiagnosis hipertensi pada saat seminar daring dilaksanakan. Tes awal telah dilakukan sebelum seminar daring untuk mengukur pengetahuan peserta tentang patofisiologi, faktor risiko, dan pengobatan hipertensi, serta gaya hidup sehat untuk pasien hipertensi. Sebagian besar peserta memiliki pengetahuan yang cukup pada saat tes awal dilakukan. Hasil tersebut menunjukkan perbedaan yang signifikan dibandingkan dengan tes akhir dimana sebagian besar peserta mendapatkan hasil yang baik. Seminar daring yang dilaksanakan berhasil meningkatkan pengetahuan peserta tentang patofisiologi, faktor risiko, pentingnya

pengobatan, dan adaptasi gaya hidup untuk pencegahan dan pengobatan hipertensi yang dibuktikan dengan peningkatan skor tes akhir yang signifikan secara statistik.

Kata kunci— *hipertensi, edukasi holistik, kesehatan komunitas*

1. INTRODUCTION

High blood pressure or what we usually call hypertension is considered to be the leading risk factor of multiple diseases, including heart, brain, and kidney diseases (World Health Organization, 2021). It was found that there was an increase of lifetime risk of coronary heart disease and stroke death with an increase in blood pressure (Satoh et al., 2019). In 2015, it was predicted that approximately 1.13 billion people had hypertension and about 67% of them came from low- and middle-income countries (World Health Organization, 2021). Moreover, only 42% of the hypertensive people got diagnosed and treated (World Health Organization, 2021).

In Indonesia, hypertension has become a major public health challenge. According to the Ministry of Health, it is one of the most frequent conditions found in the primary health care setting, with a prevalence of 34.11% in 2018 (Kementerian Kesehatan RI, 2019). This number was significantly increased from 25.8% in 2013 (Kementerian Kesehatan RI, 2014). Among all cities, DKI Jakarta was in the 9th rank for hypertension prevalence in Indonesia based on the physician diagnosis (Pusat Data dan Informasi Kementerian Kesehatan RI, 2019). This is a big health problem, since hypertension may cause another health complication that could be fatal. One of the difficulties of managing hypertension comes from the fact that the majority of cases are silent, which means the condition typically has no symptoms until after it has done significant damage towards tissues and organs (Sawicka et al., 2011). Thus, early detection of hypertension and its risk factors is vital.

There are several risk factors that can induce the rise of hypertension in the human body, including unhealthy diet, physical inactivity, alcohol consumption, tobacco usage, and being overweight/obese (World Health Organization, 2021). Most of these risk factors are also included as the largest contributors to global disability-adjusted life year (DALYs) with level 3 risks in 2015, including high BMI level (number 4 in the world), alcohol consumption (number 9 in the world), and high sodium diet (number 10 in the world) (Forouzanfar et al., 2016). In Indonesia, different set of risk factors of hypertension occur as the largest contributors to DALYs loss, including low consumption of whole grains and fruits (number 5 and 6 respectively), high consumption of sodium (number 7), and alcohol consumption (number 10), showing the importance of dietary awareness in the prevention or treatment of hypertension in Indonesia (Forouzanfar et al., 2016).

As one of the risk factors of stroke, hypertension needs to be treated properly. It was mentioned that the effective treatment of hypertension could contribute to about 60% reduction in the stroke incidence and reduced by about 50% of the mortality rate from coronary artery diseases (Brenner & Stevens, 2013). Eventually, not all types of hypertension need to be medically treated. For prehypertension patients, who are having blood pressures ranging from 120-139 mmHg systolic and 80-89 mmHg diastolic only need to change their lifestyle to prevent their progression into hypertension, unless they have diabetes (Brenner & Stevens, 2013). In contrast, patients having blood pressure greater than 180/110 mmHg should be treated immediately to prevent higher morbidity.

There are many types of antihypertensive drugs available in the market, with different mechanisms and effectiveness, which depends on the patient's condition. The therapy could be given as a single therapy or combination therapy to achieve the target blood pressure levels. In fact, the successful therapy of hypertension is greatly dependent on the patient's compliance. It was reported that about half of the patients treated with antihypertensive drugs stopped taking it within 1 year (Vrijens, Antoniou, Burnier, de la Sierra, & Volpe, 2017). Poor adherence to antihypertensive drugs is the most common cause of apparent resistant hypertension (Jung et al., 2013), and associated with increased risks of coronary and cerebrovascular problems (Vrijens et al., 2012). This noncompliance may come from several

barriers, such as inappropriate financial problems, lack of cooperation in the patient's family, psychological incompatibility, the forgetfulness of taking medications and inconsistent information on the treatment of disease and medication (Najimi, Mostafavi, Sharifirad, & Golshiri, 2018). Study done by Putri, et al. (2017), revealed that about 90% of patients in Puskesmas Jatinangor, West Java, Indonesia, did not obtain complete education regarding diagnosis, pharmacology of treatment and lifestyle modification from their health care professionals. In addition, many hypertensive individuals may also not be aware, or may lack any symptoms to seek proper care for their condition (Musinguzi et al., 2018).

There have been a lot of studies done in the evaluation of public education on hypertension to increase awareness, improve the adherence to therapy and adequately control the high blood pressures. Generally, all studies showed significant increase in the participant's knowledge regarding hypertension, decreased average blood pressure levels, and increased adherence for antihypertensive therapy. The methods that have been used and published were public education engaging health care professionals and government (Campbell, Petrella, & Kaczorowski, 2006), 15 minutes' short lecture about hypertension and its treatment (Roca et al., 2003), dissemination of leaflet to hypertension patients (Susanto & Alfian, 2017), dissemination of booklet to hypertension patients (Wahyuni, 2016), structured education and checklist of therapy (Khomaini, Setiati, Lydia, & Dewiasty, 2017), and community based education classes (Iso et al., 1996). Hence, they can be divided into two types of intervention; long-term intervention (more than one-time education), and short-term intervention (only one-time education or face to face discussion). Long-term intervention apparently gave higher improvement compared to the other one, but required a lot of commitments from both participants and the trainers. Meanwhile, short-term intervention could be as effective when the method is impressive, such as fun facts, illustrations or deep discussions (Campbell et al., 2006; Roca et al., 2003; Susanto & Alfian, 2017).

The objective of this program was to increase the knowledge of a community towards hypertension by giving a one-time holistic education regarding hypertension. In detail, this program would help to enrich the knowledge of the participants regarding the risk of hypertension, the pathophysiology of the disease, prevention ways related to lifestyle and diet, together with the medical treatment and diet treatment for hypertension cases for the general public.

This activity was important as a part of action to improve community health, reduce DALY loss as well as the mortality rate caused by hypertension. It was expected that by giving a holistic education regarding hypertension, the participants will be well informed and able to protect themselves or their family from the risk of hypertension, or to increase their compliance to medication.

2. METHODS

The program was conducted following 5 stages: (1) preparation; (2) publication; (3) online seminar; (4) discussion session; and (5) evaluation of the program. The preparation stage was done in a form of literature review on deciding what the community needs. The best possible approach to provide education to the public amidst the pandemic was also analysed. Based on the analysis, it was decided to provide holistic education for hypertension covering the pathophysiology, risk factors, the importance of the treatment, and the lifestyle adaptation for prevention and treatment of hypertension and deliver it in an online seminar. Since the seminar was online, it was decided to target the general community for the event publication although the focus was on the community in Jakarta and nearby area. The publication stage was done using online social media platform and person-to-person publication using e-flyer. The third, fourth, and fifth stage were done at the same time as an event. The online seminar conducted invited three speakers who were experts in the medical, pharmaceutical, as well as nutrition field. The speakers gave a holistic education to the community regarding the pathophysiology, risk factors, the importance of the treatment, and the lifestyle adaptation for prevention and treatment of hypertension followed by a discussion session with the participants where the participants were allowed to asked any questions on hypertension. Prior to the start of the seminar a pre-test was disseminated using Google Form to obtain information on the participants' baseline knowledge on pathophysiology, risk

factors, and treatment of hypertension, as well as healthy lifestyle for hypertensive patients. The pre-test also included questions on the demography of the participants. Following the online seminar, a post-test was disseminated using Google Form to evaluate the effectiveness of the seminar. The pre-test and post-test results were statistically analyzed using Mann-Whitney U non-parametric test. The statistical analysis was done using GraphPad Prism 9.

3. RESULTS AND DISCUSSION

A short-term intervention was conducted to provide education on hypertension pathophysiology, risk factors, and treatment of hypertension, as well as healthy lifestyle for hypertensive patients. Considering the COVID-19 pandemic, online seminar was chosen as the delivery method to ensure safety of the participants. Online seminar and discussion session was successfully conducted via Zoom meeting for a total of 3 hours. A total of 66 participants from Jabodetabek (85.56%) as well as outside of Jabodetabek (19.44%) attended the online seminar out of which only 36 participants consented to the use of their data for publication. As can be seen in table 1, out of 36 participants, most of the participants were between 41-50 years old (36.11%) followed by 30.56% from 51-60 years old, and 13.89% were above 60 years old. Notably more female participants (88.89%) attended the online webinar. The highest level of education of the participants varied from high school, undergraduate degree, and master's as well as doctoral degree.

Out of 36 participants, only 13.89% of the participants were diagnosed with hypertension which comprises 4 females and 1 male. As displayed in table 2, all hypertensive participants were above 40 years old. Out of 5 hypertensive participants, 2 were passive smokers while none were active smokers. Two participants were diagnosed with hypertension less than a year, 2 participants were diagnosed between 1-3 years while 1 participant was diagnosed more than 5 years ago. Unfortunately, only 2 participants comply with their medication. The other 3 participants stated that they did not 100% comply with their treatment because their blood pressure was not always high which indicates inadequate education on hypertension pathophysiology and treatment.

Table 1. Demography of Participants

Demographic Categories	No. of participants	% (n=36)
Age (years)		
>60	5	13.89
51-60	11	30.56
41-50	13	36.11
31-40	3	8.33
21-30	4	11.11
<20	0	0.00
Gender		
Male	4	11.11
Female	32	88.89
Highest level of education		
High school	4	11.11
Undergraduate degree	22	61.11
Master's or doctoral degree	10	27.78
Diagnosed with hypertension		
Yes	5	13.89
No	31	86.11

Pre-test was conducted before the online seminar to gauge participants knowledge on pathophysiology, risk factors, and treatment of hypertension, as well as healthy lifestyle for hypertensive patients. After the online seminar, a post-test was conducted to evaluate the impact of the seminar on participants' knowledge. The pre-test and post-test were scored and categorised into bad for score under 50, poor for score between 50 to 59, fair for score between 60 to 69, good for score between 70-79, and excellent for score between 80 to 100. The score range for pre-test was 37 to 73 while for post-test was 67 to 83. In the pre-test, most participants achieved a score in the fair category (47.22%). The highest score in the pre-test fell into the good category while the lowest score was in the bad category as displayed in table 3 below. While in the post-test, 7.69% of 13 participants achieved a score in the excellent

category, while 76.92% participants achieved a score in the good category.

Table 2. Demography of Hypertensive Participants

Demographic Categories	No. of participants	% (n=5)
Age (years)		
>60	1	20
51-60	2	40
41-50	2	40
Duration of hypertension		
Less than a year	2	40
1-3 years	2	40
3-5 years	0	0
> 5 years	1	20
Medication compliance		
100% comply	2	40
50-89% comply	2	40
0-49% comply	1	20
Smoking		
Active	0	0
Passive	2	40

Table 3. Pre-test and Post-test Scores Distribution

Category (Score Range)	Pre-test (n=36) No. of Participants (%)	Post-test (n=13) No. of Participants (%)
Excellent (80-100)	0 (0)	1 (7.69)
Good (70-79)	6 (16.67)	10 (76.92)
Fair (60-69)	17 (47.22)	2 (15.39)
Poor (50-59)	10 (27.78)	0 (0)
Bad (<50)	3 (8.33)	0 (0)

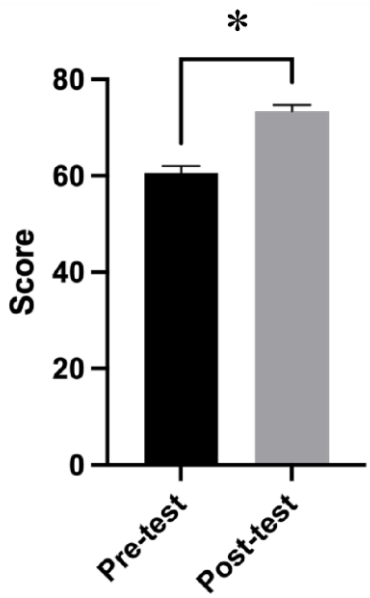

Figure 1. Pre-test and Post-test Score

A more detailed evaluation on the pre-test answers showed that the majority of the participants had poor knowledge on pathophysiology and risk factors of hypertension while having fair knowledge on treatment as well lifestyle for hypertensive patients. All three aspects were found to be increased in the post-test, where the average knowledge on pathophysiology and risk factors of hypertension increased to fair and knowledge on treatment as well lifestyle for hypertensive patients increased to excellent. Polling and short quizzes were also incorporated into the seminar to make it more interactive and further increase the engagement of the participants. In the discussion session, participants had the opportunity to ask questions on the topic where most participants addressed their misconception on hypertension and its treatment.

It can be seen that the participants experienced an increase in their knowledge of hypertension and healthy lifestyle for hypertensive patients as noted by a major increase in participants who scored good. Figure 1 shows that the participants scored an average of 60.58 ± 8.54 (n=36) for the pre-test which showed a statistically significant difference with the post-test averaging 73.38 ± 4.66 (n=13) ($p<0.05$). This showed that the short-term intervention approach by giving education in a form

of online seminar and discussion were successful in increasing the knowledge of participants on pathophysiology, risk factors, and treatment of hypertension, as well as healthy lifestyle for hypertensive patients. We also found that 61.5% of the participants felt the increase in their knowledge while 38.5% of the participants were interested to know more about hypertension. Nevertheless, there were limitations encountered in this study. Due to the online nature of the event, it was difficult to have all participants fill in the post-test form even though there were multiple reminders as well as gimmicks that were offered. Hence, we were not able to obtain a thorough before and after comparison of the online seminar from all participants. There was also a limited sample size that might not be representative of the community. In addition, with a short-term intervention approach there was no long-term monitoring of the participants to evaluate their behavioural changes as a result of the education, specifically with hypertensive participants who did not comply with their treatment. This might prove to be less effective in overall improvement of the hypertensive participants blood pressure and treatment compliance especially since the increase of knowledge was determine right after the online seminar when the memory on the materials were still fresh (Amer et al., 2019; Lu et al., 2015).

4. CONCLUSION

In conclusion, the majority (47.22%) of the participants had a fair knowledge on hypertension pathophysiology, risk factor, treatment, as well as healthy lifestyle for hypertensive patients. The short-term educational intervention in the form of an online seminar followed by a discussion session was effective and managed to increase the participants' knowledge, as shown from the post-test result where 76.62% and 7.69% of the participants managed to achieve good and excellent score categories, respectively. In the future, more targeted publication of the program to increase the number of participants would be beneficial. Furthermore, long-term monitoring may be designed to evaluate the effect of the intervention on the participants' behaviour while still using effective methods to engage the participants in an online event.

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