ATTITUDE STRUCTURE OF HYPERTENSIVE PATIENTS WITH SMARTPHONE-BASED NURSING INTERVENTIONS: CONSTRUCTION OF RESEARCH INSTRUMENTS

Darlin1, Elly Nur Rachmah2, Debie Dahlia3, Saptawati Bardosono4

1Ph.D student, Faculty of Nursing, University of Indonesia, Depok, Indonesia,
2,3,4Lecturer, Nursing of Department, University of Indonesia, Depok, Indonesia
1E-mail: darlin@ui.ac.id

ABSTRACT

Introduction: The role of nurses as providers of nursing care is very important for the health and safety of patients. Nurses are faced with the large number of patient visits so that there is no opportunity to provide education and information related to hypertension cases. Changes in the attitude of hypertension patients are prioritized by strategically changing a healthy lifestyle for the better by using smartphones to change a better lifestyle for health. This study aims to explore the structure of attitudes towards hypertensive patients in Buton Islands.

Methods: A cross-sectional study on a sample of 124 hypertensive patients, using a Likert scale to assess the attitude of hypertension in hypertensive patients.

Results: The reliability of the individual subscale expressed by Cronbach's alpha coefficient shows that the five scales meet the internal consistency criteria of 0.752. The internal consistency coefficient obtained is 0.810 for the activity dimension, 0.730 for the diet dimension, 0.677 for the sports dimension, 0.650 for the dimensions of the pattern of rest/sleep and 0.668 for the dimensions of stress.

Conclusion: Based on the results of this study and the results of comparative studies, it can be concluded that the Likert scale of patients on hypertension attitudes can be applied as a valid and reliable assessment indicator among hypertensive patients.

Keywords: Hypertension attitude; activity; diet; exercise; sleep/rest; stress; construct instrument

I. INTRODUCTION

Hypertension is a medical term for high blood pressure, which can lead to various health complications that can endanger lives while increasing the risk of heart disease, stroke, and even death. Hypertension is still very concerning and dangerous because it can threaten everyone's life, that's why it is called the "silent killer" (1-2). Hypertension is caused by the interaction between genetic factors and environmental factors. Genetic factors or heredity from parents who are difficult to avoid who have hypertension.

Hypertension is now a threat to world health problems (3-4). Based on the 2013 WHO report that the prevalence of hypertension worldwide is estimated at 972 million people or 26.4%. While the WHO in 2015 showed that around 1.13 billion had hypertension or 1 in 3 people diagnosed with hypertension. It is estimated that in 2025 there will be a significant increase, namely around 1.5 billion people who are affected by hypertension, including 29.2% are adults (5). Basic Health Research 2018 states that in Indonesia the prevalence of hypertension cases is currently quite high with an estimated number of cases as many as 63.309.620 (6-). Lack of knowledge on hypertension can affect attitudes towards carrying out an appropriate healthy lifestyle so that they cannot apply a healthy.

Lifestyle pattern (7). Risk factors for the onset of hypertension in a person since young adulthood (21-40 years). The increasing incidence of hypertension is influenced by unhealthy lifestyles including exercise, stress, diet,
Several things that hinder the maximization of health promotion in Indonesia are because there are still few nurses so that human resources to carry out health promotion such as counseling and demonstrations are also limited. Especially in remote areas in Indonesia. This study shows that the limited number of health workers has resulted in many people being untouched by health promotion (9). Based on these problems, it is necessary to need a new strategy to change lifestyle, namely the development of a smartphone model besides being a means of communication media, smartphones are important for health information (10).

II. METHODOLOGY

This cross-sectional study involved 142 patients, with a mean age of 18 - 50 years, who participated in the study. Respondents are patients who suffer from hypertension. The study involved 142 patients and completed a questionnaire, which was an attitude of hypertension. The research was conducted for 6 months, and all ethical aspects were met.

Measurement

Questionnaires were used to collect data in this study. The scale used is the Likert scale to measure the attitude of hypertension. Each of the 16 items on the scale represents an attitude related to hypertension within a theoretical framework of 5 components: (1) exercise, (2) stress, (3) diet, (4) rest/sleep patterns and (5) activity. Participants responded to a 4-point Likert scale that ranged from 1 “never” to 4 “often” on how often they did certain activities.

Table 1. The hypertension attitude indicators are as follows: (a) Exercise, (b) Stress, (c) Diet, (d) Rest/sleep patterns, (e) activity

Demographics

Gender in this study consisted of men and women aged 18 to 50 years. This research was conducted in Indonesia, especially in Buton Islands, Southeast Sulawesi Province.

Statistical analysis

Raw data were collected and analyzed using statistical analysis SPSS 21 and LISREL 8.50. Analysis of hypertension attitude using a Likert scale, including reliability (Cronbach’s) was then carried out by factor analysis. The results are quite clear that hypertension attitude can maintain blood pressure. A recent study conducted by Tuji T.S and colleagues in Ethiopia that hypertension attitude can suppress and lower blood pressure (11).

III. RESULT

Demographic data shows that 142 respondents participated in the survey, 56 (39.4%) of respondents were female, while 86 respondents were male (60.6%), with an average age of 50.18 years. Exploratory factor analysis was used to determine the factorial structure of hypertension attitudes for a sample of patients with hypertension.

Kaiser Meyer Olkin Measure of Sampling (KMO) is a comparison index of the distance between the correlation coefficient and its partial correlation coefficient. If the sum of the squares of the partial correlation coefficients among all pairs of variables is small when compared to the sum. The result of the square of the correlation coefficient, it will produce a KMO value close to 1. The KMO value is considered sufficient if it is more than 0.5.

The Kaiser-Meier-Olkin (KMO) measure was used to test the adequacy of the sample. Value > 0.6 for KMO is considered good. Factor loading > 0.5 is considered very good. The application of factorial analysis was
considered to be in accordance with the KMO index = 0.602 and the Bartlett Integrity Test was significant ($\chi^2 = 282.760$, df = 120, $p < 0.000$)

TABLE 2. Kaiser-Meier-Olkin and Bartlett's test.

<table>
<thead>
<tr>
<th>Kaiser-Meier-Olkin Measure of Sampling Adequacy</th>
<th>0.602</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Square</td>
<td>282.760</td>
</tr>
<tr>
<td>Df</td>
<td>120</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Principal component analysis with rotational variance was performed to determine 5 significant factors that explained 53.211% of the variance. The eigenvalues of the first 5 factors are 2,377, 1,985, 1,495, 1,399 and 1,258 as shown in the Scree plot (Figure 1).

FIGURE 1. Scree plot of principal components in attitude hypertension.

Of the 16 items contained in five components. Component 1 is a grouping of 5 items, namely 12,13,14,15,16. Component 2 consists of 5 items, namely 5,6,7,8,9. Component 3 consists of 2 items, namely 1,2. Component 4 consists of 2 items, namely 10,11. While component 5 consists of 2 items, namely 3,4. Based on the results of expert consultation by 2 experts that component 1 is named patient's attitude towards activity, component 2 is named patient's attitude towards diet, component 3 is named patient's attitude towards exercise, component 4 is named patient's attitude towards resting/sleep patterns while component 5 is given the name the name of the patient's attitude to stress.

The individual reliability subscale expressed by Cronbach's alpha coefficient shows that the five scales meet the internal consistency criteria of 0.752. The internal consistency coefficients obtained were 0.810 for the activity dimension, 0.730 for the diet dimension, 0.677 for the exercise dimension, 0.650 for the rest/sleep pattern dimension and 0.668 for the stress dimension. Table 3.

TABLE 3. Reliability test of five factors

<table>
<thead>
<tr>
<th>Kaiser-Meier-Olkin Measure of Sampling Adequacy</th>
<th>0.602</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Square</td>
<td>282.760</td>
</tr>
<tr>
<td>Df</td>
<td>120</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
</tbody>
</table>
FIGURE 2. Scree plot of principal components in attitude of hypertension

Olahraga (Sport), Stres (stress), Diet, Istrahat/ tidur (Rest/sleep pattern), Aktivitas (activity)

Based on the model test above, the chi-square value = 1.89 < 2df, p value = 0.864 > 0.5, RMSEA = 0.00 < 0.08, so it can be said that the hypertension attitude construct model meets the fit model.

IV. DISCUSSION

In line with the objectives of the study, we determined high reliability on the Likert scale of the five subscales and components. Comparative studies also show high reliability. The results of a survey conducted in Saudi Arabia showed sufficient overall reliability, Cronbach = 0.70. According to research conducted in China, this scale shows satisfactory reliability coefficients for all five dimensions of hypertension attitude. The activity dimension provides strong internal consistency compared to the others (12-13). A survey conducted in Buton Islands on a sample of hypertensive patients showed that all five scales met Mukhopay and Haldar's criteria of internal consistency of 0.65 (14). The internal consistency coefficient obtained is 0.810 for the activity dimension, 0.730 for the diet dimension, 0.677 for the exercise dimension, 0.650 for the rest/sleep pattern dimension and 0.668 for the stress dimension. Research conducted in China also showed high reliability of the scale, activity = 0.74, diet = 0.78, exercise = 0.64. the results of a survey conducted in China on the dimensions of rest and sleep = 0.77. Therefore, this scale shows sufficient overall reliability, Cronbach's = 0.72. According to research conducted in, this scale shows satisfactory reliability coefficients for these five dimensions. The dimension provides the strongest internal consistency as predicted by the original test when compared to the others (15).

TABLE 4. Descriptive statistics data

<table>
<thead>
<tr>
<th>Subscale</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sport</td>
<td>142</td>
<td>4</td>
<td>6</td>
<td>1.93</td>
<td>0.864</td>
</tr>
<tr>
<td>Stress</td>
<td>142</td>
<td>1</td>
<td>4</td>
<td>1.89</td>
<td>0.864</td>
</tr>
<tr>
<td>Diet</td>
<td>142</td>
<td>1</td>
<td>4</td>
<td>1.81</td>
<td>0.864</td>
</tr>
<tr>
<td>Rest/sleep</td>
<td>142</td>
<td>1</td>
<td>4</td>
<td>1.86</td>
<td>0.864</td>
</tr>
<tr>
<td>Activity</td>
<td>142</td>
<td>1</td>
<td>4</td>
<td>1.85</td>
<td>0.864</td>
</tr>
<tr>
<td>Test Total</td>
<td>142</td>
<td>1</td>
<td>4</td>
<td>1.85</td>
<td>0.864</td>
</tr>
</tbody>
</table>

Based on the descriptive statistical analysis of the data, the lowest value was on item 11 = 1.93 while the highest was on item 8 = 2.64. While the highest standard deviation is on item 9 = 1.191, while the lowest deviation is on item 2 = 0.965.

TABEL 5. Mean values for the five subscales of the attitude hypertension.
The assessment of the hypertension attitude instrument into Indonesian is an important step towards developing measures that can be adapted to the specific characteristics of the Indonesian socio-cultural context (16). Based on the results of this study and comparative study, we conclude that the hypertension attitude of the 16 items can be applied as a valid and reliable instrument assessment indicator among hypertensive patients. It can also assist health care nurses in general in assessing the state of hypertension attitudes and designing interventions to prevent and reduce the risk of death due to hypertension.

REFERENCES

1. Arboix, A. Hypertension and the acute phase of intracerebral haemorrhage: more evidence of the 'silent killer' 2018 25(8), 1007-1008.
8. Lalehenthuangii, C. Lifestyle and Hypertension among Women in Lunglei, Mizoram. 2017