

Short Communication

Effectiveness of a Video-assisted Training Programme on Diabetes Mellitus Patient's Knowledge of Diabetic Retinopathy Prevention at Tertiary Care Hospital Dehradun

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A B S T R A C T

Introduction: Diabetes Mellitus (DM) is a disease of metabolism that is characterised by abnormally increased blood sugar levels. Visual impairment is more commonly seen among diabetes people than non-diabetic persons. Diabetic retinopathy has come out as the main cause of visual challenges leading to permanent blindness among adults. Across the world, most diabetic patients are unaware of the fatality of this condition, yet research predicts that awareness programmes need to be insisted on and administered for better DR prevention and management.

Study and Design: Quantitative research was conducted at Shri Mahant Indresh Hospital in Dehradun using a single- group pre-test and post-test design.

Methods and Material: The study employed purposive sampling to enrol a total of 60 patients. Data was gathered using a structured knowledge questionnaire, and differential and inferential statistics were used to analyse the results.

Results: In comparison to the mean knowledge scores before the test (13.15.276) and after the test (20.121.9239) the latter was higher. The results were very significant, as indicated by the calculated "t" value's being higher than the tabular value ($t_{59} = 2, P0.05$) of 22.8. When it comes to increasing their understanding of how to prevent diabetic retinopathy, the intervention was helpful for the customers who were diabetic.

Conclusions: The video-assisted programme as an intervention was found highly beneficial in improving knowledge of the prevention of diabetic retinopathy.

Keywords: Diabetic Retinopathy, Knowledge, Diabetic Mellitus Clients

Introduction

Diabetes mellitus is derived from the Latin term mellitus, which means sweet, and the Greek word diabetes, which means syphon, to pass through.¹ Diabetes Mellitus (DM) is a disease of metabolism that is characterised by abnormally increased blood sugar levels.² By 2040, 642 million individuals are predicted to be affected by this serious public health condition, with 75% of them living in low- and middle-income nations³ There are about 65 million diabetic patients in India, which is more than 7.1% of India's adult Population⁴. A study by the American Diabetes Association (2009) reports that India will see the highest surge in people diagnosed with diabetes by 2030.⁵

There are multiple types of diabetes mellitus (DM), such as type 1, type 2, gestational diabetes, newborn diabetes, maturity-onset diabetes of the young (MODY), and secondary causes resulting from endocrinopathies, steroid use, etc.¹ Blurred vision, polyuria, polydipsia, weight loss, and occasionally polyphagia are signs of severe hyperglycaemia. Chronic hyperglycaemia may also be accompanied by growth impairment and increased susceptibility to certain illnesses. Uncontrolled diabetes can lead to acute, potentially fatal effects such as hyperglycaemia with ketoacidosis or nonketotic hyperosmolar syndrome.⁶ It is believed that 50% of individuals with diabetes do not know they have the disease, which increases their risk of acquiring complications from diabetes. Patients with type 1 or type 2 diabetes frequently experience diabetes complications, which also significantly increase morbidity and death rates. There are two main categories of diabetic chronic complications: microvascular and macrovascular. Microvascular problems comprise neuropathy, nephropathy, and retinopathy, whilst macro vascular issues encompass peripheral artery disease (PAD), cardiovascular disease, and stroke.^{7,8}

Visual impairment is most seen among diabetes people than non-diabetic persons. Due to the increasing prevalence of diabetes in the world, blinding ocular complications are becoming more common, such as diabetic retinopathy, cataracts, and glaucoma.⁹ Adults with vision problems that result in permanent blindness are most likely to have DR. The prevalence of DR is reported to range between 12% and 22% in India, compared to a worldwide prevalence of 22.27 percentage for the condition and 6.17 percentage for VTDR (vision-threatening) among diabetes.⁵ Diabetic retinopathy (DR) is a microvascular disorder occurring due to the long-term effects of diabetes mellitus. Diabetic retinopathy may lead to vision-threatening damage to the retina, eventually leading to blindness.¹⁰ However, the major cause of vision loss among diabetic clients is diabetic retinopathy. DM affects one out of three persons with diabetes, and persist can lead to blindness, especially among working-age adults. ii. Diabetic retinopathy is a fatal and vision-threatening complication of diabetes. It occurs when blood from the capillaries of the retina leaks and

other fluids. This leads to retinal swelling that results in blurry vision.¹¹ The initial stages of diabetic retinopathy can be asymptomatic. But as the disease progresses, the symptoms may come up with blurry vision, double vision, eye floaters and spots, and eye pain. However, this can be preventable by early identification and management¹².

There are certain aspects that clients should be aware of and practice at home to reduce the risk of diabetic retinopathy in the future, such as:

- **Regular eye examination:** According to the American Academy of Ophthalmology, all patients with diabetes must undergo a comprehensive dilated eye examination once a year. Increasing the vigilance on eye examination to detect diabetic retinopathy among clients with diabetic retinopathy is an integral aspect of early identification and management of diabetic retinopathy.
- **Glycaemic Control:** Patients having better control of blood sugar are less likely to develop DR in the future, therefore strict monitoring of blood glucose and maintaining it within the normal limits is necessary. The fasting glucose should be <120 mg/dl, postprandial <180mg/dl, and HbA1c <7%.
- **Blood pressure control:** High blood pressure can raise the chances of getting diabetic retinopathy; therefore, patients must be aware and practice frequent monitoring of blood pressure at home and try to maintain it within the range between 130/80 mmHg.
- **Lifestyle changes:** Diabetic patients need to be counselled about quitting smoking, prohibiting alcohol, consuming a low salt and sugar diet, and taking regular exercise. This will help them in good glycaemic and blood pressure control.¹³

Across the world, most diabetic patients are unaware of the fatality of this condition, yet research predicts that awareness programmes need to be insisted on and administered for better DR prevention and management¹⁴.

The study's primary goal was to make diabetic patients aware of this condition and prevention of ocular complications in the future.

Material and Methods

Inclusion Criteria

- Patients whose blood sugar level is high
- Gender - male and female
- Willing to participate

Exclusion Criteria

- Patients who have already taken any educational programme regarding the prevention of diabetic retinopathy.
- Patient who is having other eye diseases

Sample and Research Design

A single group pre-test & post-test was used to fulfil the need for research. The research was conducted at the Shri Mahant Indires Hospital in Dehradun. A total of 60 patients were enrolled by purposive sampling. Data collected with the help of a structured knowledge questionnaire was administered to evaluate the knowledge of patients on the prevention of DR. The maximum knowledge score was 30 each correct response contains 1 mark, and wrong consists of 0. Further, it was categorised into good, average, and poor. Data analysed using descriptive and inferential mean, percentage t-tests, frequency distribution, and chi-square.

Results

Sample Characteristics of Diabetic Patients

Most of the participants i.e., 46.7% belong to the group 31-50 years of age, whereas 33.3% of participants were in the 51-75 years of age group. Out of which, 58.3% of participants were male. Moreover, a significant number of diabetic patients were graduates 30%, and the least i.e., 8.3% did not have primary education. In terms of employment, 31.7% of patients were self-employed Whereas 26.7% of participants were unemployed. All patients residing in urban and rural areas are 58.2% and 41.7% respectively. About half of the participants earned between 16000-30000 per month. In regard to the duration of illness, lies it between 1-5 years 41.7%, and only 11.7% is more than 10 years. However, most of them have no previous knowledge regarding diabetic retinopathy 78.3%.

Level of Knowledge of Diabetes Mellitus Clients

Figure 1. shows that, of the 60 subjects who took the pre-test, none of the subjects had adequate knowledge. 81.7% of participants had moderate knowledge. Whereas 18.3%

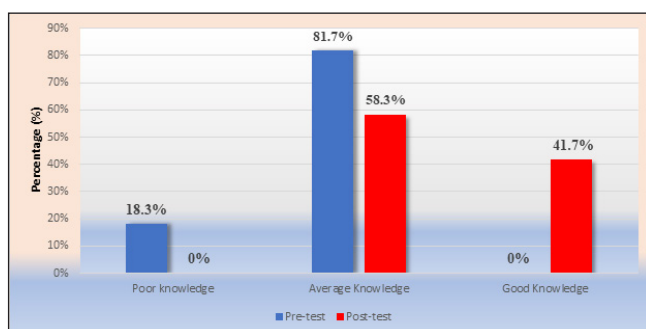


Figure 1. Levels of Knowledge

Table 1. Comparison of pre-test & post-test knowledge Score

Level of knowledge	Mean $\pm$ SD	Range	Max Score	't' value	Level of Significance
Pretest	13.05 $\pm$ 2.758	8-20	30	22.8	.000
Posttest	20.12 $\pm$ 1.923	15-23			

df= 59, t tab = 2, p<0.05

had little to no awareness about how to prevent diabetic retinopathy. On the other hand, after VATP, the post-test revealed that 41.7% of subjects had good knowledge, 58.3% had average data, and no clients had poor knowledge regarding the prevention of diabetic retinopathy.

Table 1: To show that the mean knowledge score after the video-assisted instructional course (20.12 1.9239) was greater than the mean knowledge score before the program (13.05 2.758). The tabulated result (t₅₉ = 2) was lower than the calculated t-value (t = 22.8, P 0.05).

Hence, it can be interpreted that the intervention was beneficial for diabetic clients in terms of improving their knowledge regarding the prevention of diabetic retinopathy.

Discussion

Regarding the sociodemographic factors, the participants' ages ranged from more than 20 years. Of all participants, 58% of subjects are male and 42% of the subjects are female. The educational levels of most of the subjects were primary school (21.7%) and high school (21.7%). Most subjects were self-employed (31.7%) and unemployed (26.7%). The majority of subjects (31.7%) earn between 16000 – 30000 per month. Most (58.2%) of the patient lived in urban areas, and (41.7%) of patients lived in rural areas. The duration of illness of the majority of patients (41.7%) is between 1-5 years, and the majority (78.3%) of the patients had no previous information regarding diabetic retinopathy, and 21.7% of patients had no previous information regarding diabetic retinopathy.

A study conducted in Bagalkot, Karnataka showed that In a pre-test out of 50 subjects, 10 (20%) had good knowledge, followed by 28 (56%) who had average knowledge, followed by 12 (24%) subjects with poor knowledge regarding the prevention of diabetic retinopathy. However, after VATP in the post-test, 76% of subjects had excellent, 12% of subjects had good, and no subjects had average or poor knowledge regarding the prevention of diabetic retinopathy.¹⁵ However, the present study found that, out of the 60 subjects who took the pre-test, none of the subjects had adequate knowledge. 81.7% of participants had moderate knowledge. Whereas 18.3% had little to no awareness about how to prevent diabetic retinopathy. On the other hand, after VATP, the post-test revealed that 41.7% of subjects had good knowledge, 58.3% had average data, and no clients had poor knowledge regarding the prevention of diabetic retinopathy.

Hence, it indicates that the VATP was effective in enhancing the knowledge of diabetes mellitus clients regarding the prevention of diabetic retinopathy.

Conclusion

Based on the analysis of the findings of the study, the following inferences were drawn. The overall effectiveness of VATP on the prevention of diabetic retinopathy, and the knowledge of clients regarding the prevention of diabetic retinopathy.

Conflict of Interest: None

Source of Finding: None

Author's Contribution: All the work has been carried out by KN.

Declaration of Generative AI and AI-Assisted

Technologies in the Writing Process: None

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