



THE EFFECTIVENESS OF VIDEO-BASED DIETARY EDUCATION IN IMPROVING KNOWLEDGE AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS

Desy Anggraini*, Logi Kiswanto, Widiawati

School of Nursing, Sekolah Tinggi Ilmu Kesehatan Hesti Wira Sriwijaya, Jl. Sultan Mahmud Badaruddin II No. 1 (Kawasan Benteng Kuto Besak), 19 Ilir, Bukit Kecil, Palembang, Sumatera Selatan 30113, Indonesia

*desy_anggraini091289@gmail.com

ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a chronic disease that requires continuous self-management, including appropriate dietary regulation. Adequate knowledge of dietary principles, including food selection, portion size, and meal timing, is essential to support patients in managing their condition effectively. Video-based health education integrates visual and auditory elements and may facilitate the delivery of health information in a clear, systematic, and easily understandable manner. Objective: This study aimed to determine the effect of video-based dietary health education on knowledge among patients with Type 2 Diabetes Mellitus at 23 Ilir Public Health Center, Palembang. This study used a quasi-experimental design with a one-group pre-test–post-test approach. The study was conducted from June to August 2026. A total of 102 patients with Type 2 Diabetes Mellitus were selected using purposive sampling. Knowledge was measured before and after the intervention using a structured knowledge questionnaire. The questionnaire had been tested for validity and reliability, with Pearson Product-Moment analysis showing that all items were valid ($r > 0.361$; $p < 0.05$), while Cronbach's alpha demonstrated acceptable reliability ($\alpha \geq 0.70$). The intervention consisted of dietary health education delivered through video media. Data were analyzed using a paired t-test. The mean knowledge score increased from 48.73 ± 15.964 before the intervention to 78.29 ± 13.233 after the intervention, with a mean increase of 29.558 points. The statistical analysis showed a significant difference in knowledge scores before and after the intervention ($t = 13.926$; $df = 101$; $p < 0.001$). Before the intervention, 70 participants (68.6%) had a poor level of knowledge, 28 (27.5%) had a moderate level, and 4 (3.9%) had a good level. After the intervention, 74 participants (72.5%) had a good level of knowledge, 17 (16.7%) had a moderate level, and 11 (10.8%) remained in the poor category. Video-based dietary health education significantly improved knowledge among patients with Type 2 Diabetes Mellitus. Video media can therefore be considered an effective alternative educational medium to support dietary education and diabetes self-management in primary healthcare settings.

Keywords: diabetes mellitus diet; health education; patient knowledge; type 2 diabetes mellitus; video media

How to cite (in APA style)

Anggraini, D., Kiswanto, L., & Widiawati, W. (2026). The Effectiveness of Video-Based Dietary Education in Improving Knowledge Among Patients with Type 2 Diabetes Mellitus. *Indonesian Journal of Global Health Research*, 8(6), 735–742. <https://doi.org/10.37287/ijghr.v8i6.2723>.

INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disease characterized by persistent hyperglycemia resulting from impaired insulin secretion and/or insulin resistance. Its increasing prevalence has made T2DM a major global health problem associated with substantial morbidity, mortality, and reduced quality of life (Alharbi TAF, Alhumaidi B, Alharbi MN, Ngo AD, Alasqah I, 2023; Jainurakhma et al., 2021; Kığaj et al., 2024). In Indonesia, the 2023 Indonesian Health Survey reported a diabetes prevalence of 11.7% among individuals aged ≥ 15 years, highlighting the need for strengthened prevention and long-term disease management (Kemenkes RI, 2023). Effective T2DM management requires not only pharmacological treatment but also active patient involvement in self-care, particularly dietary regulation, physical activity, blood glucose monitoring, and medication adherence. Adequate knowledge of dietary principles, including food selection, portion size, and meal timing, is essential for supporting appropriate dietary practices and diabetes self-management (Chow et al., 2018).

Health education is therefore an important component of T2DM management. However, conventional approaches such as oral counseling and printed materials may have limitations in

maintaining patients' attention and facilitating understanding. Video-based education offers an alternative by combining visual and auditory information, allowing dietary concepts to be presented more clearly and concretely. Videos can also be replayed, providing patients with greater flexibility for independent learning (Dewi & Maria, 2023). Previous studies have demonstrated that video-based and multimedia health education can improve diabetes-related knowledge and self-care skills (Pardhan et al., 2023). Nevertheless, the implementation of video-based dietary education in primary healthcare settings remains limited. At 23 Ilir Public Health Center, Palembang, diabetes education is still commonly delivered through verbal counseling and simple printed materials. Therefore, this study aimed to analyze the effect of video-based dietary health education on knowledge among patients with T2DM at 23 Ilir Public Health Center, Palembang.

METHOD

This study used a quasi-experimental design with a one-group pre-test–post-test approach. The study was conducted from June to August 2026. A total of 102 patients with Type 2 Diabetes Mellitus were selected using purposive sampling. Knowledge was measured before and after the intervention using a structured knowledge questionnaire. The questionnaire had been tested for validity and reliability, with Pearson Product-Moment analysis showing that all items were valid ($r > 0.361$; $p < 0.05$), while Cronbach's alpha demonstrated acceptable reliability ($\alpha \geq 0.70$). The intervention consisted of dietary health education delivered through video media. Data were analyzed using a paired t-test.

RESULT

The respondent characteristics assessed in this study included age, sex, educational level, and duration of diabetes mellitus (DM). The respondents ranged in age from 40 to 69 years.

Table 1.
Characteristics of the Study Respondents (n = 102)

Characteristic	Category	f	%
Sex	Male	43	42.2
	Female	59	57.8
Education	Did not complete formal education	9	8.8
	Elementary school	8	7.8
	Junior high school	20	19.6
	Senior high school	44	43.1
	Higher education	21	20.6
Duration of DM	<1 year	8	7.8
	1–5 years	73	71.6
	>5 years	21	20.6

Knowledge was assessed before the respondents received video-based dietary health education using a pre-test. Descriptive analysis showed that the pre-test knowledge scores ranged from 24 to 85, with a mean score of 48.73 ± 15.964 .

Tabel 2.
Knowledge Categories Before the Intervention

Knowledge Category	f	%
Poor	70	68.6
Moderate	28	27.5
Good	4	3.9

Table 2 indicates that most participants had limited knowledge of dietary management for Type 2 Diabetes Mellitus before the intervention. Following the video-based dietary health education, knowledge was reassessed using a post-test.

Table 3.
Knowledge Categories After the Intervention

Knowledge Category	f	%
Poor	11	10.8
Moderate	17	16.7
Good	74	72.5

Table 3, respondents knowledge was assessed after receiving video-based dietary health education through a *post-test*. Descriptive analysis showed that knowledge scores ranged from 35 to 100, with a mean score of 78.29 ± 13.233 . Compared with the pre-intervention assessment, the mean knowledge score increased from 48.73 ± 15.964 to 78.29 ± 13.233 , indicating an improvement in respondents' knowledge following the educational intervention.

Table 4.

Difference in Knowledge Before and After the Intervention

Variable	Mean Difference	SD Difference	95% CI	t	df	p-value
Post-test – Pre-test	29.558	21.437	25.347–33.768	13.926	101	<0.001

Table 4, the mean knowledge score increased from 48.73 ± 15.964 before the intervention to 78.29 ± 13.233 after the intervention. The mean difference between post-test and pre-test scores was 29.558 ± 21.437 , with a 95% confidence interval (CI) of 25.347–33.768. The paired *t*-test demonstrated a statistically significant difference in knowledge scores before and after the intervention ($t = 13.926$, $df = 101$, $p < 0.001$). These findings indicate that video-based dietary health education was associated with a significant improvement in knowledge among patients with Type 2 Diabetes Mellitus.

DISCUSSION

Most respondents had completed senior high school (43.1%), followed by higher education (20.6%) and junior high school (19.6%). Educational level is an important consideration in diabetes health education because patients' ability to understand and apply health information may vary according to their level of health literacy. Therefore, educational materials should be presented in a clear, accessible, and patient-centered manner to support diabetes self-management (Butayeva et al., 2023; Ran et al., 2022).

Regarding diabetes duration, most respondents had been diagnosed with Type 2 Diabetes Mellitus for 1–5 years (71.6%). Although experience with diabetes management may contribute to disease-related knowledge, diabetes duration alone does not necessarily indicate adequate knowledge of dietary management. Continuous education remains important to reinforce knowledge and self-management skills (Ran et al., 2022). In this study, video-based dietary health education was used to provide structured and accessible information on diabetes dietary management. Previous research has demonstrated that health education delivered through Doratoon-based animated videos can significantly improve patients' knowledge of appropriate dietary management for diabetes mellitus (Mudzakkir et al., 2023). These findings support the use of video-based education as an accessible approach for delivering dietary information. In the present study, educational background and diabetes duration were considered as participant characteristics when interpreting changes in knowledge; however, they were not analyzed as causal factors because the primary analysis focused on changes in knowledge before and after the intervention.

Knowledge of dietary management is an essential component of diabetes self-management among patients with Type 2 Diabetes Mellitus. Appropriate food selection, portion size, meal composition, and meal timing are important aspects of dietary management that may support adherence to recommended dietary practices and overall diabetes management. The 3J principles, consisting of the type, amount, and timing of food intake, provide a practical framework for patients to understand and apply dietary recommendations in daily life. Previous research has reported that dietary education based on the 3J principles can improve patients' knowledge and attitudes toward diabetes dietary management (Munawarroh, 2024).

In the present study, 68.6% of respondents had poor knowledge before the intervention. This finding indicates a substantial gap in respondents' understanding of appropriate dietary management for Type 2 Diabetes Mellitus. This finding supports the need for structured education. Video-based education can present information through a combination of visual and auditory elements, making concepts such as food selection, portion control, and meal timing more concrete

and accessible(Hoe et al., 2024). Limited knowledge may make it more difficult for patients to identify appropriate food choices, regulate portion sizes, and follow recommended meal schedules. Therefore, structured and comprehensible dietary education is important to strengthen patients' understanding and support diabetes self-management. Evidence from recent studies also indicates that educational interventions can improve diabetes-related knowledge and support self-management among patients with Type 2 Diabetes Mellitus(Butayeva et al., 2023; Shiferaw et al., 2021).

The use of video-based education provides an opportunity to deliver dietary information through both visual and auditory components. Information regarding food selection, portion control, meal composition, and meal timing can be presented through demonstrations and practical examples, making the information more concrete and accessible to patients. This approach may facilitate comprehension and retention compared with information delivered solely through written materials. Previous research has shown that video-based educational interventions can improve patients' knowledge and provide an accessible approach to delivering health information, particularly for chronic disease management(Adesope & Proença, 2024; Deshpande et al., 2023)

The findings are also consistent with previous research demonstrating the potential of video-based dietary education to improve diabetes-related knowledge. Health education delivered through Doratoon-based animated video has been reported to improve patients' knowledge regarding dietary patterns in diabetes mellitus(Mudzakkir et al., 2023)Similarly, video-based educational approaches have been associated with improvements in knowledge and patient engagement in diabetes self-management (Deshpande et al., 2023; Qi Zhang et al., 2024).These findings support the relevance of video media as an educational tool for presenting dietary information in a structured and understandable manner.

In addition, recent evidence suggests that dietary education can contribute to improvements in dietary-related outcomes among patients with Type 2 Diabetes Mellitus. Structured dietary interventions can help patients better understand recommended dietary practices and translate nutritional information into everyday behaviors(Sjoblom et al., 2025). However, improvements in knowledge should not automatically be interpreted as improvements in dietary behavior or glycemic control. Knowledge represents an important component of diabetes self-management, but its application may also be influenced by individual, social, economic, and environmental factors. In this study, the video intervention was designed to provide structured information related to diabetes dietary management. The relatively low level of baseline knowledge provided an important rationale for delivering the intervention. The combination of visual explanations, verbal information, and practical examples may have helped respondents understand key dietary concepts more clearly. Therefore, video-based dietary education may serve as a practical educational strategy for improving patients' understanding of dietary management in Type 2 Diabetes Mellitus.

The findings showed that video-based dietary education improved respondents' knowledge, with most participants achieving a good level of understanding after the intervention. The combination of visual and auditory elements enabled dietary information, including food type, portion size, and meal timing, to be presented more clearly and concretely. This finding is consistent with previous research reporting that video-based dietary education can improve knowledge and skills among patients with Type 2 Diabetes Mellitus(Wu Y, Yao X, 2017). Although knowledge improved after the intervention, 11 respondents (10.8%) remained in the poor knowledge category and 17 respondents (16.7%) remained in the moderate category. This finding suggests that the response to the educational intervention was not uniform across all respondents. Differences in baseline knowledge, educational background, health literacy, learning preferences, and individual ability to process health information may contribute to variations in learning outcomes. Therefore, a single educational exposure may need to be complemented by repeated education, accessible learning

materials, and follow-up support to reinforce knowledge and facilitate its application in daily diabetes management.

Overall, the mean knowledge score increased by 29.56 points, from 48.73 before the intervention to 78.29 after the intervention. The proportion of respondents classified as having good knowledge also increased substantially following the intervention. These findings indicate an improvement in respondents' understanding of dietary management after receiving video-based dietary health education. The use of audiovisual media may facilitate learning by combining verbal explanations with visual information, allowing dietary concepts such as food selection, portion control, and meal timing to be presented in a more concrete and accessible manner.

The findings are consistent with previous evidence concerning the use of video-based education in diabetes management. A systematic review found that diabetes education videos have the potential to improve health literacy, self-efficacy, and self-care outcomes, although the magnitude of the effect varies according to the intervention and outcome measured (Hoe et al., 2024). This evidence supports the potential role of video as an educational medium for delivering diabetes-related information in a structured and accessible format.

Similarly, a randomized controlled study of 100 patients with Type 2 Diabetes Mellitus found that mobile phone based distance video education was associated with improvements in cognitive-social factors and several metabolic indicators, including fasting plasma glucose, HbA1c, LDL, and BMI (Bayraktar et al., 2024). These findings suggest that video-based education can provide patients with an alternative means of accessing diabetes education beyond conventional face-to-face encounters. However, because the present study assessed knowledge as the primary outcome, the observed increase in knowledge should not be interpreted as evidence of direct improvement in dietary behavior or metabolic control.

More recent evidence also supports the effectiveness of video-based diabetes self-management education. A quasi-experimental study involving 60 patients reported that video-based telenursing Diabetes Self-Management Education significantly improved diabetes-related knowledge compared with routine care (Harahap et al., 2025). The intervention was delivered twice weekly for two weeks, suggesting that repeated exposure to structured educational content may be useful for reinforcing knowledge. This finding is relevant to the present study because 28 respondents remained in the poor or moderate knowledge categories after the intervention, indicating that some patients may benefit from additional educational reinforcement.

The present findings also correspond with previous research on video-based dietary education. Educational videos using animation and practical explanations have been reported to improve patients' understanding of diabetes dietary management (Mudzakkir et al., 2023). The integration of visual and auditory elements in video-based education may facilitate the comprehension, recall, and retention of dietary information. Unlike text-based materials alone, video can present information through narration, images, demonstrations, and examples that illustrate how dietary recommendations can be applied in everyday situations. For patients with Type 2 Diabetes Mellitus, this format may help clarify practical concepts such as selecting appropriate foods, determining portion sizes, understanding meal composition, and maintaining regular meal schedules. The ability to replay educational content may further allow patients to review information according to their individual learning needs.

The accessibility of video-based materials may also be particularly relevant to chronic disease management, in which patients are required to make dietary decisions repeatedly in their daily lives. Educational information that can be revisited may provide an opportunity to reinforce previously delivered messages and reduce reliance on a single learning encounter. Recent evidence on digital diabetes self-management education indicates that technology-based interventions can provide

additional opportunities for patients to access diabetes-related information and self-care support outside conventional healthcare settings (Versluis et al., 2025). video education may function not only as a method of delivering information but also as a resource that patients can use for continued learning.

However, increased knowledge should be interpreted separately from changes in self-management behavior. Knowledge represents an important foundation for diabetes self-management, but patients may encounter practical barriers when attempting to translate knowledge into daily dietary practices. Food affordability, availability of recommended foods, family eating patterns, cultural preferences, motivation, social support, and access to healthcare services may influence whether patients are able to implement the information they have acquired. Consequently, an educational intervention that successfully increases knowledge may not necessarily produce an immediate or equivalent change in dietary behavior.

This distinction is important when interpreting the findings of the present study. The intervention was specifically designed to improve knowledge of dietary management, and the primary outcome was the difference in knowledge scores between the pre-test and post-test. Therefore, the increase in knowledge provides evidence of improvement in the measured educational outcome but should not be interpreted as direct evidence of improved dietary adherence, glycemic control, or other clinical outcomes. Future studies could incorporate behavioral and clinical indicators, such as dietary adherence, self-management practices, fasting blood glucose, or HbA1c, to determine whether increased knowledge is subsequently translated into meaningful health outcomes.

The findings therefore support the importance of reinforcement and individualized educational support. Patients who demonstrate limited improvement may require additional explanations, repeated exposure to the educational material, clarification of misunderstood concepts, or direct interaction with healthcare professionals. Digital educational materials can potentially facilitate this process because patients may revisit the content outside the clinical setting. Evidence from recent digital diabetes education research indicates that interventions incorporating ongoing support and engagement may provide additional benefits for diabetes self-management compared with information delivery alone (Alonso et al., 2024).

The frequency and continuity of education may also be important. Dietary management of Type 2 Diabetes Mellitus involves repeated decisions about food type, quantity, and timing, meaning that knowledge needs to be maintained and applied over time. A single educational session may introduce essential information, but reinforcement can help patients recall and integrate recommendations into routine behavior. Recent research involving repeated video-based diabetes education demonstrated improvements in self-care and glycemic outcomes, suggesting that continued exposure to structured educational content may have value when incorporated into a broader diabetes management program (Badi et al., 2025). Nevertheless, these findings should be interpreted cautiously because the present study did not evaluate long-term retention of knowledge or subsequent behavioral changes.

The substantial improvement observed in this study provides a relevant basis for considering video as a complementary educational strategy in diabetes care. The mean knowledge score increased by 29.56 points, from 48.73 before the intervention to 78.29 after the intervention, while the proportion of respondents with good knowledge increased markedly. This pattern indicates that the intervention was accompanied by a meaningful improvement in the measured knowledge outcome. The findings are particularly relevant given the low baseline level of knowledge, as the intervention addressed an identifiable educational gap among the study population.

From a nursing perspective, video-based dietary education may be incorporated into diabetes self-management education as a complementary method alongside direct counseling. Nurses can use

video materials to introduce or reinforce dietary concepts and subsequently provide individualized clarification based on patients' responses and needs. This combination may be more appropriate than relying exclusively on either digital materials or face-to-face education. The approach also allows educational messages to be standardized while maintaining opportunities for personalized communication.

Overall, the findings suggest that video-based dietary health education was associated with improved knowledge of dietary management among patients with Type 2 Diabetes Mellitus. The improvement in the mean score and the shift toward the good knowledge category support the potential usefulness of video as an accessible educational medium. At the same time, the respondents who remained in the poor and moderate categories emphasize the need for continued reinforcement and individualized support. Future research should use controlled designs and longer follow-up periods to examine whether improvements in knowledge are sustained and whether they lead to changes in dietary behavior, diabetes self-management, and clinical outcomes.

CONCLUSION

Video-based dietary health education demonstrates potential as an effective and practical approach to improving knowledge among patients with Type 2 Diabetes Mellitus. By integrating visual and auditory information, video can facilitate a clearer understanding of dietary principles, including appropriate food selection, portion control, and meal timing. The observed improvement in knowledge indicates that this educational approach can strengthen patients' understanding as an important foundation for diabetes self-management. However, the presence of respondents who remained in the poor and moderate knowledge categories suggests that educational needs may vary between individuals. Therefore, video-based education should be considered not only as a means of delivering information but also as part of continuous, patient-centered diabetes education, complemented by reinforcement, repeated access to educational materials, and appropriate follow-up. In primary healthcare settings, the use of accessible and structured video education may support more sustainable health education practices and contribute to strengthening patients' capacity to manage their dietary needs as part of long-term Type 2 Diabetes Mellitus care.

REFERENCES

- Adesope, O., & Proença, L. (2024). Video-based approaches in health education : a systematic review and meta-analysis. 1–14.
- Alharbi TAF, Alhumaidi B, Alharbi MN, Ngo AD, Alasqah I, A. H. (2023). Diabetes education self-management intervention in improving self-efficacy for people with type 2 diabetes in the Gulf Cooperation Council countries: A systematic review. Elsevier, 17(12). <https://doi.org/https://doi.org/10.1016/j.dsx.2023.102906>
- Alonso, N. ... Berrocal, B. (2024). Could Online Education Replace Face - to - Face Education in Diabetes ? A Systematic Review. Diabetes Therapy, 15(7), 1513–1524. <https://doi.org/10.1007/s13300-024-01595-6>
- Badi, S. ... Ahmed, M. H. (2025). Exploratory Research in Clinical and Social Pharmacy Impact of clinical pharmacist video-based education on self-care and glycemic control in Sudanese adults with type 2 diabetes : A pre-post interventional study. Exploratory Research in Clinical and Social Pharmacy, 19(May), 100617. <https://doi.org/10.1016/j.rcsop.2025.100617>
- Bayraktar, A. K. ... Yildiz, H. (2024). Effectiveness of Mobile Phone-Based Distance Video Education on Metabolic Variables and Cognitive-Social Factors in Type 2 Diabetes. Acta Endocrinologica, 20(3), 261–268. <https://doi.org/10.4183/aeb.2024.261>
- Butayeva, J. ... Hosseinzadeh, H. (2023). The impact of health literacy interventions on glycemic control and self-management outcomes among type 2 diabetes mellitus : A systematic review. (June), 724–735. <https://doi.org/10.1111/1753-0407.13436>
- Chow, R. ... DeAngelis, C. (2018). Efficacy of the combination neurokinin-1 receptor antagonist, palonosetron, and dexamethasone compared to others for the prophylaxis of chemotherapy-induced nausea and vomiting: A systematic review and meta-analysis of randomized

- controlled trials. *Annals of Palliative Medicine*, 7(2), 221–233. <https://doi.org/10.21037/APM.2018.03.09>
- Deshpande, N. ... Press, V. G. (2023). Video-Based Educational Interventions for Patients With Chronic Illnesses : Systematic Review Corresponding Author : 25. <https://doi.org/10.2196/41092>
- Dewi, F. U., & Maria, M. (2023). Pengaruh Edukasi Akhir dengan Video Diet Terhadap Pengetahuan dan Keterampilan Pasien DM Tipe II di RSUD Sultan Imanuddin Pangkalan Bun. *Jurnal Surya Medika*, 9(2), 192–201. <https://doi.org/10.33084/jsm.v9i2.5687>
- Harahap, E. Y. ... Hasina, S. N. (2025). The Effect of Video-Based Diabetes Self-Management Education (DSME) Telenursing on Level of Knowledge in Diabetes Mellitus Patients. 9(1), 107–116.
- Hoe, C. Y. W. ... Watterson, J. (2024). The Use Of Videos For Diabetes Patient Education: A Systematic Review. *Diabetes/Metabolism Research and Reviews*, 40(2). <https://doi.org/10.1002/dmrr.3722>
- Jainurakhma, J. ... Yosefpa, V. (2021). *Dasar-Dasar Asuhan Keperawatan Penyakit Dalam Dengan Pendekatan Klinis* (Karim, Ed.; 1st ed.). Yayasan Kita Menulis.
- Kemenkes RI. (2023). Kementerian Kesehatan RI. Survei Kesehatan Indonesia (SKI) 2023.
- Kıçaj, E. ... Rogozea, L. (2024). Navigating Diabetes: Enhancing Self-Management through Education among Diabetic People at the Early Stages of the Disease—A Systematic Review. *International Journal of Environmental Research and Public Health*, 21(5). <https://doi.org/10.3390/ijerph21050522>
- Mudzakkir, M. ... Fatah, N. S. (2023). Pengaruh Edukasi Kesehatan Melalui Media Video. *Jurnal Kesehatan Siliwangi*, 7(2), 101–108.
- Munawarroh, F. (2024). Pengaruh Edukasi Gizi Dengan Media Video Animasi Prinsip 3j (Jumlah, Jenis, Jadwal) Terhadap Pengetahuan Gizi Dan Sikap Tentang Aturan Makan Penyandang Diabetes Melitus. *Poltekkes Kemenkes Yogyakarta*.
- Pardhan, S. ... Sapkota, R. (2023). Individual patient-centered target-driven intervention to improve clinical outcomes of diabetes, health literacy, and self-care practices in Nepal: A randomized controlled trial. *Frontiers in Endocrinology*, 14(January), 1–14. <https://doi.org/10.3389/fendo.2023.1076253>
- Qi Zhang ... Li, M. (2024). Effects of nudge strategy-based dietary education intervention in patients with type 2 diabetes mellitus: A cluster randomized controlled trial. Elsevier. <https://doi.org/DOI: 10.1016/j.diabet.2024.101563>
- Ran, X. ... Shi, Y. (2022). The Effect of Health Literacy Intervention on Patients with Diabetes : A Systematic Review and Meta-Analysis.
- Shiferaw, W. S. ... Aynalem, Y. A. (2021). Effect of educational interventions on knowledge of the disease and glycaemic control in patients with type 2 diabetes mellitus : a systematic review and meta- - analysis of randomised controlled trials. <https://doi.org/10.1136/bmjopen-2021-049806>
- Sjoblom, L. ... Bonn, S. E. (2025). The effect of an app - based dietary education on dietary intake and cardiometabolic risk markers in people with type 2 diabetes : results from a randomized controlled trial. *Nutrition Journal*. <https://doi.org/10.1186/s12937-024-01069-2>
- Versluis, A. ... Vos, R. C. (2025). Diabetes self- - management education and support delivered by mobile health (mHealth) interventions for adults with type 2 diabetes — A systematic review and meta- - analysis. (January), 1–25. <https://doi.org/10.1111/dme.70002>
- Wu Y, Yao X, V. G. (2017). Mobile App-Based Interventions To Support Diabetes Self-Management. *MIR Mhealth Uhealth*.