

Effectiveness Of A Structured Health Awareness Program On Knowledge, Attitude And Practice Of Diabetic Diet Consumption Among Diabetes Mellitus Patients Attending A Diabetic Clinic At Government General Hospital, Karaikal: A Quasi-Experimental Study

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Abstract

Background: Diabetes mellitus is a major and increasing public health challenge. Dietary self-management is central to glycaemic control, yet patients often have inadequate practical knowledge regarding appropriate food choices, meal timing and portion control. **Objective:** To assess the effectiveness of a structured video-based health awareness program on knowledge, attitude and practice (KAP) regarding diabetic diet among patients with diabetes mellitus. **Methods:** A quasi-experimental one-group pre-test/post-test study was conducted among 30 patients attending the diabetic clinic at Government General Hospital, Karaikal. Participants were selected by purposive sampling. A validated structured questionnaire assessed knowledge, attitude and practice regarding diabetic diet before and one month after a 30-minute educational video intervention. Descriptive statistics, paired t-test and tests of association were used, with significance set at $p < 0.05$. **Results:** Post-test mean scores improved for knowledge (4.6 to 8.6), attitude (4.3 to 7.6) and practice (3.7 to 7.2), and all improvements were statistically significant ($p < 0.05$). No selected demographic variable showed a statistically significant association with post-test knowledge. **Conclusion:** The structured video-based awareness program produced meaningful improvement in diabetic-diet-related KAP. Integrating simple, culturally appropriate, repeatable dietary education into routine outpatient care may strengthen diabetes self-management, especially in resource-limited settings.

Keywords: diabetes mellitus; diabetic diet; dietary knowledge; attitude; practice; health education; video-based education; diabetes self-management

1. Introduction

Diabetes mellitus is a chronic metabolic disorder and a rapidly expanding global health problem. The International Diabetes Federation estimated that approximately 589 million adults aged 20-79 years were living with diabetes in 2024, and this number is projected to increase to about 853 million by 2050.¹ The burden is particularly relevant for low- and middle-income countries, where health systems must manage both increasing prevalence and complications related to delayed diagnosis and inadequate long-term self-care.^{1,2}

Dietary management remains one of the most important foundations of diabetes care. Medical nutrition therapy, appropriate meal planning, restriction of excess sugar and refined carbohydrates, regular meal timing, adequate dietary fibre and healthy food preparation methods are central to day-to-day self-management.^{3,4} Indian recommendations also emphasize culturally feasible dietary guidance, portion control, reduction of sugar-sweetened beverages and avoidance of frequently reheated oils and energy-dense fast foods.⁵ However, knowledge regarding diabetes and its dietary management remains variable in India, with gaps noted across urban and rural settings.^{6,7}

Diabetes self-management education and support (DSMES) is recognized as a critical component of diabetes care. National and international standards recommend that education should be person-centred, behaviourally oriented, culturally appropriate and accessible at key time points in the disease trajectory.^{8,9} Video-based education has practical advantages in outpatient settings because messages can be standardized, repeated, shown to groups, and adapted to local language and food habits. Such interventions may be especially useful where nurse-led counselling time is limited but patient education needs are high.^{10,11}

Knowledge alone is insufficient unless it is translated into favourable attitudes and regular self-care practices. Therefore, assessment of knowledge, attitude and practice (KAP) provides a useful framework for understanding how

much patients know, how they perceive dietary control, and how consistently they apply recommendations in daily life.^{7,12} The present study was undertaken to evaluate whether a structured video-based health awareness program could improve diabetic-diet-related KAP among patients attending a government diabetic clinic in Karaikal.

Objectives

1. To assess pre-test and post-test levels of knowledge, attitude and practice regarding diabetic diet among patients with diabetes mellitus.
2. To evaluate the effectiveness of a structured video-based education program in improving knowledge, attitude and practice regarding diabetic diet.
3. To examine the association between post-test knowledge levels and selected demographic variables.

Hypotheses

- H1: There will be a significant difference between pre-test and post-test knowledge, attitude and practice scores regarding diabetic diet.
- H2: The structured video-based health awareness program will significantly improve knowledge, attitude and practice regarding diabetic diet among diabetes mellitus patients.

2. Materials and Methods

Study design and setting: A quasi-experimental one-group pre-test/post-test design was used. The study was conducted in the diabetic clinic of Government General Hospital, Karaikal.

Participants and sampling: Thirty patients diagnosed with diabetes mellitus and attending the clinic were recruited by purposive sampling. Patients who could understand the educational material and provide informed consent were included. Patients with severe visual or hearing impairment that would prevent participation in the video-based intervention were excluded.

Ethical considerations: The study protocol was approved by the institutional ethics committee. Administrative permission was obtained from the Director of Health and Family Welfare, Karaikal. Written informed consent was obtained from all participants before enrolment. Confidentiality and voluntary participation were maintained throughout the study.

Study instrument: A structured questionnaire was used to assess KAP regarding diabetic diet. The questionnaire contained three domains: 10 knowledge items, 10 attitude items and 10 practice items. Knowledge and attitude items were scored as yes=1 and no=0. Practice items were scored as regular=2, frequent=1 and rare=0. The tool was validated by diabetes specialists and nursing experts before use.

Intervention: The intervention consisted of a structured 30-minute educational video on diabetic diet. The content covered basic understanding of diabetes, importance of dietary control, meal timing, portion control, dietary fibre, avoidance of excess sugar and fast foods, healthy cooking methods, follow-up visits and examples of healthier food choices relevant to the local setting.

Data collection procedure: Baseline KAP was assessed using the pre-test questionnaire. Participants then viewed the structured educational video. Post-test assessment using the same questionnaire was conducted one month after the intervention to assess change in KAP.

Statistical analysis: Data were summarized using frequency, percentage, mean and standard deviation where available. Pre-test and post-test mean scores were compared using paired t-test. Associations between post-test knowledge and selected demographic variables were assessed using appropriate tests of association. Statistical significance was considered at $p < 0.05$.

3. Results

A total of 30 patients with diabetes mellitus participated in the study. Table 1 presents the demographic profile. Participants were predominantly older adults; one-third were above 70 years of age. Males constituted 63% of the sample and two-thirds of participants were from rural areas. Half had completed high school education, while 17% were illiterate.

Table 1. Frequency and percentage distribution of demographic variables (N=30)

Variable	Category	Frequency	Percentage
Age (years)	<40	4	13.3
	41-50	5	16.7
	51-60	5	16.7
	61-70	6	20.0
	>70	10	33.3
Gender	Male	19	63.3
	Female	11	36.7
Residence	Rural	20	66.7
	Suburban	10	33.3
Education	Illiterate	5	16.7
	Primary school	6	20.0
	High school	15	50.0
	Graduate	4	13.3
Occupation	Housewife	6	20.0
	Coolie/labour	10	33.3
	Business	4	13.3
	Employed	2	6.7
	Other	8	26.7

The structured video-based education program was associated with clear improvement in all three KAP domains. Knowledge scores increased from 4.6 to 8.6, attitude scores from 4.3 to 7.6 and practice scores from 3.7 to 7.2. All three pre-post differences were statistically significant at $p<0.05$ (Table 2).

Table 2. Comparison of pre-test and post-test mean KAP scores regarding diabetic diet (N=30)

Domain	Pre-test mean	Post-test mean	Mean change	Test statistic	p-value	Inference
Knowledge	4.6	8.6	+4.0	2.045	<0.05	Significant
Attitude	4.3	7.6	+3.3	Not reported	<0.05	Significant
Practice	3.7	7.2	+3.5	Not reported	<0.05	Significant

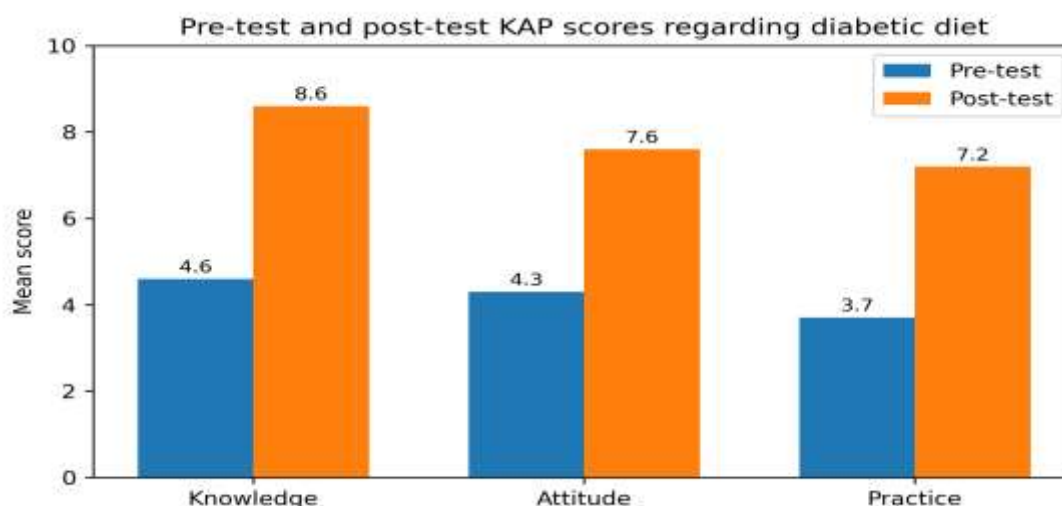


Figure 1. Pre-test and post-test KAP scores regarding diabetic diet.

Table 3 shows the association between post-test knowledge and selected demographic variables. None of the demographic variables showed a statistically significant association with post-test knowledge (all $p > 0.05$). This suggests that the intervention was beneficial across age, gender, residence, education and occupation categories.

Table 3. Association of post-test knowledge scores with demographic variables (N=30)

Variable	Category-wise mean post-test knowledge score	p-value	Inference
Age (years)	<40: 9.0; 41-50: 8.0; 51-60: 8.0; 61-70: 9.0; >70: 8.0	0.08	Not significant
Gender	Male: 8.0; Female: 8.0	0.16	Not significant
Residence	Rural: 9.0; Suburban: 8.0	0.20	Not significant
Education	Illiterate: 8.0; Primary: 8.0; High school: 9.0; Graduate: 9.0	0.36	Not significant
Occupation	Housewife: 8.0; Coolie/labour: 9.0; Business: 8.0; Employed: 8.0; Other: 9.0	0.08	Not significant

4. Discussion

The present quasi-experimental study demonstrated that a structured video-based health awareness program produced statistically significant improvement in knowledge, attitude and practice regarding diabetic diet among patients with diabetes mellitus. The improvement was observed one month after a single 30-minute educational session, suggesting that focused and standardized dietary education can produce short-term gains in patient understanding and self-care behaviour. This finding is clinically relevant because dietary adherence is one of the most difficult but essential components of diabetes management, especially in settings where routine consultation time is limited and patients may have variable literacy levels.^{3,4,8}

The increase in knowledge score from 4.6 to 8.6 indicates that patients acquired important information about diabetes, dietary fibre, exercise, risk factors, complications and the role of healthy food patterns. This is consistent with evidence from Indian community and clinic-based studies showing that diabetes awareness is often incomplete and that structured education can improve patient understanding.^{6,7,12} The ICMR-INDIAB study reported gaps in diabetes knowledge across urban and rural populations, highlighting the need for repeated and context-specific education.⁶ In the present study, two-thirds of participants were from rural areas and 17% were illiterate; despite this, the intervention improved scores, supporting the practical value of audio-visual education for populations where written materials alone may be insufficient.

The observed improvement in attitude score from 4.3 to 7.6 is important because positive attitudes toward dietary control influence readiness to modify eating behaviour. Attitude change is an intermediate step between awareness and practice; patients may know that diet is important but still fail to act if they perceive dietary change as difficult, socially restrictive or incompatible with local food habits. DSMES standards emphasize that education should not be limited to information transfer but should also improve confidence, problem-solving and motivation for self-care.^{8,9} The video intervention used in this study likely helped normalize dietary change by presenting simple explanations, practical examples and healthier alternatives.

Practice scores also improved from 3.7 to 7.2, suggesting that knowledge and attitude gains translated into reported behavioural change. Improvements in practice may reflect better avoidance of fast foods and sugar-rich foods, increased inclusion of vegetables and fibre-rich foods, more attention to portion size, and improved follow-up behaviour. This aligns with nutrition therapy recommendations, which emphasize practical dietary patterns rather than a single rigid diet.⁴ Indian guidelines further recommend culturally acceptable meal plans, reduction of sugar-

sweetened beverages, healthy oil practices, portion control and regular lifestyle counselling.⁵ Therefore, a structured program that directly addresses day-to-day food choices can be more meaningful for patients than general advice to control diet.

The lack of statistically significant association between post-test knowledge and demographic variables suggests that the intervention was broadly acceptable across subgroups. This is encouraging because patient education programs are often less effective among older adults, rural residents or individuals with lower education when materials are text-heavy or not culturally adapted. In this study, the visual and auditory format may have reduced literacy-related barriers. However, the small sample size reduces the ability to detect subgroup differences; therefore, the absence of association should be interpreted cautiously rather than as proof of equal effectiveness in all demographic groups.

The findings are consistent with the wider literature on diabetes education. Systematic reviews and meta-analyses have shown that diabetes self-management education and support can improve glycaemic outcomes and self-care behaviours, particularly when interventions are structured and patient-centred.^{10,13,14} Evidence also supports the role of digital or video-supported education as a scalable adjunct to conventional counselling, especially when it reinforces core messages and provides simple self-care steps.^{11,15} Although the present study assessed KAP rather than HbA1c, improved dietary practice is an important proximal outcome that may contribute to better long-term clinical control if sustained.

The clinical implication is that diabetic clinics should integrate brief, structured, repeatable education sessions into routine outpatient flow. Nurse-led video-assisted education can be delivered in waiting areas or counselling rooms and reinforced during follow-up visits. The intervention can also be adapted into local languages and tailored to common regional food patterns. For maximum impact, such education should be linked with individualized dietary counselling, family involvement and periodic reassessment, because sustained behaviour change usually requires reinforcement beyond a single exposure.^{8,9,15}

This study has limitations. The one-group pre-test/post-test design lacks a control group, so improvements cannot be attributed solely to the intervention with the same certainty as a randomized controlled trial. The sample size was small and participants were selected by purposive sampling, limiting external validity. The study measured outcomes at one month only; therefore, long-term retention and sustained dietary practice are unknown. Practice was self-reported and may be affected by social desirability bias. In addition, biochemical outcomes such as fasting blood glucose, post-prandial glucose and HbA1c were not included, so the clinical metabolic impact of the educational intervention could not be assessed. Future studies should use larger randomized designs, include longer follow-up, assess family support and evaluate clinical outcomes along with KAP.

5. Conclusion

The structured video-based health awareness program significantly improved knowledge, attitude and practice regarding diabetic diet among diabetes mellitus patients attending the diabetic clinic at Government General Hospital, Karaikal. The findings support the inclusion of simple, culturally appropriate and repeatable dietary education as part of routine diabetes outpatient care. Such interventions may be particularly useful in resource-limited settings where structured counselling time is limited but the need for patient education is substantial.

Recommendations

- Structured diabetic diet education should be integrated into routine outpatient diabetes services.
- Video-based education should be supplemented with individual counselling and local-language printed or pictorial reinforcement materials.
- Family members should be included where possible, because household food preparation and food purchasing influence adherence.
- Future studies should use randomized controlled designs, larger samples, longer follow-up and biochemical endpoints such as HbA1c.

Ethical approval

The study was conducted after obtaining institutional ethics committee approval and administrative permission from the relevant health authority. Written informed consent was obtained from all participants.

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Conflicts of interest

The authors declare no conflicts of interest.

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