

E-ISSN: 2663-2268
P-ISSN: 2663-225X
IJARMSN 2023; 5(2): 52-57
Received: 03-04-2023
Accepted: 04-05-2023

Mrinalini Barman
M.Sc., Nursing Student Govt.
CON, BSMC, Bankura, West
Bengal, India

Lakshmi Pandit
Reader, Acting Principal,
Others Guide Mrs. Poulami
Karmakar, Clinical Instructor,
Govt. CON, BSMC, Bankura,
West Bengal, India

Corresponding Author:
Mrinalini Barman
M.Sc., Nursing Student Govt.
CON, BSMC, Bankura, West
Bengal, India

Effect of an awareness program regarding foot care on knowledge and practice among Type II diabetic mellitus patients in selected rural community, Paschim Medinipur, West Bengal

Mrinalini Barman and Lakshmi Pandit

DOI: <https://doi.org/10.33545/surgicalnursing.2023.v5.i2a.139>

Abstract

A pre-experimental study was adopted on the effect of an awareness program regarding foot care on knowledge and practice among type II diabetic mellitus patients in selected rural community, Paschim Medinipur, West Bengal with the objectives to assess the knowledge and practice about foot care among type II diabetes mellitus patients before and after awareness programme, to determine the effectiveness of awareness programme, to find out the relationship between knowledge and practice and association between knowledge and practice with selected demographic variables. Study findings revealed that the awareness program was effective on increasing knowledge and practice as evident from the mean difference of pre and post-test knowledge scores ($t=20.43, p<0.05$), and practice scores ($t=22.30, p<0.05$). There was no correlation ($r=0.26$) between post-test knowledge and practice scores. There was significant association of pre-test knowledge score with education and pre-test practice score with marital status.

Keywords: Awareness program on foot care, knowledge, practice, Type II diabetes mellitus patients

Introduction

Different types of lower limbs complications are to be seen among the patients suffering with diabetes mellitus. Foot ulcer is the one of the most devastating condition that may increase the chances of hospitalization and amputation of lower limbs^[1]. Foot ulcer can be preventable^[3]. Awareness in part of the patient and community is crucial. To bring about awareness it is essential to find out the existing level of knowledge and relevant practice of this high-risk group^[20].

Background of the study

Worldwide, non-communicable diseases (NCD) such as hypertension, diabetes mellitus, and cardiovascular disease are the most common cause of death attributing to 63% of overall causes of mortality. More than nine million deaths due to chronic disorders happen below the 60 years of age, and 90% of them are from middle and low-income countries. Around three million deaths globally occur due to diabetes among 366 million people suffering from diabetes mellitus^[20].

Need for the study

“Prevention is better than cure” ----- K Park

Foot ulcer is one of the most devastating complications, commonly seen the patients suffering from type II diabetes mellitus. These foot complications can be prevented by regular practice of foot care. Many patients with type II diabetes mellitus belong to rural community are lacking in awareness about foot care. So, the investigator felt need to conduct awareness program regarding knowledge and practice among type II diabetes mellitus patients, with the objective to assess the knowledge and practice of foot care among patients with type II diabetes mellitus attending health centers.

Purpose of the study

The purpose of the study is to increase the knowledge and practice level of type II diabetes mellitus patients, so that they can identify their foot problems in early and take the immediate measures to correct the problems and prevent different foot-related problems.

Objectives of the study

1. To assess knowledge and practice about foot care.
2. To determine the effectiveness of awareness program.
3. To find out the relationship between knowledge and practice before and after introduction of awareness program on foot care.
4. To find out the association between knowledge and practice regarding foot care with selected demographic variables.

Variables of the study

Independent variables: Awareness program on foot care.

Dependent variables: The knowledge and practice on foot care.

Demographic variables: Age, gender, educational status, occupation, socio-economic class, type of family, marital status, family history of type II diabetes mellitus, duration of type II Diabetes Mellitus, information received about foot care, any sensitization program/workshop/seminar about diabetic foot care attended.

Hypotheses

H₁: After administration of awareness program on foot care the mean post-test knowledge score on foot care is significantly higher than the mean pre-test knowledge score at 0.05 level of significance.

H₂: After administration of awareness program regarding foot care the mean post-test practice score on foot care is significantly higher than the mean pre-test practice score at 0.05 level of significance.

H₃: There was a positive correlation between pre-test knowledge score and pre-test practice score among type II diabetes mellitus patients on foot care at 0.05 level of significant.

H₄: There was a positive correlation between post-test knowledge score and post-test practice score among type II diabetes mellitus patients on foot care at 0.05 level of significant.

Conceptual framework is based on Karl Ludwig Von Bertalanffy General System Theory. This model has three main components - Input, Process and Output.

Research Methodology

Approach: Quantitative research approach was considered to be the most appropriate for the present study.

Research design: In this study research design is a Pre-experimental one-group pre-test post-test design.

Variables of the study

Independent variable: Awareness program on foot care.

Dependent variables: Knowledge and practice on foot care.

Demographic variables

Age, gender, educational status, occupation, socio-economic class, type of family, marital status, family history of diabetes mellitus, duration of Type II Diabetes mellitus, information received about foot care, any sensitization program/workshop/seminar about diabetic foot care attended.

Setting

The pilot study was conducted at Lepsa Sub-Center, Keshpur Block, Paschim Medinipur, West Bengal. The final study was conducted at Siromoni Su-Swasthya Kendra, under Dey para BPHC, Medinipur Sadar Block, Paschim Medinipur, and West Bengal.

Population

In present study, the population consisted of all type II diabetes mellitus patients in rural community of West Bengal.

Sample

In the present study sample consisted of diagnosed type II diabetes mellitus patients of Siromoni Su-Swasthya Kendra Sub-Center, who met the inclusion criteria.

Sample size

The sample size of the present study consisting of 45 type II diabetes mellitus patients.

Sample criteria**Inclusion criteria**

- Both male and female Type II diabetes mellitus patients willing to participate in the study.
- Present during the data collection period.
- Patients who are able to communicate and understand Bengali.

Exclusion criteria

Type II Diabetes mellitus patients with foot ulcer and patients with acute illness.

Sampling technique

To select the sample non-probability purposive sampling technique was borrowed.

Description of the Tools

Tool I: Semi-structured interview schedule.

Tool II: Structure knowledge questionnaire.

Tool III: Structured observation checklist.

Major findings of the study

Major findings of the study are summarized below-

1. Findings related to Demographic characteristics of the study samples

Maximum (44.44%) of the type II diabetic patients belonged to the age group of 45-55 years, (35.56%) had no formal education, (46.67%) belongs to lower socio-economic class and (40%) received information about foot care. Majority (66.67%) of the Type II diabetic patients were female, (64.44%) were homemakers, (60%) had no family history of type II diabetes mellitus, (55-56%) were suffering from Type II Diabetes since 1-5 years. Most (84.45%) of the type II diabetes mellitus patients belonged to joint family and

(91.11%) were married. No one study samples attended any sensitization program/workshop/seminar about diabetic foot care.

2. Findings related to the knowledge level of type II diabetes mellitus patients

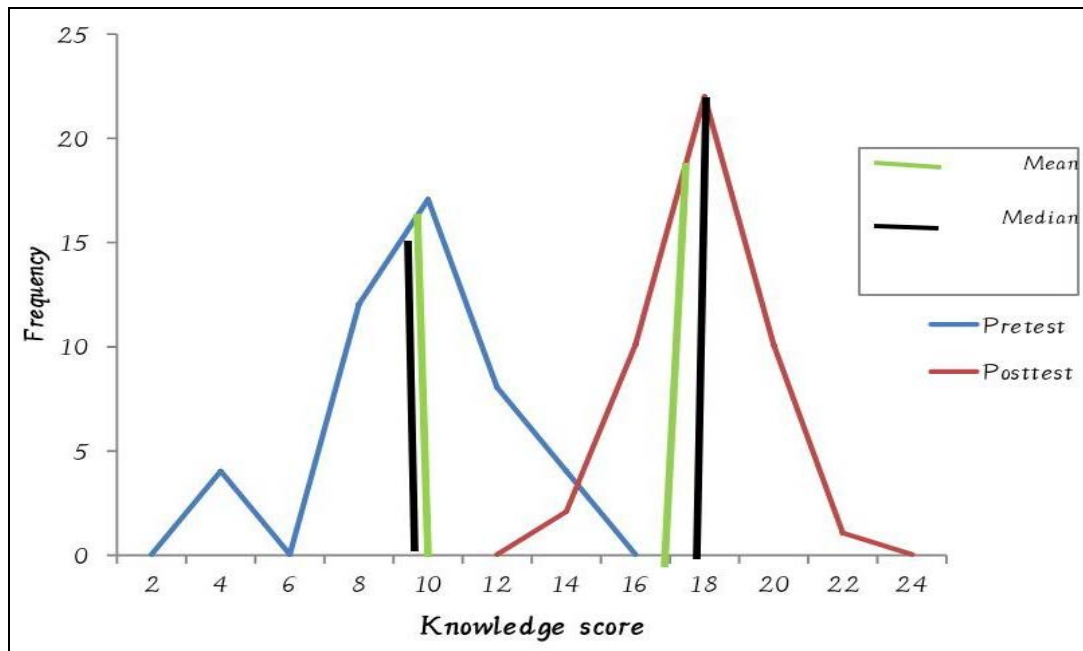


Fig 1: Frequency polygon for comparison between pre-test and post-test knowledge score about foot care of Type-II diabetes Mellitus patients

Most (91.11%) of the diabetes mellitus patients were poor in their pre-test knowledge score and no one scored very good or excellent, (88.89%) scored very good and maximum (6.67%) scored "Excellent" in post-test. The maximum modified gain score (0.72) took place in the area of general information regarding diabetes mellitus, the minimum

modified gain score (0.39) was observed in the area of nail care.

3. Findings related to the practices of foot care among type II diabetes mellitus patients

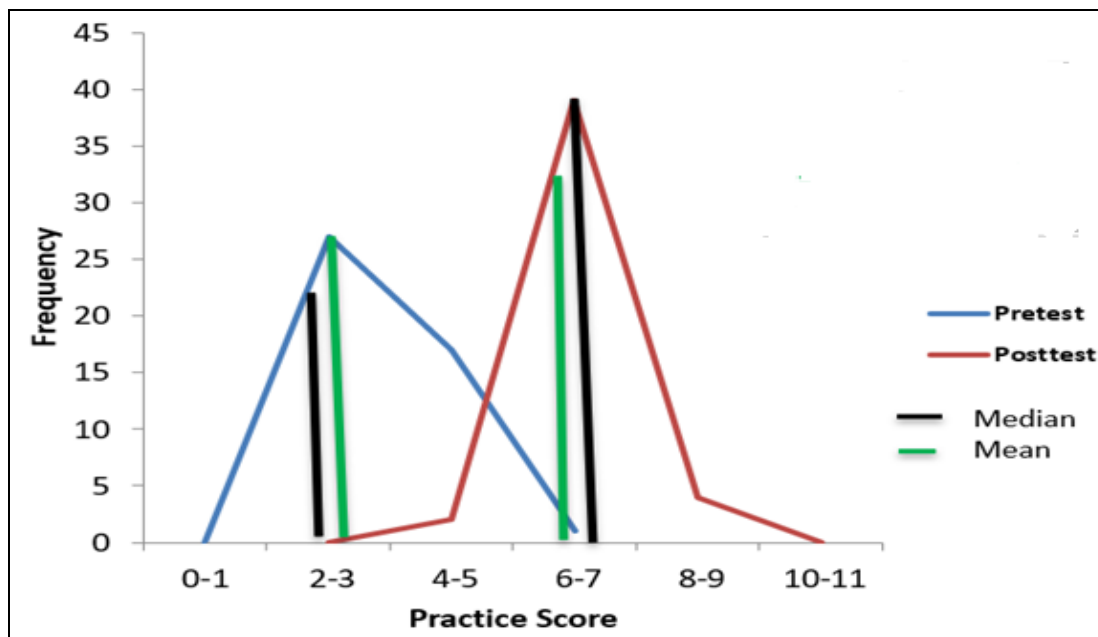


Fig 2: Frequency polygon for comparison between pre-test and post-test practice scores about foot care of Type-II diabetes Mellitus patients.

Most (88.89%) of the diabetes mellitus patients had poor practice during pre-test and no one scored excellent, (93.33%) of the study samples scored very good and maximum (2.22%) patients scored "Excellent" in post-test. The maximum modified gain score (9.90) was in the area of

foot inspection, minimum modified gain score (0.05) was observed in the area of wearing of shoes. In each area, the mean percentage of post-test practice scores was higher than pre-test practice scores. The pre-test practice score ranged from 1-4 with mean 3.38 and the median 3.0, whereas the

post-test practice score ranged from 5-8 with a mean 6.68 and median of 7.0. The scores are almost normally distributed.

4. Effectiveness of awareness program on foot care among type II diabetes mellitus patients

The mean post-test knowledge score (17.29 ± 1.79) of type II diabetes mellitus patients was significantly higher than their mean pre-test knowledge score (9.04 ± 2.46). Paired 't' test was computed from the above data which was found statistically significant from corresponding 't' value (20.43) indicating that the mean difference (8.25) was a true difference and not by chance. The mean post-test practice score (6.68 ± 0.76) of type-II diabetes mellitus patients was significantly higher than the mean pre-test practice score (3.38 ± 0.936). Paired 't' test was computed and was found statistically significant from corresponding 't' value (22.30) indicating that the mean difference (3.30) was a true difference and not by chance.

5. Findings related to find out the relationship between knowledge and practice before and after introduction of awareness program on foot care

Karl Pearson's Coefficient of correlation ('r') value between pre-test knowledge and practice score (0.19) was found no correlation and it also depicted that post-test knowledge and practice score (0.26) was found no correlation.

6. Finding related to association between pre-test knowledge and practice with selected demographic variables

There was significant association of pre-test knowledge scores with education.

There was significant association of pre-test practice scores with education and type of family.

Discussion

Discussion related to demographic variables

The present study was supported by the study by Priyadharishini Joy, Terina Jebah, Alexander Greeda (June 2020) on a descriptive co-relational study to assess the awareness and practices of foot care among diabetic patients in the selected secondary hospital in Tamil Nadu, India. Maximum (44%) of the samples were from age group of 45-60 years, majority (72%) of study sample were female, majority (51%) belongs to joint family, maximum (33%) samples were illiterates, majority (58%) of the patients were housewives, maximum (43%) had lower middle socioeconomic status^[14].

The present study also partially supported by the study conducted by N Lakshmi, Patel Nirav, Parmar Pravin, Garasiya Ketan, Choudhury Milan (Sep-November 2018) on the foot care practice among diabetic patients in Ahmedabad city, Gujrat. The study result depicted that majority (56.6%) samples belongs to the age group 46-60 years, majority (52%) were female, maximum (26.6%) were illiterate, maximum (45.3%) samples were housewives, most (82.6%) of samples suffering from diabetes since more than 5 years^[22].

Discussion related to knowledge

The present study revealed that most (91.11%) of the diabetes mellitus patients had poor knowledge during pre-test, whereas most (88.89%) of the study samples scored

very good in post-test.

The present study indicated that mean post-test knowledge score (17.29 ± 1.79) of Type-II diabetes mellitus patients was significantly higher than their mean pre-test knowledge scores (9.04 ± 2.46).

S Lavanya, P Meena, M Asha, Bharathi AR (2021) conducted a study on the effectiveness of a Structure teaching program of knowledge of diabetic foot care among the diabetic patient to collect the information about level of knowledge among diabetes mellitus patients regarding foot care. The level of pre-test knowledge score revealed that maximum (44%) had poor knowledge about foot care. On the other hand most (96%) of the respondents had their adequate knowledge level regarding foot care in their post-test knowledge score^[34].

The present study also fully supported by the study conducted by Anilvince V, Rao Someshwara Narayana Pallela, Sundaram N Minakshi (2015) to assess the effectiveness of foot care instruction on the knowledge among diabetic patients in a selected community, Tamil Nadu, India. In the study showed that maximum (46.7%) samples had poor knowledge in their pre-test score, whereas most (96.7%) of the study samples had a good score in post-test^[33].

The present study is partially supported by an experimental study by Yesurathinam Helen Jebakumari, Jebakumar Arulanandatham Zechariah (2021) to assess the knowledge about foot care before and after education among type 2 diabetic adults in eastern province region Kingdom of Saudi Arabia. The study result also revealed that mean post-test knowledge score (13.5507 ± 69) of study samples was significantly higher than their mean pre-test knowledge score (8.5797 ± 69)^[10].

Discussion related to practice

The present study revealed that most (88.89%) of the diabetes mellitus patients had poor practice during pre-test and no one scored excellent, most (93.33%) of the study samples scored very good in post-test.

The present study indicated that mean post-test knowledge score (17.29 ± 1.79) of Type-II diabetes mellitus patients was significantly higher than their mean pre-test knowledge scores (9.04 ± 2.46).

The present study is supported by the study conducted by Devi Reeta, Kapoor Bimla, Singh Meghachandra Mongjam (2016) on effectiveness of self-learning modules on knowledge and practices regarding foot care among type 2 diabetes patients in East Delhi India. The mean pre-test score on foot care were 9.55 ± 3.33 in intervention group and in control group it was 9.04 ± 3.55 . The study revealed that mean score increases to (36.9 ± 4.35) in intervention group where as in control group it was (9.37 ± 3.84) in the post-test score^[38].

The present study is partially supported by the study conducted by Pourkazemi Aydin, Ghanbari Atefeh, Khojamli Monireh, Balo Heydaarali, Hemmati Hossein, Jafaryparvar Zakiyeh and Motamed Beharang, (2020) on diabetic foot care: Knowledge and Practice. The study result revealed that maximum (49.6%) samples had poor practice, and the mean score of patients foot care practice was (7.6 ± 2.5)^[16].

The present study was partially supported by the study conducted by Priyadharishini Joy, Terina Jebah, Alexander Greeda (2020) on awareness and practices of foot care

among diabetic patients in the selected secondary hospital, Tamil Nadu, India, reported that majority (73.13%) of the samples had satisfactory foot care practice, maximum (22.38%) had good foot care practices. The mean practice score $54.73 (\pm 7.49)$ [14].

The present study was partially supported by the study conducted by N. L. Deepa, Murty Pallavi, Reddy Madhavi, C. Muninarayan, Shetty Soumya (2017) on the assessment of awareness and practice of foot care and physical activity among people with type 2 diabetes mellitus attending a tertiary care teaching hospital in Kolar, Karnataka, India. The study result revealed that a maximum (15.1%) study samples had good foot care practices, maximum (36.8%) had satisfactory practices, and maximum (48.1%) samples had poor foot care practices [31].

Discussion related to effectiveness of awareness program

The present study revealed that mean posttest knowledge score (17.29 ± 1.79) of Type-II diabetes mellitus patients was significantly higher than their mean pre-test knowledge scores (9.04 ± 2.46), with a mean difference of 8.25. Paired 't' value was computed from the above data which was found to be statistically significant as evident from corresponding 't' value (20.434) indicating that the mean difference (8.25) was a true difference and not by chance.

The present study also showed that mean post-test practice score (6.68 ± 0.763) of Type-II diabetes mellitus patients was significantly higher than their mean pre-test practice scores (3.388 ± 0.936), with a mean difference of 3.30. Paired 't' value was computed from the above data which was found to be statistically significant as evident from corresponding 't' value (22.302) indicating that the mean difference (3.30) was a true difference, not by chance.

The present study partially supported by the study by Pandey Anjali, Kumar Rohitash, Singh SK, (2021) on effectiveness of educational intervention regarding foot care on knowledge among diabetes mellitus patients at selected health centers, Lucknow, India. The study revealed that the mean post-test knowledge score (9.65 ± 3.14) of samples was significantly higher than the mean pre-test knowledge score (5.21 ± 2.34). Paired 't' value (4.765) was found statistically significant, showing that there was a significant difference between the pre-test and post-test mean knowledge score ($p < 0.05$) level of significant [35].

The present study is also partially supported by the study by Sriram Mangalam, Doke Dr. Prakash, Dasila Dr. Prabha (2018) carried out a study on effectiveness of foot care education among people with diabetes mellitus in urban community, Mumbai, India. The study result revealed that a maximum (23.3%) samples score good knowledge in their pre-test, whereas in the post-test all of the samples scored good, the mean post-test knowledge score (23.80 ± 5.25) was higher than the mean pre-test knowledge score (14.5 ± 5.25). paired 't' value (10.20) $p < 0.001$ indicated that there was statistically significant difference between pre and post-test knowledge scores [37].

The present study was partially supported by an experimental study conducted by Yesurathinam Helen Jebakumari, Jebakumar Arulanandatham Zechariah (2021) to assess the knowledge about foot care before and after education among type 2 diabetic adults in eastern province region kingdom of Saudi Arabia. The study result revealed that mean post-test knowledge score (13.5507 ± 69) of study samples was significantly higher than their mean pre-test knowledge score (8.5797 ± 69). Paired 't' (13.00) value was

statistically significant with corresponding p-value < 0.05 level of significance [10].

The present study was partially supported by Devi Reeta, Kapoor Bimla, Singh Meghachandra Mongjam (2016) on effectiveness of self-learning module on knowledge and practices regarding foot care among type 2 diabetes patients. The study revealed that mean score increases to (36.9 ± 4.35) in intervention group where as in control group it was (9.37 ± 3.84) in the post-test score. Paired 't' value found in SLM group was (45.17, $p = 70$), and in control group 't' value was 0.70, $p = 0.48$ indicated that post-test score was significantly higher in SLM group than that in control group [38].

Discussion related to Correlation

The present study showed that there was a moderately positive correlation between knowledge and practice before and after administration of awareness program. So, it could be concluded that knowledge and practice depend on each other.

The present study was fully supported by the study conducted by Priyadharishini Joy, Terina Jebah, Alexander Greeda (June 2020) to assess the awareness and practices of foot care among diabetic patients in the selected secondary hospital in Tamil Nadu, India. Reported that there was a positive correlation found between knowledge and practice regarding foot care among diabetes mellitus patients [14].

The present study was also fully supported by the study conducted by Pavithra H, Akshaya Madhukeshwar Kibballi, Nirgude Abhay Subashrao, AG Balakrishna (December 2016 to January 2017) on factors associated with awareness and practices about care among patients admitted with diabetes mellitus in a medical college hospital of southern India. There was a moderate correlation between awareness and practices among the study samples [26].

Discussion related to Association

The present study revealed that the knowledge regarding foot care among type II diabetes mellitus patients is significantly associated with their education ($p = 0.03$).

The present study was supported by S D Dalia, Vincent Jose, Saju R C, (August 2019) conducted a community-based cross-sectional study on knowledge, attitude and practice of diabetic patients about their foot care in rural Thrissur, Kerala, India. There also significant association with level of education with foot care knowledge ($p = < 0.01$) [21].

The present study also supported by the study conducted by A Gomathi, S Kamalam, N Jeevaanand (Dec 2020-March 2021) on diabetic foot care knowledge and its associated factors among type 2 diabetes patients at primary health centre, Pondicherry, India. There was also highly significant association ($p < 0.05$) between foot care knowledge with selected demographic variables of the respondents like gender, education, occupation, alcohol consumption, regularity of treatment and source of information [11].

The study was also partially supported by the study conducted by Pillai S Rahul, *et al.* at South Kerala (2021). This study result showed that there was a significant association with foot care knowledge with level of education of the study samples ($p = 0.034$) [12].

Conclusion

From the present study it can be concluded that type II

diabetes mellitus patients have some knowledge and practice about foot care. This knowledge and practice can be improved by the introduction of an awareness program. Their knowledge depended on the level of education and practice is depend on education and type of family of type II diabetes mellitus patients.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Financial Support

Not available

References

1. Pradeepa, Rajendra, Mohan, Viswanathan. Epidemiology of type 2 diabetes in India. *IJO*. 2021;69(11):2932-2938.
2. Abdissa Daba, Adugna Tesfaye, Gerema Urge and Dereje Diriba. Prevalence of diabetic foot ulcer and associated factors among adult diabetic patients, Southwest Ethiopia. 2019;JDR20:6.
3. SC Vighnesh, Rangaswamy Surendar, M Arthi. Awareness and practices of foot care in patients with diabetes mellitus in an urban area in Puducherry, Galore *IJHS*. 2019 Jul-Sep;4(3):2456-9321.
4. Yesurathinam Helen Jebakumari, Jebakumar Arulanantham Zechariah. Knowledge about footcare before and after education among type 2 diabetic adults in the eastern province region of Kingdom of Saudi Arabia, *Annals of RSCB*, ISSN: 1583-6268, 2021;25(6):4306-4313.
5. Pillai S Rahul, Abraham Joe, Khader Jithin. Assessment of knowledge of foot care among diabetic Patients: A community-based study in South Kerala. *AoCH*. 2021;9(1):228-232.
6. Priyadharishini Joy, Terina Jebah, Alexander Greeda. The awareness and practices of foot care among diabetic patients in the selected secondary hospitals in Tamil Nadu. *IJSER*. 2020;8:7.
7. Pourkazemi Aydin, Ghanbari Atefeh, Khojamli Monireh, Balo Heydarali, Hossein Hemmati, Jafaryparvar Zakiyeh, *et al*. Diabetic foot care: Knowledge and Practice. *BMCED*. 2020;20(40):1472-82.
8. SD Dalia, Vincent Jose, Saju RC. Knowledge. Attitude and practice of diabetic patients about their foot care in rural thrissur, Kerala. *JMCRR*. 2019;3(6):374-378.
9. N Lakshmi, Patel Nirav, Parmar Pravin, Garasiya Ketan, Chaudhary Milan. Foot care practice among diabetic patients in Ahmedabad city, Gujarat. *IJMSPH*. 2018;7(5):333-337.
10. Pavithra H, Akshaya Madhukeshwar Kibballi, Nirgude Subashrao Abhay, AG Balakrishna. Factors associated with awareness and practice about foot care among patients admitted with diabetes mellitus: A cross-sectional research from a medical college hospital of Southern India. *NJE*. 2017;10(3): 897-904.
11. NL Deepa, Murty Pallavi, Reddy Madhavi C. Muninarayan, Shetty Soumya. Assessment of awareness and practice of foot care and physical activity among people with type 2 diabetes attending a tertiary care teaching hospital. *IJCMPH*. 2017;4(9):3218-23.
12. Al-Gaows Suliman Faisal, Al-zahrani Mohammad Abdullallah. Knowledge and practice of foot care among diabetic patients attending diabetic care center in Jeddah city, Saudi Arabia. *IJMRCR*. 2019;3(11):664-670.
13. S Lavanya, P Meena, M Asha, Bharathi AR. Effectiveness of structured teaching program of knowledge of diabetic foot care among the diabetic patient. *JRMDS*. 2021;9(8):72-76.
14. Pandey A, Kumar R, Singh SK. Effectiveness of educational intervention regarding foot care on knowledge among diabetes mellitus patients at selected health centers. *IJCMPH*. 2021;8(1):291-5.
15. Sriram Mangalam, Dr.Doke Prakash, Dr. Dasila Prabha. Effectiveness of foot care education among people with diabetes mellitus in urban community, Mumbai, India. *JNHS*. 2018;7(2):18-21.
16. Devi Reeta, Kapoor Bimla, Singh Mongjam Meghachandra. Effectiveness of self-learning module on the knowledge and practices regarding foot care among type II diabetes patients in East Delhi, India. *IJCMPH*. 2016;3(8):2133-41.

How to Cite This Article

Barman M, Pandit L. Effect of an awareness program regarding foot care on knowledge and practice among Type II diabetic mellitus patients in selected rural community, Paschim Medinipur, West Bengal. *International Journal of Advance Research in Medical Surgical Nursing*. 2023;5(2):52-57.

Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.