



Trancendental Meditation Control Blood Sugar Levels On Elderly People

^KSanti Damayanti¹, I Kadek Indra Sucipta², Rizky Erwanto,³

¹Nursing Science Study Program, Faculty of Health Sciences, Respati University Of Yogyakarta.

²Nursing Profession Education Program, Faculty of Health Sciences, Respati University Of Yogyakarta

³Nursing Profession Education Program, Faculty of Health Sciences, Respati University Of Yogyakarta

Email correspondence author (^K): santi.damaya@gmail.com

ABSTRACT

The proportion of people with diabetes mellitus increases with age. The proportion of impaired glucose tolerance increases with increasing age in the 65-74 year age group. Transcendental meditation therapy is a therapy to reduce cortisone levels, to increase the effectiveness of the hormone insulin. The aim of this study was to determine the effectiveness of transcendental meditation therapy on blood glucose levels in the elderly. The research method is quasi-experimental research with pre and post test without control design, the research sample was selected using consecutive sampling technique, as many as 31 respondents. The collected data were analyzed using the Wilcoxon test. The results of statistical tests before meditation therapy showed a minimum value of 104 and a maximum value of 420 with a median of 179.00, and after meditation therapy, a minimum value of 85 and a maximum value of 282 was obtained with a median value of 129.00. The results of statistical tests using the Wilcoxon test obtained p-value = 0.000 (p-value <0.05). The conclusion is that transcendental meditation therapy helps control blood glucose levels in the elderly.

Keywords : Blood Sugar; Elderly; Transcendental Meditation

Article history :

Received: 1 Juni 2020

Received in revised form: 1 September 2020

Accepted: 12 October 2020

Available online: 1 December 2020



licensed by [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

INTRODUCTION

Blood sugar is glucose found in the blood formed from carbohydrates in food and stored as glycogen in the liver and skeletal muscle¹. If abnormal blood sugar levels can cause several problems, such as increased osmotic pressure in extracellular fluid which can cause cell dehydration, high blood sugar concentration causes blood sugar to be excreted in urine, long-term increase in blood sugar can cause damage to many tissues, especially blood vessels. Individuals over 50 years of age tend to experience mild and gradual increases in blood sugar levels, especially in individuals who are not actively moving. As we get older, there are physical changes and decreased bodily functions that affect the consumption and absorption of nutrients, so that many nutritional problems that lead to the emergence of degenerative diseases including Diabetes Mellitus². Diabetes Mellitus is one of the five most important chronic conditions that affect the elderly and cannot be cured. Therefore, the elderly with diabetes must learn to master the monitoring and treatment programs that involve a lot. Of the several conditions can predispose for someone to have diabetes, but there are two types that are more dominant, namely type 1 diabetes and type 2 diabetes. Type 2 diabetes is the most common form of disease among the elderly. In the coming decade, the number of elderly is expected to increase most rapidly in Africa, where populations aged 60 years or older are described to be tripling between 2017 and 2050, from 69 million to 226 million. Africa is followed by Latin America and the Caribbean, where the elderly population is described to have more than doubled between 2017 and 2050, from 76 million to 198 million. Asia is also expected to double the number of elderly, with populations aged 60 years or older described as increasing from 549 million in 2017 to close to 1.3 billion in 2050³.

There are 19 provinces (55.88%) of Indonesian provinces which have an old population structure. Where the three provinces with the largest percentage of elderly are Yogyakarta (13.81%), Central Java (12.59) and East Java (12.25%). Meanwhile, the three provinces with the lowest percentage of elderly are Papua (3.20%), West Papua (4.33%) and Riau Islands (4.35%)³. With the increase in the elderly population, the government needs to formulate policies and programs aimed at the elderly population group so that it can play a role in development and not become a burden on the community. Law No. 36/2009 concerning health, article 138 paragraph 1 stipulates that health care efforts for the elderly must be aimed at keeping healthy and productive lives socially and economically in accordance with human dignity³. There are various therapies that can stabilize blood sugar levels, namely pharmacotherapy such as insulin administration in patients with type 1 DM and hypoglycemic agents in patients with type 2 DM, in addition there are also non pharmacotherapy therapies such as nutritional therapy and sports⁴. With meditation can reduce levels of the hormone cortisol thereby increasing the effectiveness of the hormone insulin. So that meditation therapy can be given to individuals who experience impaired glucose tolerance and diabetes mellitus⁵.

Many definitions of meditation from various literatures, define meditation as an exercise where one focuses attention and awareness on an object⁶. In mental repetition, a person concentrates on one word, usually called a mantra. Concentration on breathing is the focus on physical repetition. In the

problem concentration technique, an experiment is conducted to solve a problem that contains a paradox component. Visual concentration techniques are similar to imagery. There are six meditation techniques, namely mindfulness meditation, transcendental meditation (TM), centering prayer, relaxation response, walking the labyrinth, and breath awareness⁷. The selection of transcendental meditation in this study is because transcendental meditation can be practiced anywhere, by anyone from any background, education, beliefs, individuals are not asked to give anything or change their lifestyle⁸. Research on "Giving Meditation Against Changes in Blood Sugar Levels in Patients with Diabetes Mellitus" with the number of respondents 16 people obtained the results of 9 respondents (56.25%) experienced changes in blood sugar levels to normal and as many as 7 respondents (43.75%) experienced hyperglycemia⁹.

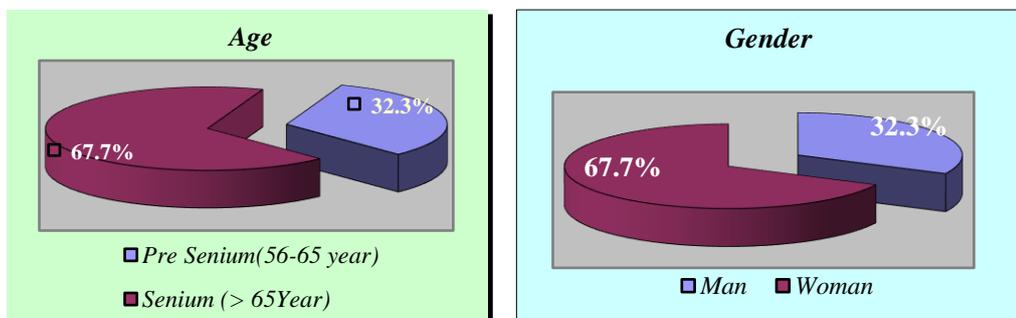
METHODS

The study population was all elderly who lived in BPSTW Yogyakarta Unit Budi Luhur Kasihan Bantul with a total of 88 elderly, with a total sample of 31 samples. The sampling technique using respondents' consecutive sampling was selected in accordance with research criteria. Research Design This research is a quasi-experimental study, with a pre and post test design without control¹⁰. Instrument and Measurement, glucometer used to determine the estimated concentration of glucose in the blood. The glucometer used in this research is the Autocheck Multi-Monitoring System which uses a power source of a 3V CR2032 lithium battery. glucometer equipment used requires a blood volume of 0.1ml and takes 5 seconds to read the results of the measured blood sugar levels. Respondents were given transcendental meditation therapy for 10-20 minutes in a row for 7 days, examination of blood sugar levels measured on the first day.

RESULTS

Characteristics of respondents based on age and gender in the elderly at BPSTW Yogyakarta Budi Luhur Unit, Kasihan Bantul

Diagram 1 Characteristics of Respondents by Age and Gender



Characteristics of respondents by age, most respondents with senium (> 65 years) are 21 people (67.7%). Characteristics based on gender, the majority of female respondents, as many as 21 people (67.7%).

Table 2 Frequency Distribution of Blood Sugar Levels Before Transcendental Meditation Therapy at BPSTW Tresna Wredha Bantul Yogyakarta

Blood Sugar Levels	Frequency f	Percentage %
Normal	3	9.68
Pre diabetes	16	51.61
Diabetes	12	38.71

Blood sugar levels in the elderly at BPSTW Bantul Yogyakarta are mostly in the category of prediabetes as many as 16 people (15%) and only 3 people who have a normal category as many as 3 people (9.6%)

Table 3 Before and After Blood Sugar Levels Transcendental Meditation Therapy

Blood Sugar Levels	Min	Max	Median
GDS pre test	104	420	179
GDS post test	85	282	129

Elderly blood sugar levels before meditation with a media value of 179mg / dl. Based on the normality test with Shapiro-Wilk on the pre-test blood sugar data that is P = 0,000 and on the post test with the results of P = 0.001, the two data collected were not normally distributed, then the Wilcoxon test was then performed, to determine differences in the results of blood sugar levels before and after transcendental meditation therapy.

Table 4 Blood Sugar Levels Before and After Transcendental Meditation

Blood Sugar Levels	Difference in Median	P-Value
GDS pre test	50	0,000*
GDS post test		

*Wilcoxon test

Blood sugar levels during the elderly before transcendental meditation therapy with a median value of 179.00 and after being given transcendental meditation therapy with a median value of 129.00.

Obtained a difference in the pre-test and post-test median values with a value of 50.00 with a P value = 0,000 after statistical tests using the Wilcoxon test where the p value <0.05, it can be concluded that there is a significant decrease in blood sugar levels when before and after transcendental meditation therapy.

DISCUSSION & CONCLUSION

Discussion Based on table 3 shows that the results before being given transcendental meditation therapy blood sugar levels when the respondent was at a value of minimal 104 and maximal value 420 with a median value of 179.00. As for the factors that can affect blood sugar levels when such as exercise, food consumed stress, age and obesity¹¹. From table 1. it is known that the majority of respondents' data distribution is in senium age (> 65 years) which is as much as 67.7%. About 50% of the elderly show glucose intolerance, with normal fasting blood sugar levels¹². Increasing age, physical changes and decreased body function will affect the consumption and absorption of nutrients, leading to degenerative diseases including diabetes mellitus. In addition, blood sugar levels tend to increase lightly and gradually after the age of 50 years

After being given transcendental meditation therapy for 7 consecutive days blood sugar levels when the respondent was at a value of minimal 85 and maximal value 282 with a median value of 129.00. A decrease in blood sugar levels in the elderly after therapy is triggered by the intention to truly follow transcendental meditation therapy can increase the effectiveness of the hormone insulin. Meditation can reduce cortisol levels so that it can increase the effectiveness of the hormone insulin⁵. Inhibition of norepinephrine causes the frequency of the heart, respiration and blood glucose to decrease. Besides the anterior pituitary is also inhibited so that ACTH which secretes stress hormones such as cortisol decreases so that the process of gluconeogenesis, as well as protein and fat catabolism that play a role in increasing blood glucose also decreases¹³. This study is in line with research entitled the giving of meditation on changes in sugar levels in people with diabetes mellitus, stating that there is an effectiveness of meditation therapy on reducing blood sugar levels⁹.

Based on table 4. it is known that there are differences in the results of measurements of blood sugar levels before and after transcendental meditation therapy, obtained an overview of blood sugar levels during the elderly with a median value of 179.00. Whereas after transcendental meditation therapy obtained a median value of 129.00. With a difference in the median value of 50.00 with a p-value of 0,000 after a Wilcoxon statistical test where the p-value <0.05, which means there are statistically different blood sugar levels before and after transcendental meditation therapy. Relaxation and meditation cause the sympathetic nervous system is inhibited thereby inhibiting the secretion of norepinephrine¹⁴. Inhibition of norepinephrine causes the frequency of the heart, respiration and blood glucose to decrease. In addition, the anterior pituitary is also inhibited so that ACTH which secretes stress hormones such as cortisol decreases so that the process of glycogenesis, as well as protein and fat catabolism that play a role in increasing blood glucose also decreases¹³. This research is in line with

previous studies with the results of research into meditation therapy can reduce blood sugar levels. Before meditation therapy, of the 16 respondents 15 respondents experienced hyperglycemia while after meditating there were changes in 9 respondents whose blood sugar levels became normal¹⁴. This study is in line with research which states that one year of research shows that meditation therapy can reduce blood pressure and blood sugar levels¹⁵.

From 31 respondents there were 4 people who experienced an increase in blood sugar levels which all fall into the senium age category (> 65 years), this could be due to several factors, such as exercise, food consumed, stress, age and obesity^{11,16}. During exercise there is an increase in complex fuel requirements including circulatory function, metabolism, hormonal release and regulation and autonomic nervous system. At rest the muscle metabolism uses very little glucose as a fuel source while while exercising glucose and fat are the main energy sources. This increased use of glucose by active muscles can directly cause a decrease in blood glucose¹⁷. There is an increased risk of an increase in blood sugar under stress conditions, this is caused by the excessive production of the hormone cortisol when a person experiences stress. Excessive production of the hormone cortisol can cause a decrease in blood pressure, insomnia, depression, which can cause the individual to become weak and excess appetite. People who experience long stress have a tendency to overweight which can disrupt blood sugar balance^{11,16}

CONCLUSIONS AND SUGGESTIONS

Blood sugar levels when the respondent prior to transcendental meditation therapy interventions have a min value of 104 and a max value of 420 with a median value of 179. Blood sugar levels when the respondent after the intervention of transcendental meditation therapy has a min value of 85 and a max value of 282 with a median value of 129. There is a that transcendental meditation therapy helps control blood glucose levels in the elderly. For the Elderly Researchers suggest that the elderly practice meditation every day. Researchers suggest that elderly nurses who participate in transcendental meditation therapy training can include meditation therapy as an independent nursing action. Researchers suggest to teaching staff at educational institutions that meditation therapy can be one of the topics in gerontic nursing courses.

REFERENCES

1. Kozier, Erb, Berman, Snyder. *Fundamental of Nursing*. EGC; 2011.
2. Guyton AC, Hall J. *Buku Ajar Fisiologis Kedokteran*. EGC; 2014.
3. Moeloek NF. Ministry of Health of the Republic of Indonesia. Published online 2015:12-14.
4. Hermanto J. *The Effect of Giving Meditation Therapy on Reducing Blood Pressure in the Elderly with Hypertension in Pucang Gading Rehabilitation Social Unit Semarang*. Semarang.(2014).

5. Mahendra, dkk. Meditation and Diabetes Mellitus. Published online 2008.
6. Snyder M, Lindquist. Complementary & Alternative Therapies in Nursing. Published online 2011.
7. Potter D, Perry A. *Fundamental of Nursing: Concepts, Processes and Practices*. Edition4. ECG; 2005.
8. B G. Trancendental Meditation Explained. Published online 2014.
9. Vernanda SD, Jayani I, Haryuni S. Providing Meditation for Changes in Blood Sugar Levels in Patients with Diabetes Mellitus. Published online 2014.
10. Dharma kelana K. *Metodologi Penelitian Keperawatan*. CV. Trans Info Media; 2011.
11. Mufidah Z. Difference in Fasting Blood Sugar Levels between Midwives Who Work in Shift and Non-Shift in RSUD Dr. Soetomo. Thesis. Published online 2016.
12. Darmojo B. Teaching Book Boedhi Darmojo Geriatri. Published online 2015.
13. Farrell M, Dempsey J, Smeltzer SCOC, Bare BG. *Smeltzer and Bare's Textbook of Medical-Surgical Nursing*. Lippincott Williams & Wilkins; 2013.
14. Benson, Proctor. Difference in Fasting Blood Sugar Levels between Midwives Who Work in Shift and Non-Shift in RSUD Dr. Soetomo. Published online 2000.
15. Dharma. Meditation Therapy In Cardiovascular And Metabolic Disorders Special Reference To Coronary Artery Disease And Diabetes. Published online 2009.
16. Damayanti S. Diabetes Mellitus & Nursing Management. Published online 2015.
17. Soegondo S, Soewondo P, Subekti I. *Integrated Diabetes Mellitus Management*. (FKUI, ed.). FKUI; 2015.