

# Prevalence and Effectiveness of Video Assisted Teaching on Knowledge about Prevention of Diabetic Neuropathy among Patients with Diabetes in a Tertiary Care Centre, Puducherry

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## ABSTRACT

**Background of the study:** Diabetes mellitus is a common non-communicable disease that, over time, leads to serious damage to the nerves and blood vessels. Diabetic neuropathy is the most common and troublesome microvascular complication of diabetes mellitus, affecting almost half of the population with diabetes and worsening their quality of life. Since 1990, the number of people affected by diabetic neuropathy has more than tripled, reaching 206 million cases by 2021, and in Puducherry, the prevalence of diabetic peripheral neuropathy has been reported as 31.1%. Inadequate knowledge about prevention among patients with diabetes remains an important, modifiable gap that nursing education can address. **Aim of the study:** The aim of this study was to assess the prevalence of diabetic neuropathy and to evaluate the effectiveness of video assisted teaching on knowledge about prevention of diabetic neuropathy among patients with diabetes in the study and control groups. **Methodology:** A quantitative research approach with a quasi-experimental, non-randomized, control group pretest-post-test design was used. Patients with diabetes admitted in a tertiary care centre at Puducherry, fulfilling the inclusion criteria were selected using a non-probability purposive sampling technique. The sample size was 60 (30 in the study group and 30 in the control group). Prevalence of diabetic neuropathy was assessed using the Modified Michigan Neuropathy Screening Checklist, and level of knowledge was assessed using a structured knowledge questionnaire. Video assisted teaching was provided only to the study group; the control group received routine care. Post-test was conducted for both groups on the 7th day with the same instruments. Data were analysed using descriptive and inferential statistics. **Results:** Of the 60 patients screened, 44 (73.33%) were categorized as "Normal" and 16 (26.67%) were categorized as having diabetic neuropathy. In the study group, the pretest and post-test mean and SD knowledge scores were 7.67±4.66 and 18.10±3.45 respectively, and the calculated paired 't' value was 14.05 at p<0.0001. In the control group, the pretest and post-test mean and SD scores were 8.67±4.92 and 8.50±5.23, and the calculated paired 't' value was 0.614 at p=0.905 (not significant). The post-test comparison of knowledge scores between the study and control group showed a mean and SD of 18.10±3.45 and 8.50±5.23 respectively, with a calculated 't' value of 8.37 at p<0.0001. A statistically significant association was found between the pretest level of knowledge and occupation ( $\chi^2=7.96$ , p=0.047) among the demographic variables, and duration of diabetes mellitus ( $\chi^2=8.59$ , p=0.035) among the clinical variables. **Conclusion:** The result of this study concluded that about one-fourth of the patients with diabetes were categorized as having diabetic neuropathy, and video assisted teaching was effective in enhancing the knowledge about prevention of diabetic neuropathy among patients with diabetes. There was a significant association found between the level of knowledge and occupation and duration of diabetes mellitus.

**Keywords:** Prevalence, video assisted teaching, level of knowledge, diabetic neuropathy, diabetes

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## INTRODUCTION

Diabetes mellitus (DM) is a common non-communicable disease related to abnormal insulin production, impaired insulin utilization, or both, and is a major public health problem all over the world. Hyperglycaemia, a common effect of uncontrolled diabetes, leads over time to serious damage to many of the body's systems, especially the nerves and blood vessels. All forms of diabetes increase the risk of long-term microvascular complications such as diabetic retinopathy, diabetic nephropathy, and diabetic neuropathy.

Diabetic neuropathy is the most common and troublesome complication of diabetes mellitus. It affects almost half of the population with diabetes and worsens the quality of life of the patient. It refers to a group of disorders that affect peripheral, autonomic, and spinal nerves, and its prevalence increases with the age of the patient and the duration of the disease. Diabetic neuropathy causes a progressive loss of sensory function beginning distally in the lower extremities, characterized by pain and substantial morbidity; over time, at least 50% of individuals with diabetes develop diabetic neuropathy. Reduced pain and temperature sensations increase the risk of unnoticed injuries and

foot infections, and neuropathy-related joint changes may occur due to impaired proprioception.

World Health Organization (2024) stated that neurological conditions have become the leading cause of ill health and disability worldwide, affecting over one-third of people<sup>1</sup>. Among them, diabetic neuropathy has surged globally – since 1990, the number of people affected has more than tripled, reaching 206 million cases by 2021, with over 80% of neurological deaths and health losses occurring in low- and middle-income countries.

Mahira Saiyed et al. (2024) reported that the prevalence of microvascular complications in young adolescents and adults with type 1 diabetes in Ahmedabad, Gujarat, was 29.6%, and that both sustained high glycemic levels and the duration of diabetes were significant contributing factors to the development of complications<sup>2</sup>.

According to the World Health Organization's 2023 register, 422 million people worldwide have diabetes, with the majority residing in low- and middle-income nations. Diabetes is directly responsible for 1.5 million fatalities annually<sup>3</sup>.

According to Richa Gandhi's article in the Times of India, as of November 14, 2023, there were over 10 crore confirmed or undiagnosed cases of diabetes in India. This number is predicted to treble over the next 20 years<sup>4</sup>.

Mubaraki et al. (2023) found that 83.1% of participants in Taif City, Saudi Arabia, were unaware of diabetic neuropathy and its repercussions<sup>5</sup>.

Monteiro Soares and Santos (2022), in the International Diabetes Federation Atlas, highlighted significant regional variation in the prevalence of diabetes-related peripheral neuropathy, ranging from 30.0% to 70.0% in Africa and 6.0% to 81.0% in South America<sup>6</sup>.

American Diabetes Association (2021) stated that the prevalence of diabetes among seniors in the United States remains high, at around 29.2% (16.5 million seniors), whether diagnosed or undiagnosed<sup>7</sup>.

Bashar and Verma (2021) reported that the national prevalence of diabetic peripheral neuropathy (DPN) in India is 42.0%, with factors such as male gender, advancing age, longer duration of diabetes, smoking, physical inactivity, obesity, and poor glycemic control significantly associated with its presence<sup>8</sup>.

According to Mathiyalagen et al. (2021), in Puducherry, the prevalence of diabetic peripheral neuropathy, as assessed by the Michigan Neuropathy Screening Instrument, was 31.1%, indicating that approximately one in three diabetic patients in rural areas is at risk for developing diabetic peripheral neuropathy<sup>9</sup>.

The researchers discovered a need to improve adequate knowledge about prevention of diabetic neuropathy among patients with diabetes after conducting a thorough review and personally observing patients who were admitted with foot issues and below-knee amputations due to a lack of knowledge about diabetes complications. For this reason, they conducted this study.

## OBJECTIVES

- To assess the prevalence of diabetic neuropathy among patients with diabetes.
- To determine the effectiveness of video assisted teaching on knowledge about prevention of diabetic neuropathy among patients with diabetes in the study and control group.
- To find out the association between the pretest level of knowledge about prevention of diabetic neuropathy among patients with diabetes with the selected demographic variables in the study and control group.
- To find out the association between the pretest level of knowledge about prevention of diabetic neuropathy among patients with diabetes with the selected clinical variables in the study and control group.

## HYPOTHESIS

**H1:** There is a significant difference in the pretest and posttest level of knowledge about prevention of diabetic neuropathy among patients with diabetes between the study and control group after implementation of video assisted teaching.

**H2:** There is a significant association between the level of knowledge about prevention of diabetic neuropathy among patients with diabetes with the selected demographic variables in the study and control group.

**H3:** There is a significant association between the level of knowledge about prevention of diabetic neuropathy among patients with diabetes with the selected clinical variables in the study and control group.

## MATERIALS AND METHODS

**Study Design:** A quantitative research approach with a Quasi experimental, Non-randomized, control group pretest-post test design was used in this study.

**Study Population:** The population of the study was patients with diabetes admitted in a tertiary care centre at Ariyur, Puducherry.

**Sample Size:** The total sample size of this study was 60 patients with diabetes, among them 30 samples were selected for the study group and 30 samples were selected for the control group.

**Sampling Technique:** Non probability, purposive sampling technique was adopted for this study.

**Inclusion Criteria:** It includes patients with diabetes diagnosed as Type I or Type II diabetes mellitus, of both genders admitted in the diabetology unit in medical wards, between the age group of 45 to 60 years, those who can understand, read and speak Tamil and those who stayed in the hospital for 7 days.

**Exclusion Criteria:** Patients with diabetes those who were critically ill at the time of data collection and those who were not willing to participate in the study were excluded from the study.

## DATA COLLECTION

The data collection was started after obtaining formal ethical clearance from the Institutional Review Committee (ICON IRC-2022-2023-002) and administrative permission from the study setting. The data was collected over a period of four weeks in a tertiary care centre at Puducherry. For the study, 60 patients with diabetes who fulfilled the inclusion criteria were selected using a non-probability purposive sampling technique, and were divided into two groups – 30 for the study group and 30 for the control group.

The prevalence of diabetic neuropathy was assessed using the Modified Michigan Neuropathy Screening Checklist, adopted from the MNSI Scale developed by Feldman (1994), comprising 15 self-administered 'yes or no' questions on foot sensation; a score of 1–6 was categorized as 'Normal' and 7–15 as 'Diabetic neuropathy'<sup>10</sup>. Demographic variables (age, gender, religion, marital status, education, occupation, type of family, family monthly income, and place of residence) and clinical variables (height, weight, BMI, type of diabetes mellitus, comorbidities, duration of diabetes, family history, and medication practices) were collected using a structured questionnaire.

Pretest was conducted for both the study and control group using a structured knowledge questionnaire consisting of 25 multiple-choice items, with a total score of 25, categorized as inadequate knowledge (<50%), moderately adequate knowledge (50–75%), and adequate knowledge (>75%). Content validity of the tools was established through 1 Diabetologist, 3 Medical Surgical Nursing experts, and 1 statistician, and the reliability of the instruments was assessed by the test-retest method using Karl Pearson's coefficient ( $r = 0.9$  for the screening checklist and  $r = 0.86$  for the structured knowledge questionnaire), confirming that the tools were highly reliable.

Video assisted teaching – a strategic teaching approach using video presentation covering the definition, causes, risk factors, clinical manifestations, diagnostic evaluation, management, and

prevention of diabetic neuropathy – was provided to the study group for a duration of 25 to 30 minutes. The control group received routine care. Posttest was conducted for both groups on the 7th day using the same data collection instruments. Informed written consent was obtained from all participants, and confidentiality, anonymity, and the freedom to withdraw from the study at any time were maintained throughout.

## RESULTS

The results of the study were presented in tables 1-8 and figure 1&2.

The data were organized and analyzed under five sections: prevalence of diabetic neuropathy; demographic and clinical variables; pretest and posttest level of knowledge; effectiveness of video assisted teaching; and association between the pretest level of knowledge and the selected demographic and clinical variables.

**Table 1: Frequency and percentage distribution of the prevalence of diabetic neuropathy among patients with diabetes (N=60)**

| Category            | Frequency (n) | Percentage (%) |
|---------------------|---------------|----------------|
| Normal              | 44            | 73.33          |
| Diabetic neuropathy | 16            | 26.67          |
| Total               | 60            | 100.0          |

The above table shows that of the 60 patients with diabetes screened, 44 (73.33%) were categorized as “Normal” and 16 (26.67%) were categorized as having diabetic neuropathy.

**Table 2: Frequency and percentage distribution of demographic variables among patients with diabetes in the study and control group (N=60)**

| Variable                    | Study Group (n=30) | Control Group (n=30) |    |      |
|-----------------------------|--------------------|----------------------|----|------|
|                             | n                  | %                    | n  | %    |
| Age in years                |                    |                      |    |      |
| 45 – 50                     | 6                  | 20.0                 | 4  | 13.3 |
| 51 – 55                     | 8                  | 26.7                 | 9  | 30.0 |
| 56 – 60                     | 16                 | 53.3                 | 17 | 56.7 |
| Gender                      |                    |                      |    |      |
| Male                        | 20                 | 66.7                 | 20 | 66.7 |
| Female                      | 10                 | 33.3                 | 10 | 33.3 |
| Religion                    |                    |                      |    |      |
| Hindu                       | 21                 | 70.0                 | 23 | 76.7 |
| Muslim                      | 4                  | 13.3                 | 4  | 13.3 |
| Christian                   | 5                  | 16.7                 | 3  | 10.0 |
| Marital status              |                    |                      |    |      |
| Married                     | 27                 | 90.0                 | 28 | 93.3 |
| Widow/Widower               | 3                  | 10.0                 | 2  | 6.7  |
| Educational status          |                    |                      |    |      |
| Illiterate                  | 2                  | 6.7                  | 0  | 0    |
| Primary education           | 13                 | 43.4                 | 14 | 46.7 |
| Secondary education         | 10                 | 33.3                 | 12 | 40.0 |
| Higher secondary education  | 4                  | 13.3                 | 3  | 10.0 |
| Undergraduate/Post graduate | 1                  | 3.3                  | 1  | 3.3  |
| Occupation                  |                    |                      |    |      |
| Unemployed                  | 3                  | 10.0                 | 3  | 10.0 |
| Self employed               | 14                 | 46.7                 | 9  | 30.0 |
| Private employee            | 9                  | 30.0                 | 13 | 43.3 |
| Government employee         | 4                  | 13.3                 | 5  | 16.7 |
| Family type                 |                    |                      |    |      |
| Nuclear                     | 12                 | 40.0                 | 11 | 36.7 |
| Joint                       | 17                 | 56.7                 | 18 | 60.0 |
| Extended                    | 1                  | 3.3                  | 1  | 3.3  |
| Monthly income              |                    |                      |    |      |
| <Rs.5,000                   | 6                  | 20.0                 | 5  | 16.7 |
| Rs.5,001 – Rs.10,000        | 9                  | 30.0                 | 5  | 16.7 |
| Rs.10,001 – Rs.20,000       | 10                 | 33.3                 | 14 | 46.7 |
| >Rs.20,000                  | 5                  | 16.7                 | 6  | 20.0 |
| Place of residence          |                    |                      |    |      |
| Urban                       | 9                  | 30.0                 | 9  | 30.0 |

| Variable | Study Group (n=30) | Control Group (n=30) |    |      |
|----------|--------------------|----------------------|----|------|
| Rural    | 21                 | 70.0                 | 21 | 70.0 |

The frequency and percentage distribution of demographic variables showed that, in the study group, 16 (53.3%) were aged between 56–60 years, 20 (70%) were male, and 21 (70%) were Hindus. Regarding marital status, 27 (90%) were married, 13 (43.4%) had primary education, and 14 (46.7%) were self-employed. About the type of family, 17 (56.7%) belonged to a joint family, and 10 (33.3%) earned Rs.10,001–Rs.20,000 per month; 21 (70%) resided in a rural area.

In the control group, 17 (56.7%) were aged between 56–60 years, 20 (70%) were male, and 23 (76.7%) were Hindus. Regarding marital status, 28 (93.3%) were married, 14 (46.7%) had primary education, and 13 (43.3%) were private employees. About the type of family, 18 (60%) belonged to a joint family, and 14 (46.7%) earned Rs.10,001–Rs.20,000 per month; 21 (70%) resided in a rural area.

**Table 3: Frequency and percentage distribution of clinical variables among patients with diabetes in the study and control group (N=60)**

| Variable                      | Study Group (n=30) | Control Group (n=30) |    |      |
|-------------------------------|--------------------|----------------------|----|------|
|                               | n                  | %                    | n  | %    |
| Height (cms)                  |                    |                      |    |      |
| 150 to 160                    | 12                 | 40.0                 | 5  | 16.7 |
| 161 to 170                    | 14                 | 46.7                 | 14 | 46.7 |
| >170                          | 4                  | 13.3                 | 11 | 36.7 |
| Weight (kgs)                  |                    |                      |    |      |
| 40 to 55                      | 4                  | 13.4                 | 1  | 3.3  |
| 56 to 70                      | 13                 | 43.3                 | 11 | 36.7 |
| >70                           | 13                 | 43.3                 | 18 | 60.0 |
| BMI                           |                    |                      |    |      |
| <18.5                         | 1                  | 3.3                  | 0  | 0    |
| 18.5 – 24.9                   | 11                 | 36.7                 | 12 | 40.0 |
| 25 – 29.9                     | 15                 | 50.0                 | 16 | 53.3 |
| 30 and above                  | 3                  | 10.0                 | 2  | 6.7  |
| Type of diabetes mellitus     |                    |                      |    |      |
| Type 1                        | 5                  | 16.7                 | 7  | 23.3 |
| Type 2                        | 25                 | 83.3                 | 23 | 76.7 |
| Any other comorbidities       |                    |                      |    |      |
| Yes                           | 26                 | 86.7                 | 28 | 93.3 |
| No                            | 4                  | 13.3                 | 2  | 6.7  |
| Duration of diabetes mellitus |                    |                      |    |      |
| Less than 1 year              | 2                  | 6.7                  | 1  | 3.3  |
| 1 – 2 years                   | 4                  | 13.3                 | 5  | 16.7 |
| 3 – 4 years                   | 4                  | 13.3                 | 7  | 23.3 |
| More than 4 years             | 20                 | 66.7                 | 17 | 56.7 |
| Family history of diabetes    |                    |                      |    |      |
| Yes                           | 25                 | 83.3                 | 22 | 73.3 |
| No                            | 5                  | 16.7                 | 8  | 26.7 |

The frequency and percentage distribution of clinical variables among the study group revealed that 14 (46.7%) were in the height range of 161–170 cms, 13 (43.3%) weighed between 56–70 kg, and another 13 (43.3%) weighed more than 70 kg. About BMI, 15 (50.0%) were in the range of 25–29.9. Regarding type of diabetes, 25 (83.3%) had type 2 diabetes mellitus, and 26 (86.7%) had other comorbidities. Regarding duration and family history, 20 (66.7%) had diabetes for more than 4 years, and 25 (83.3%) had a family history of diabetes.

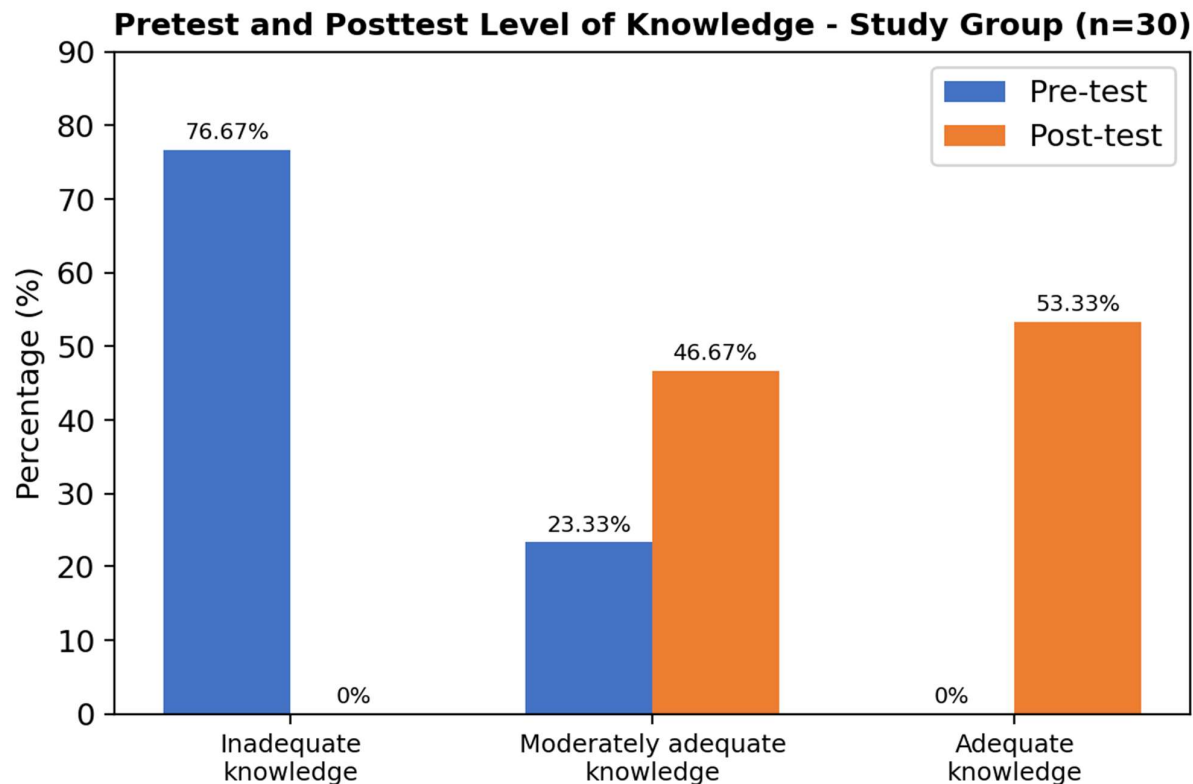
In the control group, 14 (46.7%) were in the height range of 161–170 cms, and 18 (60%) weighed more than 70 kg. About BMI, 16 (53.3%) were in the range of 25–29.9. Regarding type of diabetes, 23 (76.7%) had type 2 diabetes mellitus, and 28 (93.3%) had other comorbidities. Regarding duration and family history, 17 (56.7%) had diabetes for more than 4 years, and 22 (73.3%) had a family history of diabetes.

**Table 4: Frequency and percentage distribution of pretest and post-test level of knowledge about prevention of diabetic neuropathy among patients with diabetes in the study and control group (N=60)**

| Level of knowledge            | Study group (n=30) | Control group (n=30) |        |        |       |       |        |        |
|-------------------------------|--------------------|----------------------|--------|--------|-------|-------|--------|--------|
|                               | Pre n              | Pre %                | Post n | Post % | Pre n | Pre % | Post n | Post % |
| Inadequate knowledge          | 23                 | 76.67                | 0      | 0      | 18    | 60.0  | 16     | 53.3   |
| Moderately adequate knowledge | 7                  | 23.33                | 14     | 46.67  | 12    | 40.0  | 14     | 46.7   |
| Adequate knowledge            | 0                  | 0                    | 16     | 53.33  | 0     | 0     | 0      | 0      |

The above table revealed that in the study group, at pretest, 23 (76.67%) had inadequate knowledge and 7 (23.33%) had moderately adequate knowledge, whereas at post-test, 16 (53.33%) had adequate knowledge and 14 (46.67%) had moderately adequate knowledge. In the control group, at pretest,

18 (60%) had inadequate knowledge and 12 (40%) had moderately adequate knowledge, whereas at post-test, 16 (53.33%) had inadequate knowledge and 14 (46.7%) had moderately adequate knowledge, with little change from pretest.



**Figure 1: Pretest and posttest level of knowledge among patients with diabetes in the study group (n=30)**

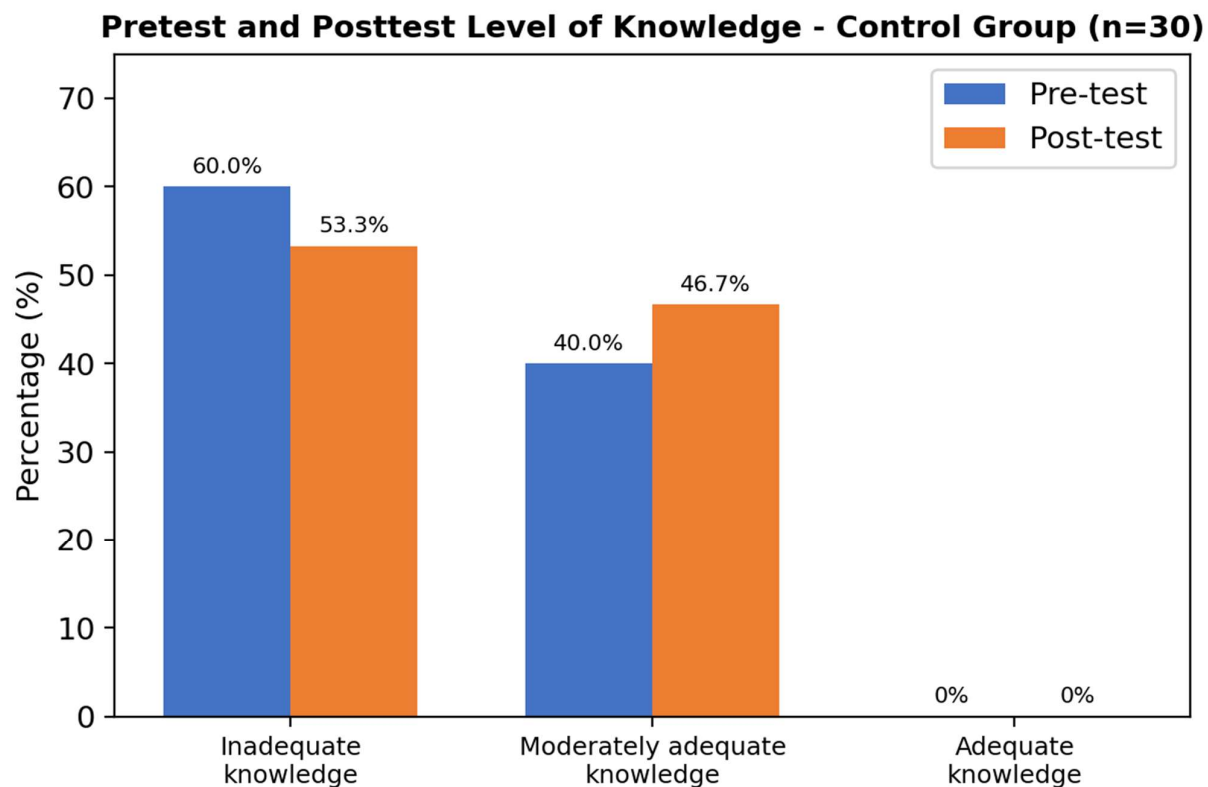


Figure 2: Pretest and posttest level of knowledge among patients with diabetes in the control group (n=30)

Table 5: Comparison of pretest, posttest, mean, standard deviation and 't' test scores of knowledge about prevention of diabetic neuropathy within the study and control group (N=60)

| Group         | Assessment | Mean  | S.D  | 't' value | 'p' value   |
|---------------|------------|-------|------|-----------|-------------|
| Study group   | Pre-test   | 7.67  | 4.66 | 14.05     | 0.0001 S*** |
|               | Post-test  | 18.10 | 3.45 |           |             |
| Control group | Pre-test   | 8.67  | 4.92 | 0.614     | 0.905 NS    |
|               | Post-test  | 8.50  | 5.23 |           |             |

**S\*\*\* – Highly Significant; NS – Not Significant**

The above table shows that in the study group, the pretest and posttest mean and SD scores were  $7.67 \pm 4.66$  and  $18.10 \pm 3.45$  respectively, and the calculated paired 't' value was 14.05 at the 'p' level of  $p < 0.0001$ , indicating a highly significant difference. This clearly shows that the video assisted teaching was effective in enhancing the knowledge about prevention of diabetic

neuropathy among patients with diabetes. Hence hypothesis H1 was accepted.

In the control group, the pretest and posttest mean and SD scores were  $8.67 \pm 4.92$  and  $8.50 \pm 5.23$  respectively, and the calculated paired 't' value was 0.614 at the 'p' level of  $p = 0.905$ , showing no significant difference in the level of knowledge.

Table 6: Comparison of pretest and posttest knowledge about prevention of diabetic neuropathy among patients with diabetes between the study and control group (N=60)

| Assessment | Group         | Mean  | S.D  | 't' value | 'p' value   |
|------------|---------------|-------|------|-----------|-------------|
| Pre-test   | Study group   | 7.67  | 4.66 | 0.800     | 0.423 NS    |
|            | Control group | 8.67  | 4.92 |           |             |
| Post-test  | Study group   | 18.10 | 3.45 | 8.37      | 0.0001 S*** |
|            | Control group | 8.50  | 5.23 |           |             |

**S\*\*\* – Highly Significant; NS – Not Significant**

The pretest comparison of mean and SD of knowledge score between the study and control group was  $7.67 \pm 4.66$  and  $8.67 \pm 4.92$  respectively; the calculated 't' value was 0.800 at the 'p' level of  $p = 0.423$ , which was not statistically significant. The posttest comparison of mean and SD of knowledge score between

the study and control group was  $18.10 \pm 3.45$  and  $8.50 \pm 5.23$  respectively; the calculated 't' value was 8.37 at the 'p' level of  $p < 0.0001$ , which was highly statistically significant. It clearly depicts that the video assisted teaching was very effective in enhancing the knowledge about prevention of diabetic neuropathy among patients with diabetes. Hence hypothesis H1 was accepted.

**Table 7: Association between the pretest level of knowledge about prevention of diabetic neuropathy among patients with diabetes with the selected demographic variables (N=60)**

| Demographic variable | Chi-square ( $\chi^2$ ) and 'p' value |
|----------------------|---------------------------------------|
| Age in years         | $\chi^2=1.87$ , $p=0.392$ , NS        |
| Gender               | $\chi^2=0.61$ , $p=0.432$ , NS        |
| Religion             | $\chi^2=1.60$ , $p=0.449$ , NS        |
| Marital status       | $\chi^2=2.02$ , $p=0.15$ , NS         |
| Educational status   | $\chi^2=6.05$ , $p=0.195$ , NS        |
| Occupation           | $\chi^2=7.96$ , $p=0.047$ , S*        |
| Family type          | $\chi^2=0.32$ , $p=0.84$ , NS         |
| Monthly income       | $\chi^2=0.35$ , $p=0.94$ , NS         |
| Place of residence   | $\chi^2=0.62$ , $p=0.43$ , NS         |

S\* – Significant at  $p<0.05$ ; NS – Not Significant

The above table depicts that the demographic variable occupation ( $\chi^2=7.96$ ,  $p=0.047$ ) had a statistically significant association with

the pretest level of knowledge about prevention of diabetic neuropathy among patients with diabetes at  $p<0.05$  level. None of the other demographic variables showed a statistically significant association. Hence hypothesis H2 was accepted.

**Table 8: Association between the pretest level of knowledge about prevention of diabetic neuropathy among patients with diabetes with the selected clinical variables (N=60)**

| Clinical variable             | Chi-square ( $\chi^2$ ) and 'p' value |
|-------------------------------|---------------------------------------|
| Height (cms)                  | $\chi^2=1.25$ , $p=0.53$ , NS         |
| Weight (kgs)                  | $\chi^2=2.17$ , $p=0.33$ , NS         |
| BMI                           | $\chi^2=5.06$ , $p=0.16$ , NS         |
| Type of diabetes mellitus     | $\chi^2=0.30$ , $p=0.57$ , NS         |
| Any other comorbidities       | $\chi^2=3.08$ , $p=0.07$ , NS         |
| Duration of diabetes mellitus | $\chi^2=8.59$ , $p=0.035$ , S*        |
| Family history of diabetes    | $\chi^2=0.56$ , $p=0.45$ , NS         |

S\* – Significant at  $p<0.05$ ; NS – Not Significant

The above table represents that the clinical variable duration of diabetes mellitus ( $\chi^2=8.59$ ,  $p=0.035$ ) had a statistically significant association with the pretest level of knowledge about prevention of diabetic neuropathy among patients with diabetes at  $p<0.05$  level. None of the other clinical variables showed a statistically significant association. Hence hypothesis H3 was accepted.

## DISCUSSION

The first objective of the study was to assess the prevalence of diabetic neuropathy among patients with diabetes.

In this study, the result indicated that of the 60 patients screened, 44 (73.33%) were categorized as “Normal” and 16 (26.67%) were diagnosed with diabetic neuropathy.

The study result was supported by a similar study conducted by Karthiksaravanan and Meriton (2024) a cross-sectional study to assess the prevalence of diabetic peripheral neuropathy among Type 2 diabetes mellitus patients in Tamil Nadu, using the Michigan Neuropathy Screening Instrument, which found that 16.5% of diabetics tested positive for peripheral neuropathy<sup>11</sup>.

The study's second goal was to assess how well individuals with diabetes in the study and control groups learned about preventing diabetic neuropathy using video-assisted instruction.

According to the study's findings, the study and control groups' posttest mean and standard deviation of knowledge scores were  $18.10 \pm 3.45$  and  $8.50 \pm 5.23$ , respectively. At  $p<0.0001$ , the computed 't' value of 8.37 was highly statistically significant. It was clear that video-assisted instruction improved diabetic patients' understanding of how to prevent diabetic neuropathy.

Hassounah et al. (2023) conducted a descriptive study to assess knowledge of diabetes-related complications in Saudi Arabia. The results showed that a higher percentage of patients had neuropathy (68.4%); overall, a significant number of patients (51.5%) had inadequate knowledge of diabetes-related

complications, while only 16.9% had adequate knowledge, supporting the need for structured teaching interventions such as the one used in the present study<sup>12</sup>.

The third objective of the study was to find out the association between the pretest level of knowledge about prevention of diabetic neuropathy with the selected demographic variables in the study and control group.

In this study, the pretest level of knowledge about preventing diabetic neuropathy among diabetic patients was statistically significantly correlated with the demographic variable occupation ( $\chi^2=7.96$ ,  $p=0.047$ ) at the  $p<0.05$  level. There was no statistically significant correlation found for the other demographic factors. Thus, hypothesis H2 was approved.

A comparable study by Soni et al. (2024), which used a cluster sampling technique with 400 participants to investigate the prevalence of diabetic peripheral neuropathy (DPN) among Type 2 DM patients and associated risk factors, corroborated the study's findings. The prevalence of DPN increased with age, and there was a statistically significant correlation with the length of diabetes.<sup>13</sup>

The study's fourth purpose was to determine the relationship between the pretest level of knowledge regarding diabetic neuropathy prevention and the specified clinical characteristics in the study and control groups.

In this study, the pretest level of knowledge about preventing diabetic neuropathy among diabetic patients was statistically significantly correlated with the clinical variable duration of diabetes mellitus ( $\chi^2=8.59$ ,  $p=0.035$ ) at the  $p<0.05$  level. There was no statistically significant correlation found for the other clinical factors. Thus, hypothesis H3 was approved.

The study result was supported by a similar study conducted by Pfannkuche et al. (2020), who reported that diabetic peripheral neuropathy prevalence increased with age, from 11.9% among those aged  $\leq 40$  years to over 50% among those aged  $> 70$  years

( $p < 0.001$ ), and that a longer duration of diabetes was associated with a significantly higher DPN prevalence<sup>14</sup>. Risk factors identified included older age and the presence of a cardiovascular-metabolic profile, along with co-morbidities such as diabetic nephropathy, retinopathy, and peripheral artery disease.

## CONCLUSION

The present study was aimed to assess the prevalence and the effectiveness of video assisted teaching on knowledge about prevention of diabetic neuropathy among patients with diabetes at a selected hospital in Puducherry. The result of this study concluded that 26.67% of the patients with diabetes were categorized as having diabetic neuropathy, and video assisted teaching was effective in enhancing the knowledge about prevention of diabetic neuropathy among patients with diabetes. There was a significant association found between the level of knowledge and occupation among the demographic variables, and duration of diabetes mellitus among the clinical variables.

## IMPLICATION

The findings of the study have practical application in the field of nursing. The implication of the study could be discussed in four areas namely: Nursing practice, Nursing administration, Nursing education and Nursing research. The findings help to create awareness among patients and family members about prevention of diabetic neuropathy, and can be utilized to organize awareness programmes, frame institutional policies on structured patient education, incorporate the findings into nursing curricula, and serve as a base for future nursing research on diabetic neuropathy prevention.

## CONFLICT OF INTEREST

The authors have declared that no competing interests exist.

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