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The Impact of Health Education on The Level of Knowledge About Hypertension and Posbindu

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Abstract: The aim of this research is to determine whether or not there is an impact of health education on increasing public knowledge about hypertension and posbindu in Tambakharjo Village, West Semarang District, Semarang City. The research results showed that there was a change in respondents' knowledge for good knowledge levels from an average of 66.66 (pretest) to 85.33 (posttest). Based on the t test, the sig value is obtained. 2 tailed is 0.000 (< 0.05). This means that health education actions have an effect on increasing respondents' knowledge about hypertension and posbindu. The conclusion of this research is that health education activities about hypertension and posbindu have a significant impact on increasing public knowledge in Tambakharjo Village, Semarang City.

Keywords: Health education, Hypertension, Posbindu, Level of knowledge

Introduction

As a crucial issue in society, health is the main focus in supporting the productivity of various human activities. The importance of health is one of the main investments in a nation's development, where a country with healthy citizens will also produce quality human resources. According to the World Health Organization (WHO) in 1948, health is a state of physical, mental and social well-being that enables everyone to live a socially and economically productive life. In health problems, changes in socio-economic, environmental and population structure are the causes of changes in disease frequency patterns (Utami, 2016). The shift from infectious diseases to non-communicable diseases is a challenge and the main focus that must be addressed in the development of the health sector in Indonesia (Chayati et al., 2023). This is in line with the increasing morbidity and mortality rates due to non-communicable diseases (NCDs) so that they become a health threat that increases the economic, social burden on families and society (Haryani et al., 2022).

Non-communicable diseases (NCDs) are diseases that sufferers cannot transmit to other people and are chronic diseases that develop slowly and over a long period of time.

This epidemiological transition has resulted in changes in disease patterns with an increase in chronic degenerative diseases. One of these degenerative chronic diseases is hypertension, which contributes to high mortality rates, thus affecting a person's quality of life and productivity (Prabawati et al., 2022). Hypertension is a cardiovascular disease where blood pressure is above normal. This disease is often called "*silent killer*" because there are no symptoms so that without realizing it the sufferer experiences complications in vital organs (Mathavan & Pinatih, 2017). In another opinion, hypertension is defined as a chronic disease with the characteristics of blood pressure that tends to fluctuate over a long period of time, so that it requires long-term treatment, even lifelong (Triyanto, 2014).

Based on Basic Health Research (Riskesdas Ministry of Health of the Republic of Indonesia, 2018) the prevalence of hypertension in Indonesia in 2018 was 34.1%. This has increased compared to the previous prevalence in 2013 of 25.8%. The prevalence of hypertension based on measurement results in residents ≥ 18 years old shows that Semarang City is in 5th place with the most hypertension sufferers, namely 40.69% (Riskesdas, 2018).

Hypertension can attack anyone. Not only adults or the elderly, but also children, especially if they have an unhealthy lifestyle. It is recorded that 1 in 4 adults in the world suffer from hypertension. It is even predicted that in 2025, hypertension sufferers will continue to experience an increase of 1.5 billion cases, causing 9.4 million sufferers to lose their lives (Ministry of Health, 2019). Uncontrolled hypertension will result in complications in other organs. This is because high blood pressure causes blood vessels to narrow, leak, burst or become blocked so that if left to continue, it will cause the blood vessels to split and even cause death.

Efforts to control hypertension are very important considering the high number of cases in Indonesia. Control of this disease is carried out with the commitment of all elements in society by establishing an Integrated Post for Non-Communicable Diseases (Posbindu) for PTM (Restila et al., 2022). Posbindu PTM is a form of community health-based effort under the guidance of the community health center which is related to controlling NCD risk factors. In the posbindu PTM, early detection and monitoring activities for NCD risk factors are carried out and follow-up actions are carried out in an integrated, routine and periodic manner (Fuadah & Rahayu, 2018). The main target of Posbindu PTM is all people aged 15 years and over, whether healthy, at risk, or suffering from PTM (Fentia et al., 2022).

If hypertension is detected late, treatment will be much more difficult than if hypertension is discovered early. Meanwhile, the level of public awareness regarding early detection of hypertension at Posbindu PTM is still lacking. This is caused by several factors, one of which is a person's lack of knowledge. In line with research (Ginting, 2019) knowledge is related to the use of Posbindu PTM which is a determining factor for someone to come to Posbindu PTM. If people's knowledge about posbindu is lacking, they will tend to stay at home because they don't know about posbindu (Maharani, 2023). As is the case with hypertension sufferers, generally they will realize after their condition gets

worse that comorbidities appear. In fact, this disease can be prevented and controlled by having a better understanding of hypertension.

One effort to increase understanding of hypertension and posbindu can be done through health education through counseling. Health education according to (Purwati et al., 2014) is an effort to spread messages and instill confidence so that people are not only aware and understanding, but can also carry out recommendations that are expected to improve health status, prevent disease, increase the degree of health, maximize function. and the role of sufferers during illness, as well as helping families and other sufferers in overcoming health problems. Counseling is an effective effort to increase knowledge and information in preventing and controlling hypertension. Various media can be used to provide outreach. One of them is leaflets as a visual media used to attract people's attention when listening to the material being presented (Marbun & Hutapea, 2022)

The aim of this research is to determine whether or not there is an impact of health education on increasing public knowledge about hypertension and posbindu in Tambakharjo Village, West Semarang District, Semarang City.

Methodology

This research uses quantitative methods with a pre-experimental research approach using the One Group Pretest-Posttest design type. Pre-experimental design is not yet included in the actual experiment because there are still external variables that impact the dependent variable (Vandana, 2018). Apart from that, this research only used one group because the pre-experimental design only applied treatment to one subject without a control group (Hasan et al., 2021). The following is the One Group Pretest-Posttest design

Class	Pre-Test	Treatment	Post-Test
Experiment	O_1	X	O_2

This research applies intervention or treatment in the form of health education using a question and answer lecture method to the Tambakharjo Village community which was carried out at Tirang Beach on Sunday, December 10 2023 with a total sampling of 20 people consisting of 18 PKK representatives from each RT, the FKK Chair, and The village head of Tambakharjo Village. The variables of this research are the level of public knowledge about hypertension and posbindu. The level of knowledge is obtained through filling out questionnaires during the pre-test and post-test. The pre-test was carried out before the health education, while the post-test was carried out directly after the education. The instrument used in this research was a questionnaire consisting of 15 multiple choice questions about hypertension and posbindu. The education media used was leaflets containing material about hypertension and posbindu. The data obtained will then be analyzed using the paired T test.

Result and Discussion

Statistical results relating to respondents' initial test scores (pretest) before being given health education about hypertension and posbindu which are grouped based on knowledge level categories can be seen in the table below.

Table 1. Distribution of respondents based on level of knowledge before counseling

Category	Information	Frequency	%
Good	≥ 76-100	4	20
Enough	60 – 75	9	45
Less	≤ 60	7	35
Total		20	100

Source: Processed Primary Data 2023

Based on table 1 above, it can be seen that the level of knowledge of respondents before being given treatment in the form of health education about hypertension and posbindu, namely 45% (9 people) of respondents had a level of knowledge in the sufficient category with a value range of 60 - 75 and in the less category of 35 % (7 people) with a range of values ≤ 60. The following is the frequency distribution of respondents' pretest scores before being given treatment in the form of health education about hypertension and posbindu.

Table 2. Pretest central tendency value

Central Tendency Values	Frequency
Mean	66.66
Median	66.66
Modus	66.67
Minimum Value	46.66
Maximum Value	86.66
Standard Deviation	11.64
Range	40.00

Source: Processed Primary Data 2023

Based on table 2 above, the frequency distribution of respondents' pretest scores shows that the mean or average score of the 20 respondents is 66.66, the median is 66.66, and the mode is 66.67. Apart from that, the minimum pretest score is 46.66, the maximum score is 86.66, and the standard deviation is 11.64.

Obtaining statistical results relating to the final test scores (posttest) of respondents after being given treatment in the form of health education about hypertension and posbindu which are grouped based on knowledge level categories can be seen in the table below.

Table 3. Distribution of respondents based on level of knowledge after counseling

Category	Information	Frequency	%
Good	≥ 76-100	15	75
Enough	60 – 75	3	15
Less	≤ 60	2	10
Total		20	100

Source: Processed Primary Data 2023

Based on table 3 above, it can be seen that the level of knowledge of respondents after being given treatment in the form of health education about hypertension and posbindu, namely that the majority of respondents had a level of knowledge in the good category of 75% (15 people) with a value range of ≥ 76-100. The following is the frequency distribution of respondents' posttest scores after being given treatment in the form of health education about hypertension and posbindu.

Table 4. Posttest central tendency value

Central Tendency Values	Frequency
Mean	85.33
Median	86.66
Modus	93.33
Nilai Minimum	60.00
Maximum Value	100.00
Standard Deviation	12.53
Range	40.00

Source: Processed Primary Data 2023

Based on table 4 above, the frequency distribution of respondents' posttest scores shows that the mean or average score of the 20 respondents is 85.33, the median is 86.66, and the mode is 93.33. Apart from that, the minimum posttest score is 60.00, the maximum score is 100.00, and the standard deviation is 12.53.

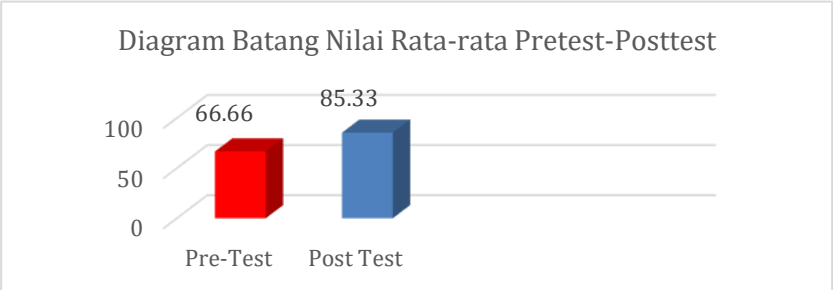

Figure 1. Bar diagram of the average pretest and posttest level of knowledge about hypertension and posbindu

Based on Figure 1 above, you can see the differences before and after health education about hypertension and posbindu through pretest and posttest questionnaires. The average score of respondents before being given health education (pretest) was 66.66, while after being given health education (posttest) was 85.33.

Based on the results of test statistical data *Paired Sample T-Test* obtained from the results of data processing in the application *staticial package for social science* (SPSS) version 26, data can be presented as follows

Table 5. Differences in Pretest and Posttest scores for levels of knowledge of hypertension and posbindu

Category	N	Mean	Correlation	Std deviation	Sig. (2 tailed)
Pretest and Posttest Knowledge Level	20	18.667	0.128	15.981	0.000

Source: Processed Primary Data 2023

In the paired t test, the decision making requirement is to look at the value at the 2 tailed significance level of 5% or 0.05. If the 2-tailed significance value is less than 0.05 then there is a significant impact on the difference in treatment given to each variable. On the other hand, if the 2-tailed significance value is more than 0.05 then there is no significant impact on the differences in treatment given to each variable. Test results using the SPSS application with data analysis techniques *Paired Sample T-Test* above, a 2-tailed significance value of 0.000 < 0.05 was obtained so that there was a significant impact on the differences in treatment given to respondents before and after health education.

Based on the results of statistical analysis, data was obtained that the pretest and posttest scores had a number of differences between the two. In the central tendency data, the pretest had the lowest value, namely 46.66, while the lowest value for the posttest data was 60.00. The highest score in the pretest data was 86.66 and the highest score in the posttest data was 100.00. In terms of modes or values that often appear, respondents got the most scores of 66.67 on the pretest and 93.33 on the posttest. Apart from that, the average score on the pretest was 66.66 and the average posttest score was 85.33 with an average difference of 18.67. This shows that the score obtained by respondents on the posttest after the health education was higher than the pretest score before the health education. Data resulting from increasing community knowledge are grouped based on the assessment scale as follows.

Table 6. Pretest and posttest assessment scale

Category	Information	Number of Respondents	
		Pretest (%)	Posttest (%)
Good	≥ 76-100	4 (20)	15 (75)
Enough	60 – 75	9 (45)	3 (15)
Less	≤ 60	7 (35)	2 (10)
	Total	20	20

Source: Processed Primary Data 2023

Based on table 6. above, you can see the comparison of scores before health education (pretest) and after health education (posttest). Before treatment was carried out in the form of health education, respondents tended to have a enough level of knowledge of 45% (9 people) and a category of less level of knowledge.by 35% (7 people). Meanwhile, the good knowledge level category was only 20% (4 people). After carrying out treatment in the form of health education about hypertension and posbindu, most of the respondents' posttest results were in the good knowledge level category at 75% (15 people). The frequency of respondents with a good level of knowledge at the posttest compared to the pretest increased 3 times. Meanwhile, in the enough category it was 15% (3 people) and in the less category it was 10% (2 people) where this figure decreased from pretest to posttest. This shows that health education about hypertension and posbindu using the question and answer lecture method using leaflet media can be implemented so that it can increase public knowledge in Tambakharjo Village.

In the results of statistical test analysis using the *Paired Sample T-Test*, It is known that there are differences in the level of knowledge of respondents before and after health education about hypertension and posbindu using the question and answer lecture method using leaflet media. The difference can be seen from the output of the Paired Sample T-Test test results where the average (Mean) result of the pre test is 66.66 and the post test is 85.33 with a difference in the Mean value of 18.67. Then the Standard Deviation is 15,981. Because Mean Pretest < Mean Post Test it can be described that there is a difference between the average test results. Likewise, the correlation coefficient value is 0.128, which means there is a relationship between the pre-test and post-test. Test results*Paired Sample T-Test* obtained Sig value 2 tailed 0,000 < 0,05 up to there is a significant impact on the differences in treatment given to respondents before and after health education.

The results of the analysis above prove that the level of knowledge of respondents after being given treatment in the form of health education about hypertension and posbindu using the question and answer lecture method using leaflet media has increased compared to before the treatment was carried out. This shows that counseling is an effective effort to increase respondents' knowledge. In line with research (M N. Okeke, 2015) that counseling is a good way to increase public understanding. Apart from that, the application of the question and answer lecture method increases the effectiveness of health education. The reason is that in this method there is an interaction that is carried out so that it attracts the target's interest to be more active in the extension activities (Goni et al., 2019). Extension using the question and answer lecture method has advantages compared to using other methods because the facilitator can be directly noticed, trusted and imitated so that it can give confidence to the community (Goni et al., 2019).

The use of leaflet media in health education helps the public understand the information to be able to receive messages from the extension services. This is because the leaflet media is easy to understand and contains images that can be seen directly so that it attracts readers' interest. The combination of the question-and-answer lecture method and

printed leaflet media in health education has had a significant impact in increasing public knowledge because it involves the senses of sight and hearing, so that respondents not only hear, but also see and read.

Conclusion

Based on the results of research conducted on December 10 2023 on 20 respondents in Tambakharjo Village, West Semarang District, Semarang City regarding the impact of health education on the level of community knowledge regarding hypertension and posbindu, it can be concluded that before receiving treatment in the form of health education, the average value pretest was 66.66 and after giving counseling it was 85.33. There is an impact of health education about posbindu and hypertension using the question and answer lecture method and leaflet media to increase public knowledge in Tambakharjo Village. Proven by test results *Paired Sample T-Test* From data processing in the SPSS application, the results obtained were 2 tailed significance value 0.000 < 0.05 so it can be concluded that there is a difference in the level of knowledge of respondents before and after health education was carried out.

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