



EMPOWERMENT STRATEGIES THROUGH COACHING INTERVENTIONS ON CONTROLLING BLOOD SUGAR LEVELS THE ELDERLY

Desi Deswita^{*}, Sefrizon, Anita Mirawati, Zulharmaswita, Yudistira Afconneri, Deharnita, Yulvi Hardoni

School of Nursing, Health Polytechnic of the Ministry of Health of Padang, Jln. Laing Tembok Jaya, Solok, Sumatera Barat, Indonesia 20445

[*desideswita2@yahoo.co.id](mailto:desideswita2@yahoo.co.id)

ABSTRACT

The problem of elderly diabetes mellitus is complex and various interventions in the form of education have been carried out in controlling blood sugar levels but the results have not been optimal. Based on this, the researcher wants to know the effect of coaching intervention on controlling blood sugar levels of the elderly with diabetes in Indonesia. The quasi-experimental research design uses a treatment group. Sampling with consecutive sampling in which the intervention group was selected according to purpose, with 38 respondents. Independent t-test was used. The results obtained were significant differences in blood sugar levels after being given an intervention. Coaching interventions affect blood sugar levels of the elderly with diabetes. It was concluded that coaching interventions reduce blood sugar levels and provide opportunities for nurses to develop promotive and preventive efforts.

Keywords: blood glucose levels, coaching intervention, elderly

First Received

20 January 2019

Revised

05 February 2020

Accepted

18 February 2020

Final Proof Received

20 February 2020

Published

27 February 2020

How to cite (in APA style)

Deswita, D., Sefrizon., Mirawati, A., Zulharmaswita., Afconneri, Y., Deharnita, Hardoni. (2020). Empowerment strategies through coaching interventions on controlling blood sugar levels the elderly. *Indonesian Journal of Global Health Research*, 2(1), 65-72.

INTRODUCTION

The increasing trend of the elderly population worldwide is increasing dramatically. The prevalence of the elderly in the world has reached 11% of the total 6.9 billion world population (WHO, 2015). Research shows that the population of older Indonesian adults in 2013 reached 8.3% of the total population, and is expected to be 21.4% in 2050 (Indonesia., 2014). The increase in the population of older adults is accompanied by an increase in morbidity and mortality rates, especially diseases or deaths caused by degenerative diseases such as diabetes mellitus. More than 346 million people worldwide suffer from diabetes mellitus; 90% have type 2 (WHO, 2011). The prevalence of people with diabetes mellitus (≥ 15 years) in Indonesia has reached 2.1% (WHO, 2015). Complications of uncontrolled diabetes include retinopathy, stroke, cardiovascular disease, high blood pressure, kidney disease, blindness, nervous system disease, dental disease, amputation, complications in pregnancy, and biochemical imbalances that can cause life-threatening events (Schneider et al., 2011)

According to a 2016 author survey given to an older adult population with diabetes mellitus regarding diabetes management practices, older adults show confusion and feelings of guilt about their daily diet. They feel there are too many rules they must obey to follow a diabetes diet. They also said that they did not exercise regularly as suggested. In addition, older adults also experience anger and anxiety about their health conditions or the risk of complications, illness, or death. They also said that they did not manage their stress appropriately. In conclusion, they said they did not organize their lives as suggested because they had not received clear guidance on how to live with diabetes mellitus, especially regarding diet, exercise, and stress management.

Older adults with diabetes mellitus need clear and accurate guidelines about life with diabetes mellitus. They will continue to face unique challenges in implementing diabetes mellitus management due to their functional decline. In addition, older adults face difficulty exercising regularly because their bones and muscles are weaker. Older adults also have a 28% higher risk of depression, or 2-4 times higher than other age groups (Wagner, Abbott, Heapy, & Yong, 2009).

DM is a complex chronic disease that requires ongoing medical treatment with a risk reduction strategy in controlling blood sugar levels. Self-management is management ability related to diet, physical exercise, medication, blood sugar control and stress control and lifestyle changes (Díaz-López et al., 2017). The management of diabetes mellitus treatment includes four pillars, namely dietary regulation, physical exercise, monitoring of blood sugar levels, health promotion and pharmacological intervention. (Scott, 2013). Following a healthy diet increases one's ability to achieve glycemic targets and prevent diabetes complications (Varney, Liew, Weiland, Inder, & Jelinek, 2016)

Nurses is still lacking in the education of patients with diabetes mellitus because of the limited time to interact with nurses because the majority of elderly people undergoing outpatient care. This phenomenon illustrates the lack of optimal and effective self-management education in the elderly with diabetes mellitus because they have not considered various aspects that must be achieved in improving DM management practices and have not emphasized the empowerment aspects of the elderly so that self-management of DM in the elderly is still lacking (Andrade, Previdelli, Cesar, Marchioni, & Fisberg, 2016).

Coaching is a comprehensive skill-based approach because it practices skills repeatedly in improving the ability to change behavior and lifestyle (Raynor et al., 2015). Coaching is a client-centered behavior or lifestyle intervention, facilitating individuals in setting health promotion goals in behavior or lifestyle changes by reducing health risk factors, improving self-management in chronic conditions and improving quality of life (Cinar, Oktay, & Schou, 2014). Most people do not need advice, but need support and discipline in doing what they already know (Kivelä, Elo, Kyngäs, & Kääriäinen, 2014). It can be concluded that coaching is an interactive process used by nurses in practicing client skills repeatedly in achieving goals by identifying client needs, nurses view clients as potential individuals,

together with clients set goals and action plans in reducing health risk factors and disease complications (Liddy, Johnston, Nash, Ward, & Irving, 2014) .

This study discusses changes in blood sugar levels after being given coaching interventions. This study was conducted on 38 elderly respondents with diabetes mellitus. It was expected that coaching interventions reduce blood sugar levels and provide opportunities for nurses to develop self management of elderly in community. Nurses can promote the use of coaching in client education programs to approach ongoing care in chronic diseases.

METHOD

This research is a quantitative study using quasi-experimental design with one group pre-group design approach. The population in this study were all elderly diabetes living in Indonesia. Research sample of 38 elderly diabetes respondents in Indonesia. This study was conducted at 4 Public health center in Solok, Indonesia. This research was conducted for 4 weeks by providing training interventions to 38 respondents. Pre-test and Post-Test is done by giving a questionnaire and checking blood sugar levels at once. The training procedure is carried out in 4 sessions, each session carried out for 60 minutes. Implementation is carried out for 4 weeks with a frequency of 1x / week. Furthermore, an analysis of differences in blood sugar levels of the respondents before and after the intervention in the group using a statistical paired t test. This study passed an ethics test from the Ethics Research Committee, Faculty of Nursing at Andalas University, Number : 234/KEP/FK/2019 and applied basic ethical principles such as autonomy, kindness, generosity, and justice in the implementation phase.

RESULTS

The results showed that the gender of group members was dominated by women both in the intervention group (89.5%) and in the control group (94.7%). The educational background of most groups is individuals whose education is extended to secondary school in both the intervention group (63.2%) and the control group (65.8%). Marital status is dominated by married group members in both the intervention group (57.9%) and the control group (63.2%). The mean age of respondents was higher in the control group: 65.48 years. The average annual income of respondents in rupiah is 1,600,000. The average period of members suffering from diabetes mellitus was higher in the intervention group: 3.61 years.

The results of univariate analysis, especially the average score of blood glucose levels before the intervention, in the intervention group was 190.93 (SD = 40.788) while the blood glucose level of the intervention group after the intervention decreased to 152.46 (SD = 27.836). The mean blood sugar level decreased after getting the intervention that is equal to 37.69 mg / dl. From these data it can be seen that there is a decrease in average blood sugar levels after being given an intervention.

Table 1.
 Analysis of Differences in Blood Sugar Levels Respondents Coaching Intervention (n = 38)

Variable	Treatment group		Difference	p value
	Before Mean (SD)	After Mean (SD)		
Blood Sugar Levels	190,13 (40,788)	152,45 (27,836)	- 37,68	0,000

Table 1 shows that there was a decrease in mean blood sugar levels between before and after intervention with a difference of -37.68. The results of further tests using paired t test obtained $p = 0,000$ which means there was a significant decrease in blood sugar levels after being given an intervention better than before the intervention was given ($p < 0.05$).

DISCUSSION

Miller (2012) explains that from the physiological aspects of the body, the elderly will experience degenerative changes that result in various deteriorations in function, one of which is the endocrine system. These changes lead to negative consequences which include physiological changes in the endocrine system in the form of insulin resistance, increased production of liver glucose and decreased insulin secretion resulting in the response or classic symptoms experienced by the elderly with diabetes mellitus, namely increased blood sugar levels (hyperglycemia). Some negative consequences that arise can be minimized and anticipated with various alternative interventions (Díaz-López et al., 2017).

After intervention the respondent's blood sugar level decreased by a mean difference of 37.68 with a value of $p = 0,000$. Coaching interventions significantly influence blood sugar levels after the elderly DM. This is in line with research conducted by Cully, et al., 2014 in 242 elderly diabetics respondents who conducted coaching for 9 sessions showed a decrease in blood sugar levels, increased physical exercise and improved emotional health. In this study coaching was carried out by the telephone method whereas in this study the researchers used the group method, the duration of coaching was done 90 minutes for 9 different sessions with coaching researchers carried out 60 minutes for 4 sessions.

Researchers analyzed that a decrease in blood sugar levels generally occurs because the elderly follow the recommended diet, carry out physical exercise 3x / week and be able to identify changes in mood (mood) and be able to control emotions. This is because in the coaching procedure there is an emphasis on dietary management that leads to the fulfillment of the diet in accordance with the specified portion, consuming a diet according to the recommended type and determining the hours of eating according to recommendations, physical exercise carried out 3x a week and the implementation of stretching 2x / week. Deep breathing exercises help improve the ability of the elderly to control stress.

Elderly calorie are determined by factors of body weight, height, sex, health status, disease and physical exercise level so that the calorie needs in the elderly differ from those of the adult (T. V, P, Mapakshi, Ullas, & Archana, 2015). Physical exercise focuses on increasing muscle strength, balance, flexibility and endurance (Rahi et al., 2014). Researchers found

that some elderly people with diabetes had normal sugar levels at the time of the pre-test, so they tended to have a slight increase compared to the elderly who had high blood sugar levels.

McGloin, Timmins and Boore (2015) research that uses quantitative and qualitative approaches shows that coaching carried out for 1 year increases physical changes in the form of weight loss, decreased blood sugar levels, more energy, better ability to see, increased body image and decreased cholesterol. Changes in behavior related to diet regulation, increased physical exercise, monitoring blood sugar, socializing, reducing snack consumption and reducing alcohol consumption and stopping smoking behavior (McGloin, Timmins, Coates, & Boore, 2015)

Scheineder, et al (2011) conducted a study of 128 diabetes respondents who aimed to identify challenges, goals and strategies in overcoming obstacles to controlling blood glucose levels of diabetes mellitus clients. Coaching interventions were conducted by telephone and online and face-to-face in the last session for 11 sessions. Interventions identify Coaching interventions related to diet management and physical exercise. Coaching interventions use the SMART approach strategy by identifying goals, setting action plans, identifying obstacles and identifying the support needed. The results showed increased awareness and confidence of clients in managing diabetes mellitus, helping clients identify problem solving, prioritize and determine choices in self-management of diabetes mellitus in controlling blood sugar levels. In contrast to this study, researchers used a coaching approach with a grow strategy that identified goals (goal), client's current position (reality), options owned (options) and commitment to carry out a predetermined plan (way to forward). The material emphasized in providing coaching has similarities in diet management and physical exercise, but this study was added with an emphasis also on stress control (Venditti et al., 2014)

The results of the analysis found that the component that has a high score increase is mental health, this is because in coaching there is an element of relaxation through deep breathing. The procedure makes the mood and mind become calmer, more comfortable, more positive thoughts so that the elderly are more receptive and resigned. Changes in mood in the subconscious mind, further stimulates emotional and appreciation. This makes the individual aware and leads to positive things.

CONCLUSION

Coaching intervention on diabetes self-management related to diet, exercise, and stress management over a 4-week period decreased blood glucose levels in the intervention group but not in the controlled group. This research can be used as a reference for community nursing services as intervention modification to improve self-management among older adults with diabetes mellitus. Thus, health promotion through Coaching must become a concern of the government because these methods are beneficial for improving the quality of life of the older adult population in Indonesia. Suggestions for further research include increasing the intervention time in order to observe the long-term effects and permanent

changes that are supposed to control blood glucose levels, behavioral changes and improve wellness and quality of life among older adults with diabetes mellitus.

ACKNOWLEDGEMENTS

The author would like to thank the Director of the Padang Health Polytechnic for financial support. The authors also wish to thank the respondents for their participation in this study.

DECLARATION OF INTEREST

The Authors declare that there is no conflict of interest. There is no funding for this quality improvement project.

REFERENCES

- Andrade, S. C. d., Previdelli, Á. N., Cesar, C. L. G., Marchioni, D. M. L., & Fisberg, R. M. (2016). Trends in diet quality among adolescents, adults and older adults: A population-based study. *Preventive Medicine Reports*, 4, 391-396. doi:<http://dx.doi.org/10.1016/j.pmedr.2016.07.010>
- Cinar, A., Oktay, I., & Schou, L. (2014). 'Smile healthy to your diabetes': health coaching-based intervention for oral health and diabetes management. *Clinical Oral Investigations*, 18(7), 1793-1801. doi:10.1007/s00784-013-1165-2
- Díaz-López, M. d. P., Aguilar-Parra, J. M., López-Liria, R., Rocamora-Pérez, P., Vargas-Muñoz, M. E., & Padilla-Góngora, D. (2017). Skills for Successful Ageing in the Elderly. Education, well-being and health. *Procedia - Social and Behavioral Sciences*, 237, 986-991. doi:<http://dx.doi.org/10.1016/j.sbspro.2017.02.140>
- Indonesia., M. o. H. (2014). Jendela data dan informasi lansia. Bulletin Semester I 2013.
- Kivelä, K., Elo, S., Kyngäs, H., & Kääriäinen, M. (2014). The effects of health coaching on adult patients with chronic diseases: A systematic review. *Patient Education and Counseling*, 97(2), 147-157. doi:<http://dx.doi.org/10.1016/j.pec.2014.07.026>
- Liddy, C., Johnston, S., Nash, K., Ward, N., & Irving, H. (2014). Health coaching in primary care: a feasibility model for diabetes care. *BMC Family Practice*, 15(1), 1-14. doi:10.1186/1471-2296-15-60
- McGloin, H., Timmins, F., Coates, V., & Boore, J. (2015). A case study approach to the examination of a telephone-based health coaching intervention in facilitating behaviour change for adults with Type 2 diabetes. *Journal of Clinical Nursing*, 24(9/10), 1246-1257. doi:10.1111/jocn.12692
- Rahi, B., Morais, J. A., Dionne, I. J., Gaudreau, P., Payette, H., & Shatenstein, B. (2014). The combined effects of diet quality and physical activity on maintenance of muscle strength among diabetic older adults from the NuAge cohort. *Experimental Gerontology*, 49, 40-46. doi:<http://dx.doi.org/10.1016/j.exger.2013.11.002>

- Raynor, H. A., Anderson, A. M., Miller, G. D., Reeves, R., Delahanty, L. M., Vitolins, M. Z., Zhang, P. (2015). Partial Meal Replacement Plan and Quality of the Diet at 1 Year: Action for Health in Diabetes (Look AHEAD) Trial. *Journal of the Academy of Nutrition and Dietetics*, 115(5), 731-742. doi:<http://dx.doi.org/10.1016/j.jand.2014.11.003>
- Schneider, J. I., Hashizume, J., Heak, S., Maetani, L., Ozaki, R. R., & Watanabe, D. L. (2011). Identifying challenges, goals and strategies for success for people with diabetes through life coaching. *Journal of Vocational Rehabilitation*, 34(2), 129-139. doi:10.3233/JVR-2010-0541
- Scott, E. (2013). *Effects of cultural nutritional education among Hispanic women with diabetes*. (1522652 M.S.N.), California State University, Long Beach, Ann Arbor. Retrieved from <https://search.proquest.com/docview/1346654697?accountid=17242> ProQuest Dissertations & Theses Global database.
- T. V, S., P, Y., Mapakshi, S., Ullas, & Archana. (2015). Physical Exercise Practices among Elderly Type 2 Diabetic Patients in A Tertiary Care Hospital. *Indian Journal of Gerontology*, 29(4), 407-416. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=110720646&site=ehost-live>
- Varney, J. E., Liew, D., Weiland, T. J., Inder, W. J., & Jelinek, G. A. (2016). The cost-effectiveness of hospital-based telephone coaching for people with type 2 diabetes: a 10 year modelling analysis. *BMC Health Services Research*, 16, 1-10. doi:10.1186/s12913-016-1645-6
- Venditti, E. M., Wylie-Rosett, J., Delahanty, L. M., Mele, L., Hoskin, M. A., & Edelstein, S. L. (2014). Short and long-term lifestyle coaching approaches used to address diverse participant barriers to weight loss and physical activity adherence. *International Journal of Behavioral Nutrition & Physical Activity*, 11, 1-23. doi:10.1186/1479-5868-11-16
- Wagner, J. A., Abbott, G. L., Heapy, A., & Yong, L. (2009). Depressive Symptoms and Diabetes Control in African Americans. *Journal of Immigrant & Minority Health*, 11(1), 66-70. doi:10.1007/s10903-008-9147-1
- WHO. (2011). *Global status report on noncommunicable diseases*. Retrieved from http://www.who.int/nmh/publications/ncd_report2010/en/.
- WHO. (2015). *World Report on Ageing and Health*. Retrieved from Geneva.

