

Implementation of a Five-Pillar Diabetes Education Video to Promote Physical Activity among Patients with Type 2 Diabetes Mellitus

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ABSTRACT/ ABSTRAK

ABSTRACT. Diabetes mellitus is a metabolic disease that progresses gradually and may occur without distinctive symptoms. This study aimed to implement a Five-Pillar Diabetes Education Video to promote physical activity among patients with type 2 diabetes mellitus. The study involved 70 participants, consisting of 35 participants in the intervention group and 35 in the control group. The intervention group received the Five-Pillar Diabetes Education Video accompanied by monitoring twice a week, whereas the control group received the video at the beginning of the intervention and a booklet without home monitoring. The Evidence-Based Nursing Practice process supporting the intervention involved searching for randomized controlled trial articles through PubMed, ProQuest, and Google Scholar using the keyword "Education Video in Diabetic Patients." A total of 126 relevant articles were identified and screened. Physical activity adherence was assessed before and after the intervention. The mean score in the intervention group increased from 4.86 before the intervention to 6.69 after the intervention, while the control group increased from 6.49 to 6.60. The independent-samples t-test showed significant differences between groups before ($p < 0.001$) and after the intervention ($p = 0.001$). These findings indicate an association between implementation of the Five-Pillar Diabetes Education Video and increased physical activity adherence.

ABSTRAK. Diabetes melitus merupakan penyakit metabolik yang berkembang secara perlahan dan dapat berlangsung tanpa gejala yang khas. Penelitian ini bertujuan menerapkan edukasi video lima pilar untuk meningkatkan aktivitas fisik pada pasien diabetes melitus tipe 2. Penelitian melibatkan 70 responden, terdiri atas 35 responden pada kelompok intervensi dan 35 responden pada kelompok kontrol. Kelompok intervensi diberikan edukasi video lima pilar disertai pemantauan dua kali seminggu, sedangkan kelompok kontrol menerima video pada awal intervensi dan buku saku tanpa pemantauan di rumah. Evidence-Based Nursing Practice yang mendasari intervensi dilakukan melalui penelusuran artikel randomized controlled trial melalui PubMed, ProQuest, dan Google Scholar menggunakan kata kunci "Education Video in Diabetic Patients". Sebanyak 126 artikel relevan diidentifikasi dan diseleksi. Kepatuhan aktivitas fisik diukur sebelum dan setelah intervensi. Rata-rata skor pada kelompok intervensi meningkat dari 4,86 sebelum intervensi menjadi 6,69 setelah intervensi, sedangkan kelompok kontrol meningkat dari 6,49 menjadi 6,60. Uji independent-samples t-test menunjukkan adanya perbedaan yang signifikan antara kelompok sebelum ($p < 0,001$) dan setelah intervensi ($p = 0,001$). Hasil ini menunjukkan adanya hubungan antara penerapan edukasi video lima pilar dan peningkatan kepatuhan aktivitas fisik.

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INTRODUCTION

Diabetes mellitus is a metabolic disease commonly referred to as a silent killer. It is characterized by a metabolic disorder in which the body is unable to produce sufficient insulin or cannot effectively utilize insulin produced by the pancreas. The term silent killer reflects the fact that diabetes may remain undetected until various complications develop (Massi et al., 2022). Diabetes mellitus is classified as a noncommunicable disease and is recognized by the World Health Organization (WHO) as a major global health concern. Its occurrence and management are influenced by several factors, including unhealthy lifestyles, limited patient knowledge about diabetes, suboptimal follow-up care after diagnosis, and inadequate family support for patients in managing their condition after diagnosis (Sayekti, 2022).

According to the International Diabetes Federation (IDF), approximately 463 million people aged 20–79 years were estimated to have diabetes mellitus in 2022, representing a prevalence of 9.3% in this age group. By sex, the estimated prevalence was 9% among women and 9.65% among men (Pangestika et al., 2022). In Asia, the International Diabetes Federation estimated that approximately 80 million people aged 20–79 years were living with diabetes mellitus (International Diabetes Federation, 2023). In Indonesia, the 2021 Basic Health Research (Riskesdas) reported an increase in the prevalence of diabetes mellitus to 8.5%, with DKI Jakarta having the highest reported prevalence at 3.4% (Kementerian Kesehatan RI, 2022). Data from Tarakan Hospital also indicated that 2,654 patients with diabetes mellitus were recorded in 2025, including 171 inpatient visits related to diabetes (RSUD Tarakan, 2025).

One of the challenges commonly encountered among patients diagnosed with diabetes mellitus is inadequate adherence to recommended self-management. This may include nonadherence to dietary recommendations, insulin use as prescribed, disease-management practices, and physical activity needed to support diabetes control (Adam et al., 2023). Therefore, various approaches have been implemented to improve health outcomes and support patient adherence to diabetes self-management. These approaches include direct health education and the use of video-based educational media as a means of delivering health information (Molavynejad et al., 2022).

Video-based education may facilitate the delivery of health information and encourage patients with diabetes mellitus to become more actively involved in managing their condition independently (Hu et al., 2022). Educational content for diabetes management generally includes five main pillars: education, dietary management, physical activity, pharmacological therapy including insulin administration, and blood glucose monitoring as part of diabetes control (Massi et al., 2022). Among these components, physical activity represents an important aspect of diabetes self-management because insufficient physical activity is one of the challenges identified among patients with diabetes mellitus (Adam et al., 2023).

Based on this background, the authors implemented an Evidence-Based Nursing Practice (EBNP) approach using a Five-Pillar Diabetes Education Video to promote physical activity among patients with type 2 diabetes mellitus. This implementation was conducted to support the application of evidence-based education in diabetes management.

RESEARCH METHOD

This study used a case study design with a control group involving 70 participants, consisting of 35 participants in the intervention group and 35 participants in the control group. The study was conducted as an implementation of Evidence-Based Nursing Practice (EBNP) through the provision of a Five-Pillar Diabetes Education Video to patients with type 2 diabetes mellitus. The intervention group received the Five-Pillar Diabetes Education Video accompanied by monitoring twice a week, whereas the control group received the video at the beginning of the intervention and a booklet without home monitoring. Participants were patients with type 2 diabetes mellitus who met the inclusion criteria, namely having been diagnosed with diabetes mellitus for at least 1 year, being older than 18 years, having no other chronic diseases, and not being pregnant or breastfeeding.

The primary outcome was physical activity adherence, which was assessed in both groups before and after the intervention. The EBNP process involved searching for randomized controlled trial (RCT) articles using the keyword “Education Video in Diabetic Patients” through PubMed, ProQuest, and Google Scholar. A total of 126 relevant articles were identified and screened to obtain evidence relevant to video-based diabetes education. Data were analyzed using an independent-samples t-test to compare physical activity adherence scores between the intervention and control groups before and after the intervention.

RESULTS

Participant Characteristics

Table 1. Demographic Characteristics of Participants

Variable	Intervention Group n	%	Control Group n	%
Age				
36–40 years	3	75.0	1	25.0
41–45 years	6	60.0	4	40.0
46–50 years	7	43.8	10	58.3
51–55 years	10	52.6	9	47.4
56–60 years	4	44.4	5	55.6
>60 years	5	41.7	7	56.3
Sex				
Male	17	50.0	17	50.0
Female	18	50.0	18	50.0
Education				
Elementary school	5	45.5	6	54.5
Junior high school	12	50.0	12	50.0
Senior high school	18	51.4	17	48.6

Table 1 shows that in the intervention group, the largest proportion of participants was aged 51–55 years, comprising 10 participants (52.6%). The intervention group included 17 male participants (50.0%) and 18 female participants (50.0%). In terms of educational level, senior high school was the most common, with 18 participants (51.4%). In the control group, the largest proportion of participants was aged 46–50 years, comprising 10 participants (58.3%). The control group included 17 male participants (50.0%) and 18 female participants

(50.0%), while senior high school was the most common educational level, with 17 participants (48.6%).

Physical Activity Adherence

Table 2. Analysis of the Five-Pillar Diabetes Education Video Implementation on Physical Activity Adherence

Measurement	Group	N	Mean	Standard Deviation	p-value (t-test)
Physical Activity Adherence Pre-intervention	Intervention	35	4.86	1.167	<0.001
	Control	35	6.49	1.884	
Physical Activity Adherence Post-intervention	Intervention	35	6.69	1.430	0.001
	Control	35	6.60	1.850	

Source: SPSS data, 2023.

Table 2 shows that before the intervention, the mean physical activity adherence score was 4.86 (SD = 1.167) in the intervention group and 6.49 (SD = 1.884) in the control group. The independent-samples t-test indicated a statistically significant difference in physical activity adherence between the two groups before the intervention ($p < 0.001$). After the intervention, the mean score increased to 6.69 (SD = 1.430) in the intervention group, while the mean score in the control group was 6.60 (SD = 1.850). The independent-samples t-test indicated a statistically significant difference between the two groups after the intervention ($p = 0.001$).

DISCUSSION

The findings showed that participants aged 50 years and older represented the age group most commonly affected by diabetes mellitus in this study. This finding is consistent with the 2021 Basic Health Research (Riskesdas), which reported that the highest prevalence of diabetes mellitus was observed among individuals aged 50–65 years (Kementerian Kesehatan RI, 2022). The higher occurrence of diabetes mellitus in older adults may be associated with the aging process, which is accompanied by a decline in the function of various organs and body systems and may be further influenced by unhealthy lifestyles. This finding is also supported by Nugroho and Sari (2020), who reported that individuals aged 45 years and older have a higher risk of developing long-term complications related to diabetes mellitus. Such complications may affect various organs and systems, including the eyes, kidneys, nerves, heart, metabolic system, and blood vessels (Nugroho & Sari, 2020).

Based on the implementation of Evidence-Based Nursing Practice (EBNP), the study included 36 female participants, indicating that women constituted a larger proportion of participants with diabetes mellitus than men. This finding is consistent with the 2021 Basic Health Research (Riskesdas), which reported a diabetes mellitus prevalence of 1.78% among women, compared with 1.21% among men (Kementerian Kesehatan RI, 2022). The higher prevalence among women is also supported by Wahyuni and Alkaff (2023), who reported that women may have a greater risk of developing diabetes mellitus, partly related to pregnancy and childbirth history and lower levels of physical activity after childbirth, which may contribute to an increased risk of diabetes mellitus.

Educational level is another factor that may influence diabetes mellitus risk and disease management. Based on the participant characteristics presented in Table 1, the highest educational level reported among participants was senior high school, and no

participants had a diploma or undergraduate degree. This finding is consistent with the 2021 Basic Health Research (Riskesdas), which indicated that individuals with lower educational attainment tend to have a higher likelihood of experiencing diabetes mellitus. This condition may be related to limited knowledge regarding disease prevention and management, as well as lower awareness of healthy behaviors and optimal health maintenance (Kementarian Kesehatan RI, 2022).

The findings regarding the implementation of the Five-Pillar Diabetes Education Video and physical activity showed an increase in the mean physical activity adherence score in the intervention group from 4.86 before the intervention to 6.69 after the intervention. In comparison, the mean score in the control group was 6.49 before the intervention and 6.60 after the intervention. These findings indicate that physical activity adherence increased following the implementation of the Five-Pillar Diabetes Education Video in the intervention group. Video-based health education may facilitate the delivery of information and support patients in understanding and applying healthy behaviors, including physical activity such as regular exercise and walking. Sustained implementation of these behaviors may support patients in managing their condition and maintaining their quality of life (Waspadji, 2020). This finding is also supported by Hokkam (2019), who reported that continuous health education plays an important role in supporting patients in implementing physical activity and healthy behaviors as part of diabetes mellitus management.

However, the baseline difference between the intervention and control groups should be considered when interpreting these findings. Before the intervention, the mean physical activity adherence score was lower in the intervention group (4.86) than in the control group (6.49), and the difference was statistically significant ($p < 0.001$). Therefore, the increase observed in the intervention group should not be interpreted independently of the baseline difference between the two groups. The post-intervention findings showed mean scores of 6.69 in the intervention group and 6.60 in the control group, with a statistically significant difference between groups ($p = 0.001$). These findings demonstrate a change in physical activity adherence following the intervention, but the baseline imbalance should be taken into account when interpreting the extent to which the observed difference can be attributed to the Five-Pillar Diabetes Education Video.

CONCLUSION

The findings showed an increase in the mean physical activity adherence score in the intervention group following the implementation of the Five-Pillar Diabetes Education Video, from 4.86 before the intervention to 6.69 after the intervention. In the control group, the mean score increased from 6.49 to 6.60. The independent-samples t-test showed a statistically significant difference in physical activity adherence between the intervention and control groups after the intervention ($p = 0.001$). These findings indicate that implementation of the Five-Pillar Diabetes Education Video was associated with increased physical activity adherence among patients with type 2 diabetes mellitus. However, the significant baseline difference between the groups should be considered when interpreting these findings.

The Five-Pillar Diabetes Education Video may be considered as an additional educational medium in nursing practice to support physical activity among patients with type 2 diabetes mellitus. Future studies are recommended to use a more appropriate experimental

design and statistical analysis that accounts for baseline differences between groups. Further research may also involve a larger sample and longer follow-up period to provide stronger evidence regarding the implementation of video-based diabetes education.

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