

Effect of Theory-Based Training Intervention on Physical Activity and Blood Pressure in Hypertensive Patients a Randomized Control Trial: A Literature Review

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ABSTRACT

Introduction: Hypertension is a disease that is a serious health problem in society, this is due to the high number of morbidity and mortality due to hypertension each year. Hypertension is the third leading cause of death worldwide, with 7.5 million deaths annually (12.8% of all deaths). Prevention that can be done to avoid complications due to hypertension according to the Seventh Report of the Joint National Committee (JNC 7) is lifestyle modification.

Method: method of calculating the sample clearly has been explained, namely that after obtaining the number of sample populations, the respondents were divided into the treatment group and the control group (39 people each). In each group, the initial systolic blood pressure was measured, with the mean systolic blood pressure for the treatment group

Result: Measurements were made with a brisk 30 minute walk with an intensity value of 40% -60% of the maximum reserve heart rate. The determination of outcome measures was carried out twice, namely the first before intervention and the second measurement after the intervention for three months. Some of the components measured are exercise self-efficacy (ESE), healthy behavior, physical activity, intensity of walking, and 24 hours of ambulatory blood pressure (ABP).

Conclusion: One of the usual lifestyle modifications is aerobic or physical activity such as walking fast (at least 30 minutes most days of the week). To form healthy behavior in hypertensive patients, it is necessary to apply a theory that helps in understanding the importance of lifestyle modification in hypertensive patients.

Keywords: *Based Training Theory; Physical Activity; Blood Pressure; Hypertensive*

Introduction

Hypertension is a disease that is a serious health problem in society, this is due to the high number of morbidity and mortality due to hypertension each year. Hypertension is the third leading cause of death worldwide, with 7.5 million deaths annually (12.8% of all deaths) (Kementarian Kesehatan RI, 2016) According to research conducted by Kang et al. (2017) In Korea, in controlling blood pressure in hypertensive patients, the treatment that has been done is more focused on pharmacological therapy, it was noted that the risk of withdrawal from drugs reached 48-53.2%, causing the emergence of complications of heart disease by 45% and stroke by 51% as a result. hypertension.

Prevention that can be done to avoid complications due to hypertension according to the Sevent Report of the Joint National Committee (JNC 7) is lifestyle modification. One of the usual lifestyle modifications is aerobic or physical activity such as walking fast (at least 30 minutes most days of the week). To form healthy behavior in hypertensive patients, it is necessary to apply a theory that helps in understanding the importance of lifestyle modification in hypertensive patients (Motlagh et al., 2017).

Motlagh Z., et al (2017) in this study states that the application of theory-based training interventions is effective in increasing physical activity and lowering blood pressure. Evidence of scientific research can be applied in clinical practice and as material for further research conducted through critical appraisal first to assess whether this research journal is good research and is worthy of reference in Evidance Based in Nursing. The critical appraisal tool used in the discussion of this journal is CONSORT (Consolidated standard of reporting trials). This tool was chosen because it was in accordance with the research design, namely randomization experiment research. In general, the randomized experimental design is divided into two groups, namely the experimental randomized controlled trial (RCT) and the experimental cluster randomized controlled trial (Cluster RCT). CONSORT develops recommendations in the form of a checklist of what to include in an accurate and complete randomization experimental study (Schulz et al., 2010).

Researchers have also clearly written down the objectives of this study including the specific objectives of the study, where the specific objective of this study is to assess the effectiveness of theory-based training interventions on the physical activity and

blood pressure of hypertensive patients. The description of research design in this journal is quite clear. This research is a quantitative experimental research design with a randomized control trial research design. In this study, measurements were carried out in the intervention group and the control group, there were no important changes in the research method after the study began.

Method

1. Sample

In this journal the researcher has explained specifically about the criteria for respondents who meet the requirements, this is explained in the inclusion and exclusion criteria. Sources of data in this study were obtained from the "Shiraz Healthy Heart Home" in the Shiraz region of Iran, which is a center for research, initial screening, screening, and prevention of cardiovascular disease.

In this study, the method of calculating the sample clearly has been explained, namely that after obtaining the number of sample populations, the respondents were divided into the treatment group and the control group (39 people each). In each group, the initial systolic blood pressure was measured, with the mean systolic blood pressure for the treatment group 125.8 ± 16.53 and the control group 137.5 ± 20.17 . Where 39 people in each group have a confidence interval level of 95% and strength / power of 80%.

2. Intervention

This study used a randomized controlled trial. The random technique used in this study used a limited randomization procedure (flipping a coin), wherein each respondent was included in the behavior group or the control group. Randomized controlled sampling should be as homogeneous as possible.

In this study, it was clearly explained when recruitment began. Recruitment starts from January 2015-January 2016. After the respondents are obtained and meet the predetermined sample population, the recruitment is terminated.

Result

The mechanism that can improve the quality of research results is the concealment method. Concealment is a procedure to hide information about randomization results (Najmah, 2015). In this study, the concealment procedure has been described, namely randomization hidden in sequential numbers, opaque, sealed, and inserted in an envelope. The interventions given to this study were clear and detailed. The intervention provided was in the form of a four-session training program, where each session was conducted once a week, in each session different materials were given about hypertension, physical activity, healthy living habits, exercise self-efficacy (ESE), and for the last meeting (4) respondents in the treatment group were subjected to preliminary data collection and examination to determine the maximum heart rate that the body can tolerate in doing physical activity. Measurements were made with a brisk 30 minute walk with an intensity value of 40% -60% of the maximum reserve heart rate. Each training session is conducted for 90 minutes. This training uses an interactive method, including the respondents are divided into small groups, conduct group discussions, and demonstrations.

Discussion

In this journal, the determination of outcome measures was carried out twice, namely the first before intervention and the second measurement after the intervention for three months. Some of the components measured are exercise self-efficacy (ESE), healthy behavior, physical activity, intensity of walking, and 24 hours of ambulatory blood pressure (ABP). All of these components are measured using valid measuring instruments and have been tested for validity and reliability.

Experimental research with randomization techniques will be of greater quality if disguised as measurements are carried out. In this study, a single blinding was carried out where the research subject did not know the status of the respondent whether they were included in the intervention group or the control group. This study did not allow double blinding because the participants knew that they would be given intervention.

The number of participants analyzed has been clearly explained in the consort diagram, namely 39 respondents in each treatment group and control group. In this study, the statistical method has been fully described. The data were analyzed using

SPSS version 12.0. The statistical method used was the Kolmogorov-Smirnov to assess the normal distribution of the data, the independent t-test to compare the differences in values between groups, and the paired t-test to compare the differences in values within one group. Mann-whitney and Wilcoxon tests were used for nonparametric data. Chi-square was used to assess the homogeneity of each variable category. All results were considered significant at a significance value of $P < 0.05$.

The flow of the participants has been described in detail in the diagram adopted from the consort, where there are 78 respondents who can participate, the allocation of the number of participants randomly from the 78 respondents consisting of 39 hypertensive patients who enter the treatment group and 39 hypertension patients enter the control group. Until the end of the study and the data were analyzed, the number of respondents was permanent and none of them dropped out.

In this study, there was no specific explanation regarding the dangers of the intervention given to the research subjects. However, this research has passed the ethical test and passed by the Ethics Committee of the Tarbiat Modares Iranian University.

The strengths of this study are using more variables compared (behavior change stage, self-efficacy (SE) and balance of decision making), not only independent and dependent variables, using four sources of self-efficacy (SE), blood sensitivity measurement using 24-hour Ambulatory Blood Pressure (ABP) technique. ABP monitoring is more physiological and accurate than normal clinical blood pressure measurement.

The limitation in this study is that the follow-up in this study is considered too short, namely 3 months, it is hoped that further research will carry out follow-up for a longer period of time and the number of respondents is considered to be less, it is feared that there are respondents who drop out and are less representative.

Conclusion

The results of research in this journal can be used as input and as material for reflection for health workers that the management of hypertension is not only done pharmacologically, but can be done non-pharmacologically. In addition, nurses not only focus on handling patients in the hospital but also in the family or community, as has been done by Motlagh et al. (2017), Therefore, health workers, especially community

nurses, are expected to be able to answer these challenges by increasing their knowledge and skills.

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