The Effect of Leaflet on Hypertension Knowledge in Hypertensive Patients in Community Health Center in Surabaya City

Iin Ernawati*, Selly Septi Fandinata, Silfiana Nisa Permatasari

Akademi Farmasi Surabaya, Surabaya Indonesia

Abstract

BACKGROUND: The prevalence of hypertension in Indonesia based on the results of a population survey up to 2018, it is known that the age of ≥18 years diagnosed by doctors is 34.1%. Increased knowledge in this study by providing educational interventions in hypertensive patients.

AIM: This study aims to determine the effect of giving leaflets on the level of knowledge in hypertensive patients.

METHODS: This study is a quasi-experimental study of leaflets for hypertensive patients conducted at 5 Community Health Centers in Surabaya City. The primary outcome observed was the level of knowledge between 2 groups which are the intervention group (given leaflets) and the control group (baseline). In the intervention group measuring the level of knowledge before and after 2 weeks were given the leaflet intervention. The level of knowledge was measured using the Indonesian version of the hypertension knowledge-level scale questionnaire. The leaflet used contains the definition, limits of blood pressure in hypertension, diet and lifestyle advice, and the importance of adherence to medication consumption according to the regimen recommended by doctors to control blood pressure.

RESULTS: The majority of knowledge levels in the control group (32.64%) and the intervention group increased the percentage of the high level of knowledge from 13.4% to 62.89% after being given a leaflet. Based on statistical analysis, it is known that there is an effect of giving leaflets to the level of knowledge between the control and post-intervention group, and pre-post intervention gave significant changes (p < 0.001). The effect of leaflets on changes in systolic and diastolic blood pressure was known not to provide significant changes in the control and post-intervention group, and pre-post intervention gave significant changes (p < 0.001).

CONCLUSION: The leaflet provides a better change based on 5 indicators performance of hypertension.

Introduction

Hypertension is a chronic disease that is currently increasing in prevalence and requires long-term care [1]. Hypertension is defined as a systolic blood pressure of ≥140 mmHg and diastolic blood pressure of ≥90 mmHg [2], [3]. The prevalence of hypertension is increasing globally and is the most increasing in low-middle income countries [3]. The prevalence in general worldwide is estimated at 31.1% and will affect 1.39 billion people [4]. The prevalence of hypertension in Indonesia based on a population survey until 2018, it is known that the age of ≥18 years diagnosed by doctors is 34.1% [5]. Hypertension is a risk factor that causes 1.5 million deaths per year in Southeast Asia [6]. The death of 45% of cardiovascular disease is caused by the presence of non-communicable diseases, with the main risk factor being uncontrolled hypertension [3]. Based on the WHO data, it was found that 56.4 million deaths occurred in 2015, with an average of 70% of deaths contributing to non-communicable diseases, including hypertension [7].

Blood pressure control is one of the efforts to reduce the prevalence of hypertension. Blood pressure control can be carried out using antihypertensive drugs and lifestyle modification to avoid complications of cardiovascular diseases such as stroke, heart disease, diabetes mellitus, and kidney [8], [9], [10]. Controlled blood pressure is predominantly affected by the administration of drugs according to the disease, adequate dosage, and adherence to therapeutic regimens [3]. Adherence with drug consumption and the accuracy of drug administration are two things that must be done on an ongoing basis to control blood pressure, apart from lifestyle factors.

Based on research from Hill et al. [11], it is known that adherence to drug consumption during the first year using antihypertensive drugs is only around 50%. The number of adult patients with hypertension in low-middle-income countries is known to have a high proportion of uncontrolled blood pressure [4]. This happens one of them due to the impact of suboptimal adherence that causes uncontrolled blood pressure [3]. Increased knowledge about hypertension is one way to increase understanding of things related to hypertension, both in terms of lifestyle, diet, adherence to medication, and complications. The level of knowledge of hypertensive patients is one of the factors that influence adherence to the treatment regimen and the patient’s lifestyle.
Research by Saleem et al. [12] stated that the lack of knowledge and trust in the treatment of hypertension is a factor that affects the quality of life of patients. Knowledge and awareness are strong predictors of prevention and treatment adherence of hypertensive patients [13], [14], [15]. The knowledge is given to the general public and hypertensive patients are carried out in several ways, including providing educational interventions and behavioral changes. Interventions that can improve adherence to hypertensive patients can be carried out including by doctors (providing information about hypertension and risk of complications), direct intervention in patients (self-monitoring of blood pressure, giving instructions or motivational strategies, and simplifying drug regimens), or interventions on the health system [3]. Other interventions to improve adherence are behavioral interventions such as the provision of instruments to improve patients’ memories of taking the medication regularly [16], [17].

Based on research from Ekpenyong et al. [18], education or health education interventions can increase knowledge. Other studies state that community-based educational interventions with adult and elderly patient subjects can increase knowledge, prevention, and self-care for hypertensive patients [19]. Leaflet interventions are educational interventions or information on matters related to hypertension given to hypertensive patients through leaflets. The leaflet used contains the definition of blood pressure in hypertension, diet, lifestyle, and the importance of adherence to medication consumption according to the regimen recommended by doctors to control blood pressure. The purpose of this study was to determine the effect of leaflet administration on the level of knowledge of hypertensive patients. Measurement of the level of knowledge in this study uses the hypertension knowledge-level scale (HK-LS) questionnaire [20].

Methods

This research is a quasi-experimental research with an intervention group (given leaflet) and a control group (not given leaflet). The research subjects were given informed consent containing an explanation of the research and the research subject’s consent form. For informed consent and forms for consent, HK-LS questionnaire [20], which the researcher has translated into Indonesian version, was given online or telephone. If prospective research subjects are willing to be contacted by telephone or text message or WhatsApp, then the questionnaire can be sent through the Google form link. For research subjects who have difficulty using mobile phones or short message applications can be represented by family members or people who monitor taking research subjects’ drugs. This research was conducted at 5 Community Health Centers (Jeruk, Ketabang, Gayungan, Tambakrejo, Benowo) in Surabaya City. This research was conducted in May-June 2020. This research has been submitted to the ethics committee of the Faculty of Public Health, Airlangga University, with the ethical approval number: 96/EA/KEPK/2020.

Inclusion criteria

The following criteria were included in the study:

- Patient (20–70) years of diagnosis of hypertension and receiving antihypertensive drug therapy
- Patients with complete data (medical records and prescription drugs)
- Patients who visit the community health center at least take antihypertensive drugs for 1 month
- Patients who are willing to be contacted through a WhatsApp or telephone or text message.

Exclusion criteria

The following criteria were excluded from the study:

- Patients with hypertension in children
- Patients in pregnant and nursing women who suffer from hypertension
- Patients with incomplete medical record data
- Patients with mental retardation.

Drop out criteria

- Patients who have entered the inclusion criteria but dropped out
- Patients who have entered inclusion criteria have changed drug treatment regimens based on doctor’s orders.
**Knowledge of hypertension**

Measurement of the level of knowledge in this study uses the HK-LS questionnaire [20], which the researcher has translated into the Indonesian version and tested for validation and reliability. Based on the validity test, it was known that all HK-LS statement items were valid. For the reliability test, it was known that the Cronbach’s alpha coefficient of hypertension was 0.758. The level of knowledge using the HK-LS questionnaire consisting of 22 statement items has three answer choices, including “true,” “false,” and “don’t know.” Each correct answer from the HK-LS questionnaire scores 1. The maximum score from the HK-LS questionnaire is 22. [21]. The level of hypertension knowledge using the HK-LS questionnaire was divided into two levels, namely, low knowledge (score ≤17) and high knowledge (score 18–22) [22].

**Statistical analysis**

The analysis of the results in this study is based on Key Performance Indicator (KPIs) which are used to see how the effect of leaflet intervention on outcome indicators of hypertensive patients. Performance indicators of hypertension management in this study are the knowledge level of hypertension, mean systolic blood pressure, mean diastolic blood pressure, the prevalence of hypertension, and prevalence of controlled hypertension. The normality of data distributions was verified using the Shapiro-Wilk and Lilliefors test. Qualitative and ordinal variables were grouped in contingency tables, with numbers (n) and percentage (%) calculated. The independence of qualitative characteristics in control, pre- and post-intervention was verified using Pearson’s chi-squared test. Pearson’s chi-squared test checks for differences in the proportion of a variable among the groups. Comparative statistical analysis between low and high knowledge levels in the studied group using the Mann–Whitney test. Statistical testing of the influence of leaflets on knowledge (control and intervention groups) was carried out non-parametric (Mann–Whitney) data analysis, for the pre-test and post-test was verified using Wilcoxon analysis. Statistical analysis in this study was conducted using SPSS version 20 Software.

**Results**

**Patients characteristics**

Research on the effect of leaflet administration on the level of hypertension knowledge measured using the HK-LS questionnaire using 387 samples (193 control subjects and 194 treatment subjects received leaflets). Based on sociodemographic data, in the control and intervention groups, it is known that the majority of respondents are female with an age range of 40–60 years. The type of therapy that uses antihypertensive drugs is monotherapy. Most educational backgrounds are a senior high school, with the majority level of knowledge being a low level of knowledge as measured using the HK-LS questionnaire (Table 1). In the control group, the mean systolic blood pressure was 143.53 mmHg and diastolic blood pressure 83.13 mmHg. However, in the pre-intervention group, the average systolic blood pressure was 143.48 mmHg, and diastolic blood pressure 83.7 mmHg. The post-intervention group giving leaflets had a change in the average systolic blood pressure to 136.5 mmHg and diastolic blood pressure to 79 mmHg (Table 1).

**Table 1: Baseline characteristic**

| Sociodemographic characteristic | Baseline | Before | After |
|---------------------------------|----------|--------|-------|
| Gender                          |          |        |       |
| Male                            | 59 (30.57%) | 134 | 134 |
| Female                          | 134 (69.43%) | 60 | 60 |
| Age                             |          |        |       |
| 20-40 years                     | 8 (4.14%) | 9 | 9 |
| 41-60 years                     | 104 (53.89%) | 105 | 105 |
| >60 years                       | 81 (41.87%) | 80 | 80 |
| Type of therapy                 |          |        |       |
| Monotherapy                     | 112 (57.22%) | 112 | 112 |
| Combination                     | 17 (8.75%) | 17 | 17 |
| Background education            |          |        |       |
| Elementary high school          | 10 (5.14%) | 11 | 11 |
| Junior high school              | 26 (13.37%) | 29 | 29 |
| Senior high school              | 71 (36.59%) | 71 | 71 |
| Diploma degree                  | 7 (3.63%) | 3 | 3 |
| Bachelor and master degree      | 32 (16.58%) | 30 | 30 |
| Level of knowledge (HK-LS questionnaire) |          |        |       |
| Low (score ≤17)                 | 130 (67.36%) | 168 | 168 |
| High (score >17)                | 63 (32.64%) | 26 | 26 |
| Blood pressure                  |          |        |       |
| Systolic and diastolic blood pressure ≤140/90 mmHg | 152 (78.76%) | 165 | 165 |
| Systolic and diastolic blood pressure >140/90 mmHg | 41 (21.24%) | 22 | 22 |
| Mean systolic blood pressure (mmHg) | 143.53 | 143.48 | 136.5 |
| Mean diastolic blood pressure (mmHg) | 83.13 | 83.7 | 79 |

**Characteristic of knowledge level based on HK-LS questionnaire**

The percentage of each sociodemographic factor (baseline characteristic) to the level of hypertension knowledge is shown in Table 2. The level of knowledge of hypertension measured using the HK-LS questionnaire can be divided into two levels, namely, low level (score ≤17) and high level (score > 17) [21]. In Table 2, it is known that the majority of the three groups studied (control, pre-intervention, and post-intervention) had a low percentage of knowledge of hypertension. Based on the Pearson Chi-square test, individual characteristics on the level of knowledge of hypertension, such as gender, age, type of therapy, and level of education, do not affect the level of knowledge of hypertension (low and high). However, systolic blood pressure that exceeds normal in the intervention group (pre and post) influences the
level of knowledge of hypertension. The comparative statistical analysis between low and high knowledge levels in the three study groups observed (control, pre-, and post-intervention) had a significant difference from the HK-LS questionnaire scores (Table 2). Meanwhile, the comparative statistical analysis of low and high levels of knowledge in the two test groups (control and pre-intervention) showed that there was a statistically significant difference ($p = 0.021$ and $p = 0.001$). Comparative statistical analysis on the low-level of knowledge between the control and post-intervention groups had a statistically significant difference ($p = 0.004$) (Table 2).

**Performance indicators in hypertension management**

The goal of hypertension health management is to reduce the prevalence of hypertension and control the patient’s blood pressure to prevent complications from cardiovascular disease. There needs to be a performance indicator that assesses that every lifestyle advice, and the importance of adherence to medication consumption according to the regimen recommended by doctors. The effect of giving leaflets on the level of knowledge of hypertension and changes in blood pressure can be seen in Table 4. Leaflets provided a significant difference between before and after the intervention and between the post-intervention and control groups, respectively, with $p < 0.000$ and $p < 0.000$. The distribution of leaflets did not provide a significant difference in systolic and diastolic blood pressure in the control and post-intervention groups with a value of $p = 0.508$ and $p = 0.985$ (Table 4).

### Table 2: Knowledge level (HK-LS questionnaire)

| Nominal (qualitative) variable of characteristic | Baseline (n total = 193) | p-value | Before (pre leaflet intervention) (n total = 194) | p-value | After (post leaflet intervention) (n total = 194) | p-value |
|-----------------------------------------------|-------------------------|---------|-----------------------------------------------|---------|-----------------------------------------------|---------|
| Low-level knowledge                            |                          |         | High-level knowledge                            |         |                                               |         |
| HK-LS score ≥17 (%)                           | 43 (22.16)              | 0.253   | HK-LS score >17 (%)                            | 43 (22.16) | 0.852                                         |         |
| Male                                          | 32 (16.58)              |         |                                               | 126 (64.95) | 0.524                                         |         |
| Female                                        | 68 (35.77)              |         |                                               | 43 (22.16)  | 0.004                                         |         |
| Age                                           |                         |         |                                               | 46 (23.71)  | 0.004                                         |         |
| 20-40 years                                    | 23 (11.91)              |         |                                               | 46 (23.71)  | 0.004                                         |         |
| >40 years                                     | 43 (22.16)              |         |                                               | 43 (22.16)  | 0.004                                         |         |
| Type of therapy                               |                         |         |                                               | 73 (37.63)  | 0.004                                         |         |
| Monotherapy                                   | 130 (67.36)             |         |                                               | 146 (75.26) | 0.004                                         |         |
| Combination                                   | 8 (4.15)                |         |                                               | 22 (11.34)  | 0.004                                         |         |
| Education                                     |                         |         |                                               | 8 (4.15)    | 0.004                                         |         |
| Elementary high school                        | 44 (22.86)              |         |                                               | 59 (30.41)  | 0.004                                         |         |
| Junior high school                            | 18 (9.33)               |         |                                               | 24 (12.37)  | 0.004                                         |         |
| Senior high school                            | 51 (26.42)              |         |                                               | 61 (31.44)  | 0.004                                         |         |
| Diploma degree                                | 6 (3.1)                 |         |                                               | 3 (1.55)    | 0.004                                         |         |
| Bachelor and master degree                    | 20 (10.36)              |         |                                               | 23 (11.86)  | 0.004                                         |         |
| Mean knowledge (HK-LS score)                  | 17.56                   |         |                                               | 12.48       | 0.004                                         |         |
| Blood pressure                                |                          |         |                                               | 12.48       | 0.004                                         |         |
| Systolic blood pressure ≥140 mmHg             | 104 (53.89)             |         |                                               | 143 (73.71) | 0.004                                         |         |
| Systolic blood pressure <140 mmHg             | 35 (18.53)              |         |                                               | 28 (14.43)  | 0.004                                         |         |
| Diastolic blood pressure ≥90 mmHg             | 75 (38.86)              |         |                                               | 119 (61.34) | 0.004                                         |         |
| Diastolic blood pressure <90 mmHg             | 64 (33.16)              |         |                                               | 51 (26.29)  | 0.004                                         |         |
| Comparative analytical statistical low and high knowledge | <0.001 |         |                                               |             | <0.001                                         |         |
| Comparative analytical statistical low-level group |                          |         |                                               |             | <0.001                                         |         |
| Comparative analytical statistical high-level knowledge in the control and pre-intervention group |                          |         |                                               |             | <0.001                                         |         |
| Comparative analytical statistical high-level group |                          |         |                                               |             | <0.001                                         |         |

HK-LS: Hypertension knowledge-level scale; $p$: Significance level.
Table 3: The KPIs

| Performance indicators | Numerator | Denominator | Change in performance indicators |
|------------------------|-----------|-------------|----------------------------------|
| Knowledge hypertension based on HK-LS questionnaire | Number and percentage of hypertension knowledge level in patients with hypertension the diagnosis based on HK-LS questionnaire score (pre- and post-leaflet intervention) | The total number and percentage of patients aged 20–70 years who have knowledge level of hypertension (low and high) based on the HK-LS questionnaire score (pre- and post-intervention) | There is an increase or decrease in the percentage of high knowledge level (pre- and post-leaflet) and control group (no intervention leaflet) |
| Mean systolic blood pressure | Sum of average systolic pressure in the blood pressure | Total number of respondents aged 20–70 years who have a valid blood pressure reading | Changes in mean systolic blood pressure before and after leaflet intervention |
| Mean diastolic blood pressure | Sum of average diastolic pressure in the blood pressure | Total number of respondents aged 20–70 years who have a valid blood pressure reading | Change in mean diastolic blood pressure before and after leaflet intervention |
| Prevalence of hypertension | Respondents who have systolic blood pressure ≥140 mmHg or diastolic blood pressure ≥90 mmHg | Respondents aged 20–70 years with hypertension | Increase or decrease in the prevalence of patients (percentage) with systolic blood pressure ≥140 mmHg or diastolic blood pressure ≥90 mmHg before and after leaflet intervention |
| Prevalence of controlled hypertension | Respondents who report being currently treated with medication for high blood pressure or have been diagnosed with hypertension and have systolic blood pressure <140 mmHg and diastolic blood pressure <90 mmHg | Respondents aged 20–70 years with hypertension have systolic blood pressure <140 mmHg and diastolic blood pressure <90 mmHg | Increase or decrease in the prevalence of patients with systolic blood pressure <140 mmHg and diastolic blood pressure <90 mmHg before and after leaflet intervention |

HK-LS: Hypertension knowledge-level scale, KPI: Key performance indicator.

| Table 4: The effect of leaflet on hypertension knowledge and blood pressure |
|-----------------------------|-----------------|---------------------------|
| Indicators | Comparative analytical analysis groups | p-value |
| The effect of leaflet on hypertension knowledge | Pre- and post-intervention group | <0.001 |
| The effect of leaflet on systolic blood pressure | Pre- and post-intervention group | <0.001 |
| The effect of leaflet on diastolic blood pressure | Control group and post-intervention group | 0.008 |
| The effect of leaflet on systolic blood pressure | Pre- and post-intervention group | <0.001 |
| Pre- and post-intervention group | 0.985 |

Discussion

Knowledge is the acquisition of information and skills gained from learning and experience [23]. A study of knowledge states that poor knowledge and lack of patient confidence in the treatment of hypertension are among the factors that affect the quality of life [12]. Good respondent’s knowledge is influenced by many factors such as experience and information facilities. Hypertension is associated with lifestyle modifications, including several non-pharmacological approaches such as diet adjustments, physical exercise, and blood pressure monitoring [21]. Knowledge of hypertension is very important to prevent hypertension as an important factor in regulating and controlling blood pressure [24].

Good patient knowledge about hypertension will affect patient adherence in taking medication. Hypertension can be controlled if risk factors are controlled. To support this, it is necessary to evaluate the knowledge of hypertension for each individual. So that instruments need to be developed to improve understanding of hypertension both of the things that need to be done and should be avoided (lifestyle) as well as adherence to the consumption of antihypertensive drugs in hypertensive patients. Educational instruments developed including leaflets containing information on hypertension. Providing effective health interventions to hypertensive patients can prevent the occurrence of more severe complications from hypertension, including cardiovascular [25].

The measurement of hypertension knowledge in this study uses the HK-LS questionnaire which was previously translated into Indonesian and tested for validation and reliability. Measurement of the level of knowledge in this study uses the HK-LS questionnaire [20], which the researcher has translated into Indonesian version and tested for validation and reliability. Based on the validity test, it was known that all HK-LS statement items were valid. For the reliability test, it was known that the Cronbach’s alpha coefficient of hypertension was 0.758 (α-Cronbach > 0.6).

Based on the data characteristics of the research subjects known that the total number of research subjects was 387 with details of the control group of 193 respondents and the leaflet intervention group of 194 respondents. The majority of respondents in the control and treatment groups were female (Table 1). A high percentage of hypertensive patients in women, this result is following previous studies by Gillis and Sullivan [25], Woodham et al. [6], and the Indonesian national research data center in 2018. The level of hypertension knowledge in the control group dominated by female respondents has a low level of knowledge (44.84%). The age range that most suffer from hypertension in this study is the age between 41 and 60 years (as much as 53.89% in the control group and 56.7% in the intervention group), followed by age > 60 years which is also quite high, namely 41.97% (control group) and 38.66% (intervention group) (Table 1). These results are in line with the average age of hypertensive patients at the results of the Indonesian national research center [5]. Based on the results of the analysis, it is known that the percentage of the low level of knowledge in the age group >40 years (before intervention), this is following with the study that the prevalence of a low level of knowledge is found in the group of elderly [19,] [26] (Table 2).
Increased age affects the increasing prevalence of hypertension [27]. Poor knowledge of hypertension can result in low awareness and adherence in hypertension therapy management so that it can lead to uncontrolled blood pressure [22]. Knowledge and education about hypertension are two important things in controlling blood pressure in hypertensive patients [28]. In other studies, it is known that poor knowledge and education about hypertension can lead to a lack of understanding of hypertension [29].

The majority type of therapy used by respondents in these patients is monotherapy (a type of antihypertensive drug). This is appropriate because the location of the data collection in this study is the primary health center or health facility where the majority of patients do not experience severe disease complications so that antihypertensive drugs are used by the majority of monotherapy drugs. The education level of the majority of the respondents in this study was Senior High School (36% each in the control and intervention group) (Table 1).

Systolic blood pressure that exceeds normal in the intervention group (pre and post) influences the level of knowledge of hypertension. The comparative statistical analysis between low and high knowledge levels in the three study groups observed (control, pre-, and post-intervention) had a significant difference from the HK-LS questionnaire scores (Table 2). Meanwhile, the comparative statistical analysis of low and high levels of knowledge in the two groups (control and post-intervention) showed that there was a statistically significant difference (p < 0.001). Comparative statistical analysis on the low level of knowledge between the control and post-intervention groups had a statistically significant difference (p = 0.004) (Table 2). This means that there is a statistically significant difference in patients with a low level of knowledge of hypertension in the control group (who were not given the leaflet intervention) with the post-intervention leaflet group.

The level of knowledge in the majority of the control and pre-intervention group had a low level of adherence (HK-LS score ≤17). The percentage increase in knowledge before and after the leaflet can be given for each characteristic of the study subjects can be seen in Table 2. It is known that there was an increase in the high level of knowledge about hypertension in the intervention group with an increase in percentage by 49.49% from before to after leaflet intervention. Individual characteristics on the level of knowledge of hypertension, such as gender, age, type of therapy, and level of education, do not affect the level of knowledge of hypertension (low and high level). Another study by Lugo-Mata et al. [24] shows that there is no relationship between gender and education level on the level of knowledge. Another study by Grad et al. [30] found that the level of education did not affect the level of knowledge of hypertension, which results were similar to this study. In this study, it is known that high systolic blood pressure (≥140 mmHg) in patients in the intervention group influences the level of knowledge of hypertension (Table 2). The condition of increased blood pressure can influence people to get more information regarding hypertension.

Performance indicators are intended to facilitate priority intervention to populations and communities where there are significant opportunities for improved therapy and can provide useful information to enable policy changes or implementation of systems designed to reduce the burden of hypertension-related diseases [31]. Several studies suggest that there are performance indicators that can be used to assess hypertension control efforts at organizational level health services [32], [33]. In this study, 5 key indicators of performance were made, including knowledge of hypertension, mean systolic and systolic blood pressure, the prevalence of hypertension, and prevalence of controlled blood pressure. Based on the research data, it is known that from 5 KPIs, there is an increase in the percentage of respondents who have a high level of knowledge of hypertension, a high average systolic blood pressure (≥140 mmHg), and an average high diastolic pressure (≥90 mmHg) which has decreased from the group before and after leaflet intervention. The prevalence of hypertension (blood pressure ≥140/90 mmHg) decreased by about 16.49% between before and after leaflet administration, the percentage of controlled blood pressure <140/90 mmHg increased by about 20.1% (Table 3). Based on the results of the analysis based on leaflet performance indicators, it can improve knowledge of hypertension and blood pressure control in the intervention group.

Based on statistical analysis, it is known that the administration of leaflets has an influence on the level of hypertension knowledge from two groups of respondents, namely, the control and intervention groups, with a Mann–Whitney test (p < 0.001). The Wilcoxon analysis results for pre- and post-intervention data (p < 0.001) (Table 4). The results of this statistical analysis indicate that the provision of leaflets showed a significant difference between the pre-test and post-test groups in terms of increasing knowledge of hypertension. This is consistent with previous research that educational interventions such as booklets can increase knowledge [34]. Educational intervention in patients can be a motivation and strategy by health workers in increasing patient adherence in controlling blood pressure [3]. Interventions can be used to increase knowledge of hypertension in hypertensive patients and the general public. Previous research states that educational interventions and approaches to increasing treatment confidence can increase adherence to drug consumption [35]. In the blood pressure control indicators, namely, systolic and diastolic blood pressure, it is known that the leaflet intervention only gave a significant difference between the pre- and post-intervention groups with p < 0.001,
but systolic and diastolic blood pressure between the control and post-intervention groups did not provide a statistically significant difference with the value statistical significance p = 0.508 and p = 0.985, respectively (Table 4).

The weakness of this research is that there has not been an in-depth analysis of aspects or dimensions that affect the level of knowledge so that it can be known factors that influence the low level of knowledge of hypertension. Based on these results, further research can be done that can increase public knowledge of hypertension about lifestyle, food, even the effect of uncontrolled blood pressure.

Conclusion

Interventions to improve knowledge of hypertension are expected to have an impact on increasing hypertension knowledge in hypertension patients. Based on the results of this study, it is known that the provision of leaflets can increase the level of hypertension knowledge as measured using the HK-LS questionnaire in pre- and post-leaflet intervention groups.

Authors’ Contributions

Concept – I.E., S.S.F., S.N.P; Design – I.E., S.S.F.; Supervision – I.E.; Resources – I.E., S.S.F.; Materials – I.E., S.N.P; Data Collection and Processing - I.E., S.N.P; Analysis and Interpretation - – I.E., S.S.F.; Literature Search - I.E., – I.E., S.N.P; Writing I.E., S.N.P; Critical Reviews - I.E., S.S.F., S.N.P.

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