Volume. 7 Number. 2
Period: July – December 2023; page 77-84
p-ISSN : 2580-1112; e-ISSN : 2655-6669

journal homepage: https://ejournal.akperfatmawati.ac.id
DOI : 10.46749/jiko.v7i2.140

Jurnal Ilmiah Keperawatan Orthopedi (JIKO)
Article history:
Received: August 19, 2023
Revised: September 20, 2023
Accepted: September 29, 2023

Improving The Quality of Life of Diabetes Mellitus Patients Through Education on Tips for Being Friendly with Diabetes Mellitus Using Audiovisual Media

Arif Hidayatullah[1*]
Nursing Study Program, Faculty of Health Sciences, Indonesia Maju University
*E-mail: hidayatullaharief82@gmail.com

Abstract

Diabetes mellitus is a chronic condition that occurs when the pancreas cannot produce enough insulin to regulate metabolism. Diabetes mellitus cannot be cured, but with good management it can prevent organ damage and failure. Diabetes mellitus has an impact on several aspects, namely: physical health aspects, psychological aspects, social aspects and environmental aspects. The aim of this research is to determine the effect of education on diabetes-friendly tips using audio-visual media on changes in the quality of life of diabetes mellitus patients. This research method is quasi-experimental. A total of 86 diabetes mellitus patients recorded in Abadijaya Village, Sukmajaya District, Depok were selected using a purposive sampling technique. The results showed that the mean value of quality of life for the audio-visual media group before was 62.26 with SD 17.583 and after 70.26 with SD 16.441. Meanwhile, the mean value of quality of life for the leaflet group before was 61.60 with SD 19.336 and after 62.21 with SD 18.252. The results of statistical tests using the independent t-test showed that the difference in quality of life scores after being given treatment between the intervention group and the control group was p value 0.035 (<0.05). There is a significant influence between education on diabetes-friendly tips using audio-visual media compared to diabetes management education using leaflets in improving the quality of life of diabetes mellitus patients. It is hoped that this research can make educational videos on tips for being friendly with diabetes mellitus as a nursing intervention standard for patients with diabetes mellitus.

Keywords: Quality of life and diabetes mellitus, friendship with diabetes mellitus, management of diabetes mellitus.

Introduction

Diabetes mellitus is a serious public health problem in the world. Diabetes mellitus is a metabolic disease characterized by hyperglycemia that occurs due to abnormalities in insulin secretion, insulin action or both (American Diabetes Association, 2023). Diabetes mellitus cannot be cured, but

with good management it can prevent organ damage and failure (International Diabetes Federation, 2021).

Based on WHO, around 422 million people worldwide suffer from diabetes mellitus, the majority of whom live in low and middle income countries. According to the International Diabetes Federation (2021), this data is predicted to increase to 643 million in 2030 and 784 million in 2045. The death rate due to diabetes is around 1.5 million every year.

According to the International Diabetes Federation (2021), Indonesia currently ranks fifth in the world with the highest number of diabetes cases with 19.5 million cases and is predicted to increase to 28.6 million in 2045. Based on West Java Open Data (2020), the number of diabetes mellitus sufferers in West Java Province as many as 1,078,857 people and in the Depok City as many as 50,631 people.

The modern lifestyle is currently shifting the lifestyle of local communities with the habit of consuming unbalanced food and drinks (high calories and low fiber), rarely exercise, obesity, stress, and irregular sleep patterns which can trigger diabetes mellitus in a person (Rasdianah et al., 2016).

Another problem is an inappropriate lifestyle, including cigarette consumption, obesity (BMI > 25 kg/m2), lack of exercise, not seeing a doctor regularly, limited knowledge and not being aware of the diabetes mellitus disease.

Everyone, including diabetes mellitus patients, has the hope of living a normal and quality life in their environment. Quality of life (QoL) is described as a measure used to evaluate these expectations. According to Gultom et al., (2020), the quality of life of patients with diabetes mellitus is influenced by several factors, namely: physical, psychological, social and environmental.

Fulfilling a normal quality of life requires diabetes patients to be serious about understanding diabetes management and requires the role of nurses in providing health education related to diabetes management.

According to Rasdianah et al., (2016) there are several educational tips for being friendly with diabetes mellitus, namely: checking with a doctor regularly, consuming anti-diabetic drugs (OAD) according to doctor's recommendations, exercising regularly, stop smoking, stress management, maintaining for ideal body weight based on BMI and balanced diet behavior.

Changing a person's behavior in maintaining and improving health is the goal to be achieved from health education. The success of health education depends on learning components, including: educational materials, educational media, and the role of companions (Sanjaya, 2015).

Cognitive, affective and psychomotor changes can be helped by providing educational material through interesting educational media (Nyoman, 2017). Audiovisual media is media that can be received through the senses of sight and hearing, so that individuals not only see but listen simultaneously (Nyoman, 2017).

Diabetes mellitus in Abadijaya Village, Sukmajaya District, Depok, West Java has a high incidence rate and is included in the 10 most common diseases in the working area. Based on studies and interviews with cadres in several RW in Abadijaya

Subdistrict, it was found that there was no education regarding the application of diabetes mellitus friendly tips which were specifically provided to improve the quality of life of diabetes sufferers. Education on tips for being friendly with diabetes mellitus is an

alternative action to improve the quality of life of diabetes patients. The aim of this research is to determine the effect of education on diabetes-friendly tips using audio visual media on changes in the quality of life of diabetes mellitus patients in Abadijaya Village, Sukmajaya District, Depok, West Java.

Method

This research is a quantitative study with a quasi experimental design. Sampling used non-probability sampling technique with purposive sampling type, with inclusion criteria: having been diagnosed with diabetes mellitus by a doctor, aged > 18 years, able to communicate, read, write and speak Indonesian well, willing to be a respondent in the research to be conducted, and is a resident of Abadijaya Village, Sukmajaya District, Depok, West Java.

The sample exclusion criteria in this study were diabetes patients who experienced psychotic disorders and mental retardation. The research was conducted from 15 August 2023 to 15 September 2023. Ethical approval was obtained from the Research Ethics Committee of the Indonesia Maju University, South Jakarta, Indonesia.

Data collection was carried out using the respondent characteristics questionnaire and the Asian Diabetes Quality of Life (ADQOL) questionnaire. Univariate data analysis uses proportions and percentages, bivariate analysis uses paired t-test, independent t-test, and anova. Data analysis was carried out using SPSS version 26 (IBM Corp, 2021).

Result

Tabel 1. Distribution of research respondents (n=86)

Variable	Intervention Frequency (n=43)		Control Frequency (n=43)	
	f	%	f	%
Age				
a. 18-40 year	3	7,0	9	20,9
b. 41-60 year	30	69,8	22	51,2
c. > 60 year	10	23,3	12	27,9
Gender				
a. Man	18	41,9	23	53,5
b. Woman	25	58,1	20	46,5
Level of Education				
a. No school	3	7,0	8	18,6
b. Elementary school	23	53,5	14	32,6
c. Junior-Senior high school	17	39,5	21	48,8
d. Academy/College	0	0	0	0
Work				
a. Doesn't work	25	58,1	20	46,5
b. Work	18	41,9	23	53,5
Marital Status a. Single	0	0	0	0
b. Married	32	74,4	30	69,7
c. Widow/Widower	11	25,6	13	30,3
Long Suffering				
a. < 1 year	3	6,9	4	9,3
b. > 1 – 5 year	8	18,6	7	16,3
c. > 5 – 10 year	20	46,5	22	51,2
d. > 10 year	12	28	10	23,2
Use of OAD				
a. Do not use OAD	11	25,6	13	30,2
b. Use of Oral OAD	26	60,5	28	65,1
c. Use of Injectable OAD	6	13,9	2	4,7

The Result on table 1 shows that the majority of respondents in the intervention group were aged 41-60 years, female, had elementary school education, were not working, were married, had diabetes for > 5 - 10 years and were using oral anti-diabetic medication.

Meanwhile, in the control group, most of the respondents were aged 41-60 years, male, junior/high school education level, working, married, suffering from diabetes > 5 - 10 years and using oral anti-diabetic medication.

Table 2. Difference in Mean Quality of Life of Respondents in the Intervention Group and Control Group Pre and Post Treatment (N=86).

Group	Pre - Post	Mean+SD	Mean Diff ± SD	95%CI	P Value
Intervention	Pre Post	62,26+17,583 70,26+16,441	8,00± 8,332	5,436-10,564	0,000
Kontrol	Pre Post	61,60+19,336 62,21+18,252	0,61± 3,898	0,595-1,804	0,315

Based on table 2, the mean quality of life for the intervention group before treatment was 62.26 (SD 17.583) and after treatment 70.26 (SD 16.441). The mean quality of life for the control group before treatment was 61.60 (SD 9.336) and after treatment 62.21 (SD 18.252). In general, there was an increase in quality of life scores in the second measurement in both the intervention group and the control group. The paired test for the intervention group showed that the p value was <0.05 (0.000), meaning that at a confidence level of 95% there was a significant difference in quality of life scores between before and after treatment. Meanwhile, in the control group, the p value was > 0.05 (0.315), meaning there was no significant difference in quality of life scores between before and after treatment.

Discussion

The results of this study are not much different from the research of Mohebi et al., (2013) which stated that there is a close relationship between self-efficacy and self-care through diabetes mellitus self-management education. According to Wu J, et al., (2011) there is a significant difference in quality of life scores in Alzheimer's patients between before and after providing audiovisual education (p value = 0.001; α < 0.05). Another study according to Jung S, et al., (2017) found that there was a significant difference in muscle strength values in stroke patients between before and after providing audiovisual education (p value <0.05). According to Kapti et al., (2013), other research also found that there was a significant difference in maternal knowledge and attitude scores in the management of toddlers with diarrhea between before and after providing audiovisual education (p value = 0.036; α < 0.05).

The difference in quality of life scores for diabetes mellitus sufferers after diabetes management education shows a significant influence in improving quality of life for the better (Gultom, et al., 2017).

The increase in quality of life scores occurred due to the effectiveness of audiovisual as an educational medium as well as the effectiveness of the educational intervention on tips for being friendly with diabetes mellitus delivered in the video, resulting in an increase in sufferers' ability to manage diabetes after 4 weeks of treatment.

This is supported by data where the number of respondents in the intervention group who did not consume Anti-Diabetic Drugs (OAD) before providing audiovisual education was 11 people (25.6%), while after 4 weeks of providing audiovisual education respondents in the intervention group had all checked in with a doctor and consumed OAD.

According to Kapti et al., (2013) that audiovisual media is an educational medium that is more easily accepted by patients because the education provided can be simultaneously seen and heard, so that the message conveyed can improve perception, increase understanding, and improve memory. Apart from media factors, the core material factors presented in the video have proven to be effective in improving the quality of life of diabetes mellitus sufferers.

The core material was taken from Rasdianah et al., (2016) that there are several educational tips for being friendly with diabetes mellitus, namely: regular check-ups with the doctor, taking anti-diabetic drugs (OAD) as recommended by the doctor, exercising regularly, stopping smoking, stress management, maintaining ideal body weight based on BMI and balanced diet behavior.

Researchers are of the opinion that the education on tips for being friendly with diabetes that was provided made respondents interested because the diabetes educational video material presented was packaged completely and supported by explanations of pictures and animations.

The results of this research in the control group were different from research conducted by Putri et al., (2017) that there were significant differences in knowledge, attitude and action scores in gastritis patients between before and after providing education using leaflet media (p value = 0.000; $\alpha < 0.05$). Other research according to Rofista et al. (2012) that there was a significant difference in therapy adherence scores in hypercholesterolemia patients between before and after providing education using leaflets (p value = 0.000; $\alpha < 0.05$).

Other research according to Vernissa, et al. (2017) that there is a significant difference in the adherence score for taking iron tablets in the management of pregnant women with anemia between before and after providing education using leaflets (p value = 0.000; $\alpha < 0.05$).

Although there was an increase in the mean quality of life score after treatment in the control group, this did not indicate a significant increase in quality of life. The lack of improvement in quality of life occurred due to the ineffectiveness of providing education using leaflet media.

According to Nyoman (2017), leaflet educational media only provides visual education, so it has weaknesses, namely: less attractiveness to participants compared to audiovisuals, less precise when targeted individually, easily lost and easily damaged, and participants' memory is lost relatively quickly compared to audiovisual.

Researchers are of the opinion that education using leaflet media does not really make respondents interested, respondents tend to get bored and are lazy to read it.

The ineffectiveness of providing education using leaflet media in improving the quality of life of diabetes mellitus patients in this study, one of which was caused by the media used and cultural factors, people's low interest in reading, so that educational leaflets were only paper which had little meaning.

This is different from audiovisual media which has proven to be more effective in conveying education. Audiovisual media is media that can be received through the senses of sight and hearing, so that individuals not only see but listen simultaneously (Nyoman, 2017).

The advantages of audiovisual media compared to print media in general according to Rohani, 1997 in Daludu (2017) include; increase participants' interest and interest in participating in counseling, can convey more information, present three-dimensional images, time efficiency, recordings can

be played back, participants' attention is more focused, material revision is easier, and programs can be created in a short time.

Another factor that contributes to the effectiveness of education on diabetes-friendly tips through audio-visual media is the presence of companions for respondents in receiving education.

There were far more companions for respondents in the intervention group than companions for respondents in the control group. In the intervention group, there were 10 respondents who were accompanied by their partners, 29 respondents who were accompanied by family members other than their partners, and 3 respondents who were unaccompanied.

Meanwhile, in the control group there were 14 respondents who were accompanied by their partners, 16 respondents who were accompanied by their families, and 13 respondents who were unaccompanied. According to Maulana (2009), one of the success factors in providing health education is paying attention to secondary targets, namely: parents, husband/wife, and closest family.

These secondary targets are individuals or groups who have influence or are respected by the primary target, so they are expected to be able to support the messages conveyed to the primary target.

Psychological support from family and those closest to them can also improve a person's quality of life in managing comorbid conditions experienced (Lee et al, 2020). Providing religion-based education will be more effective in influencing sufferers to change their lifestyle behavior for the better (Goodfriend et al, 2020).

Lifestyle education effectively reduces depression, anxiety and stress and increases family support (Jafari & Shahriari, 2022). Anxiety has a partial mediating effect on the relationship between family functioning and quality of life (Zhang M et al, 2021). The anxiety and doubts experienced by sufferers will influence the patient's medication-taking habits and patient compliance in managing the disease they are experiencing (Gavrilova et al, 2019).

Changing a person's behavior in maintaining and improving health is the goal to be achieved from health education activities. The success of health education depends on the educational media used in the process of delivering the material.

Health education using interesting media in a community will increase a person's literacy and knowledge (Chajaee et al, 2018). Education on diabetes-friendly tips provided through various media is expected to influence knowledge and have an impact on improving quality of life and stability of blood glucose levels.

Conclusion

Education on tips for being friendly with diabetes in improving the quality of life of sufferers, including: checking with a doctor regularly, consuming anti-diabetes medication (OAD) according to doctor's recommendations, exercising regularly, quitting smoking, stress management, maintaining an ideal body weight based on BMI and balanced diet behavior.

Suggestion

It is hoped that the educational video on tips for being friendly with diabetes mellitus created in this research can be used as an educational medium in providing nursing interventions related to efforts to improve the quality of life of diabetes mellitus patients.

References

American Diabetes Association (2023). Standards of Care in Diabetes—2023 Abridged for Primary Care Providers.

Aschner, P., Karuranga, S., James, S., Simmons, D., Basit, A., Shaw, J. E., ... & Saeedi, P. (2021). The International Diabetes Federation's guide for diabetes epidemiological studies. Diabetes research and clinical practice, 172.

Chajaee F, Pirzadeh A, Hasanzadeh A, Mostafavi F. Relationship between health literacy and knowledge among patients with hypertension in Isfahan province, Iran. Electron Physician. 2018 Mar 25;10(3):6470-6477. doi: 10. PMID: 29765571; PMCID: PMC5942567.

Duludu, U., (2017). Kurikulum Bahan dan Media Pembelajaran PLS. Deepublish; Yogyakarta.

Farahdina, E. (n.d.). Uji Validitas Konstruk Alat Ukur Diabetes Quality Of Life (DQOL).

Gavrilova, A., Bandere, D., Rutkovska, I., Šmits, D., Mauriņa, B., Poplavska, E., & Urtāne, I. (2019). Knowledge about Disease, Medication Therapy, and Related Medication Adherence Levels among Patients with Hypertension. Medicina, 55(11), 715. https://doi.org/10.3390/medicina55110715.

Goodfriend, L. N. (n.d.). The Effect of Hypertension Education on Knowledge, Lifestyle Behaviors and Blood Pressure Management Among Parishioners in a Faith-Based Setting.

Gultom, A. B., & Indrawati, I. (2020). Edukasi Manajemen Diri Dalam Meningkatkan Efikasi Diri, Mengendalikan Kadar Gula Darah Dan Meningkatkan Kualitas Hidup Pada Pasien Diabetes Mellitus. Jurnal Pengabdian Masyarakat Dalam Kesehatan, 2(2), 32. https://doi.org/10.20473/jpmk.v2i2.21002.

Jafari, F., & Shahriari, M. (2022). Effects of Lifestyle Education on Depression, Anxiety, Stress, and Perceived Family Support Among Hypertensive Patients. Medical - Surgical Nursing Journal, 10(3).https://doi.org/10.5812/msnj.122691.

Jung, S, Lee K, Kim M, & Song C. (2017). Audiovisual biofeedback-based truck stabilization training using pressure biofeedback system in stroke patiens. A Randomized, Single Blinded Study. Journal Hindawi stroke research and treatment volume 2; https : doi.org/10.1155/2017/6/9.0593.

Kapti E. R., Rustina Y & Widyastuti. (2013). Efektifitas audiovisual sebagai media penyuluhan kesehatan terhadap peningkatan pengetahuan dan sikap ibu dalam tatalaksana balita dengan diare. Jurnal Ilmu Keperawatan, Vol. 1, No. 1.

Lee, C. J., Park, W. J., Suh, J., Choi, E., Jeon, D. W., Lim, S., Kim, D., Cha, K. S., Lee, B., Kim, N., Kang, T., & Ha, J. (2020). Relationship between health-related quality of life and blood pressure control in patients with uncontrolled hypertension. The Journal of Clinical Hypertension, 22(8), 1415–1424. https://doi.org/10.1111/jch.13941

Maulana, H. D., & Sos, S. (2009). Promosi kesehatan. Egc.

Mohebi, S., Azadbakht, L., Feizi, A., Sharifirad, G., & Kargar, M. (2013). Review the key role of self-efficacy in diabetes care. Journal of education and health promotion, 2.

Nyoman, I., dkk.. (2017). Media Komunikasi Dalam Penyuluhan Kesehatan. Cv. Andi Offset; Yogyakarta.

Putri, A. T., & Akifah, A. (2017). Efektifitas media audio visual dan leaflet terhadap peningkatan pengetahuan, sikap dan tindakan tentang pencegahan penyakit gastritis pada santriwati di Pondok Pesantren Hidayatullah Putri dan Ummusshabri Kota Kendari Tahun 2017 (Doctoral dissertation, Haluoleo University).

Rasdianah, N., Martodiharjo, S., konseling terhadap kepatuhan minum tablet besi dan kadar hemoglobin ibu hamil dengan anemia di puskesmas di kabupaten bogor. Media Penelitian dan Pengembangan Kesehatan, 27(4), 229-236.

Wu, J., Yang, J., Nakamura, N., Shen Y., Okta, Y., & Abe, K. (2011). Audiovisual integration of normal aged controls compared to patients with mild cognitive impairment and alzhaimer disease. Journal of Okoyama University.

Zhang M, Zhang W, Liu Y, Wu M, Zhou J, Mao Z. Relationship between Family Function, Anxiety, and Quality of Life for Older Adults with Hypertension in Low-Income Communities. Int J Hypertens. 2021 Sep 27;2021:5547190. doi: 10.1155/2021/5547190. PMID: Andayani, T. M., & Hakim, L. (2016). Gambaran kepatuhan pengobatan pasien diabetes melitus tipe 2 di Puskesmas Daerah Istimewa Yogyakarta. Jurnal Farmasi Klinik Indonesia, 5(4), 249-257.

Rofista, S. D. (2012). Analisis pengaruh leaflet sebagai media pendidikan kesehatan terhadap kepatuhan terapi pasien hiperkolesterolemia di dua puskesmas kecamatan kota Depok= Analysis of the influence of leaflet as the health education media on therapy adherence in hypercholesterolemic patients at two subdistrict public health centers in Depok city.

Sanjaya W. (2015). Perencanaan dan Desain Sistem Pembelajaran. Kencana Prenadamedia Group; Jakarta.

Vernissa, V., Andrajati, R., & Supardi, S. (2017). Efektivitas leaflet dan 34616569; PMCID: PMC8490058.