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EFFECT OF PLANNED EDUCATIONAL INTERVENTION ON QUALITY OF LIFE AMONG THE PATIENTS WITH DIABETIC FOOT ULCER

Nursing

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ABSTRACT

Foot ulcers are a serious complication of diabetes mellitus that are associated with adverse sequelae and high costs. In addition, such foot ulcers have a significant impact on quality of life (QoL). The study aims to evaluate effect of planned educational intervention among the patients with diabetic foot ulcer. Quantitative research approach was adapted for the study. The study was conducted in tertiary care hospital, Puducherry. The researcher had chosen the first sixty patients for control group and sixty patients allotted for study group to implemented educational intervention. The pre assessment was carried out on 1st day in both groups. Then, routine hospital care was started for control group and educational intervention was started for study group up to 21 days. On 22nd day post assessment was done for both groups. Data collection was carried out by modified Thomas E. Burrough's Diabetes Quality of Life Clinical Inventory structured through face to face interview method. Descriptive and Inferential statistics was used for data analysis. The quality of life was significantly better among the patients in the study group, the mean was from 47.52 to 20.22, who received educational intervention than the patients in the control group, the mean was found 47.63 to 32.13 who received routine hospital care which was statistically significant ($p<0.000$). The health care providers should include the educational intervention in their routine patient care to prevent diabetic foot ulcer and improve quality of life of diabetic foot ulcer patients.

KEYWORDS

Diabetes mellitus, Diabetes foot, Quality of life, Sleep pattern, Diabetic foot care

INTRODUCTION:

Diabetes is one of the major issue across the world [1,2]. International Diabetes Federation (2015) reported that worldwide 415 million people affected by diabetes, will increase as 642 million in 2040. In South East Asia, 78.3 million people with diabetes on 2015, it will increase 140.2 million in 2040. The ratio 1:11 normal and diabetic adults in 2015 will become 1:10 in 2040. Every six seconds, one person dies from diabetes. In low and middle income countries, there are 3/4th of the people live with diabetes. Worldwide, 12% of global health expenditure is spending on diabetes [3]. One important focus in the treatment of patients with diabetic foot ulcers (DFU) is the patients' perspective on various aspects of their life situation, and also the impact of the disease on their health-related quality of life (HRQL). An understanding of how impaired wound healing and associated health-care interventions affect the lives of these individuals is crucial to successful care. [4] Foot ulcers are the serious complication of diabetes mellitus associated with adverse sequelae, high costs and play a significant impact on quality of life (QoL). For example, the loss of mobility associated with foot ulcers affects patients' ability to perform simple, everyday tasks and to participate in leisure activities. These consequences of foot ulcers often lead to depression and poor QoL. [5]

Amputation may involve life-long dependents upon the help of others, inability to work and great sense of unhappiness. The diabetic foot ulcer may be prevented by following simple strategy like self-foot examination, leg exercise, selection of foot wear and proper foot care. As a Nurse, should give the repeated health education and counselling at the time of diagnose the diabetes itself, it helps the patients to avoid the occurrence of diabetic foot ulcer.

The planned educational intervention on prevention of diabetic foot ulcer and proper foot care practice may be enhance the awareness on foot care, wound healing, prevent recurrences of foot ulcer and improve quality of life. So, the investigator had interest to find impact of educational intervention among the diabetic foot ulcer patients to improve the quality of life. The aim of the study was to assess the impact of educational intervention on quality of life of diabetic foot ulcer patients.

MATERIALS AND METHODS:

The research design was quasi-experimental research design (pre-test, posttest, control group design). The study was conducted in Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry. The inclusion criteria of the study was diabetic patients those who were diagnosed as type I and type II, with or without comorbid illness, with grade III and IV diabetic foot ulcer, able to communicate in Tamil or English and aged above 18 years. The exclusion criteria were diabetic patients with grade I, II & V diabetic foot ulcer and who were critically ill. The Sample size calculation was to estimate the sample size the power analysis was used to determine the N.

Formula: $n=2X \frac{\{Z(1-\alpha/2)+Z(1-\beta)\}^2 X\sigma^2}{d2}$

The sample size was calculated in which the alpha Error was 5%, power was 80% and the samples required were 58 in each group. The investigator rounded up the sample numbers to 60 for each group. A total of 120 diabetic foot ulcer patients who were admitted in the surgical ward with grade III & IV foot ulcer and fulfilled the inclusion criteria were selected as the samples by purposive sampling technique. The first control group data collection has been completed. After that, the experimental group data were collected to avoid condemnation of samples. Assessed the diabetic foot ulcer patients' socio-demographic variable such as age, gender, religion, marital status, education, family income and occupation using structured questions. The reliability of the modified Thomas E. Burrouh's Diabetes Quality of Life Brief Clinical Inventory was found as 0.94 with the test- retest method. It was used to assess the quality of life of diabetic foot ulcer patients. It consisted of ten questions with five responses related to current status of diabetes, diet pattern, exercise, sleep, physical illness, pain treatment, fear of death, burden to family, knowledge on diabetes management and diabetic foot care. The minimum score was ten and maximum score was 50. The minimum score indicated good quality of life and maximum score projected poor quality of life. The minimum score indicated good quality of life and maximum score projected poor quality of life. The score less or equal to 49% stated as good quality of life, 50% to 74%.

The pre-assessment was carried out on 1st day before started the educational intervention and post assessment was done on 22nd day for both groups. The clinical data were gathered by using the interview method in regional language and some clinical data collected from patients and patients' case sheet. The study was approved by the JIPMER Scientific Advisory Committee. Ethical approval was obtained from Institute Ethical Committee (Human Studies), JIPMER,

Puducherry. The data were collected for a period of thirteen months. The mean, standard deviation, percentages, paired 't' test and chi-square' test were used to express the data.

Intervention of the research study

For control group: The routine hospital care was carried to the control group patients' daily till 21 days. Post assessment was done on 22nd day. The educational intervention was started after post assessment for the control group to avoid the ethical issue.

For the study group: Educational intervention was divided into three sessions that was 1st session educated on diabetic management and foot care; it's included the knowledge on diabetes, treatment of diabetes, common complications of diabetes, risk factors and causes of diabetic foot ulcer, warning signs and symptoms of diabetic foot ulcer, complication of diabetic foot ulcer. On the 2nd session, educated on prevention of diabetic foot ulcer it's consisted of nail care, foot care, foot inspection, selection of foot wear and leg exercise was carried out in 1st week. On 2nd and 3rd week, the third session implemented to reinforcement that was repeated the important aspects of foot care and prevention of diabetic foot ulcer. The investigator planned educational intervention patient with self-explanatory pictures in their regional language using the laptop and power-point presentations. During the educational session their doubts was clarified by the investigator. The individual educational intervention was scheduled daily from 1st day to 21 days.

RESULTS:

Table 1: Socio-Demographic Variables of Patients with Diabetic Foot Ulcer in the study and Control Groups

N=120

Variables		Study Group (n=60)		Control Group (n=60)		X^2	'P' value
		No.	%	No.	%		
Age (in years)	<35	1	1.7	-	-	1.84	0.765 (N.S)
	35 – 45	6	10	6	10		
	46 – 55	23	38.3	19	31.7		
	56 – 65	24	40	27	45		
	>65	6	10	8	13.3		
Gender	Male	37	61.7	32	53.3	0.85	0.356 (N)
	Female	23	38.3	28	46.7		
Religion	Hindu	53	88.3	54	90	1.12	0.571 (NS)
	Christian	3	5	1	1.7		
	Muslim	4	6.7	5	8.3		
Marital status	Married	55	91.7	58	96.7	4.41	0.220 (NS)
	Unmarried	2	3.3	1	1.7		
	Divorced	-	-	1	1.7		
	Widowed	3	5	-	-		
Educational status	Illiterate	7	11.7	13	21.7	5.89	0.316 (NS)
	Primary	14	23.3	18	30		
	Middle	16	26.7	13	21.7		
	High school	15	25	9	15		
	Higher secondary	3	5	5	8.3		
	Degree & above	5	8.3	2	3.3		
Occupation	Unemployed	22	36.7	25	41.7	3.66	0.300 (NS)
	Skilled work	15	25	20	33.3		
	Semi-skilled	20	33.3	11	18.3		
	Unskilled	3	5	4	6.7		

The table 1 shows that socio-demographic variables of patients with diabetic foot ulcer in the study and control groups

Table 2. Quality of Life among the Patients with Diabetic Foot Ulcer in the study and Control Groups on the 22nd day of Intervention

N=120

Quality of Life	Pre-assessment				Post-assessment			
	Study group (n=60)		Control group (n=60)		Study group (n=60)		Control group(n=60)	
	No.	%	No.	%	No.	%	No.	%
Good (<49%)	-	-	-	-	55	91.7	6	10
Fair(50% - 74%)	-	-	-	-	5	8.3	45	75
Poor (>75%)	60	100	60	100	-	-	9	15

The table 2 shows the quality of Life among the patients with diabetic foot ulcer in the study and control groups on the 21st day of Intervention.

Table 3. Pre and Post Assessment Mean and Standard Deviation of Quality Of Life among the Patients with Diabetic Foot Ulcer in the Study and Control Groups

N=120

Quality of Life	Study group (n=60)		Control group (n=60)		't' test	'P' value
	Mean	Standard deviation	Mean	Standard deviation		
Pre-Assessment (1st day)	47.52	0.93	47.63	1.104	0.62	0.532
Post-Assessment (on 21st day)	20.22	2.952	32.13	5.363	15.078	0.000

S – Significant (P<0.001)

A total of 120 patients were selected based on purposive sampling technique. Data were collected from 60 patients for the control group. After completion of control group, then experiment group study was started. The study finding showed the fact that the improvement in quality of life among the patients with diabetic foot ulcer in the experimental group who received repeated planned educational intervention for diabetic foot ulcer. In pre assessment, all of them (100%) have poor quality of life in the experimental group before planned educational intervention. In post assessment (on the 21st day), fifty five (91.7%) had good quality of life, five (8.3%) patients had fair quality of life and none of them had poor quality of life after 21 days of repeated planned educational intervention(daily). According to the data given above the quality of life mean score was found improved from 47.52 to 20.22 after nursing strategies. It is inferred that on the 22nd day of planned educated intervention, there was improvement in quality of life among the patients with diabetic foot ulcer in the experimental group which was statistically significant (p<0.0001)

DISCUSSION:

The present study findings revealed that many of the patients were unaware about the importance of daily foot inspection, foot wear selection, leg exercise, foot care, nail care, preventive aspect of foot ulcer, early detection of foot ulcer, do's & don'ts of foot ulcer. Because of that, they got foot ulcer which leads severe complication like amputation. It causes poor quality of life.

The educational intervention and reinforcement on the important aspect of diabetic foot ulcer make very positive impact on prevention of further foot ulcer, make the patient realize their individual responsibilities on their own care, sensitized the diabetic foot ulcer patient to develop their positive attitude and skill in examining of foot inspection, foot wear selection, foot exercise. These are the factor showed improvement of quality of life of diabetic foot ulcer patients. By following simple strategy, may be improved quality of life and prevent the complication. The present study findings were supported by the following study:

Quasi experimental study design was conducted on impact of patient-education on health related quality of life of diabetic foot ulcer patients by Sekhar et al (2018). The study finding shows that subjects in the both interventional group (IG) and control group (CG) reported poor health related quality of life (HRQoL) scores, on all the eight subscales at baseline. After six months of planned education (PE) , HRQoL improved substantially in IG with respect to CG and IG at baseline Likewise, in both CG and IG, the physical component summary scale (PCS) scores and the mental component summary scale (MCS) scores were similar and poor before PE. However, six months post PE, in IG, the Both PCS and MCS scores increased dramatically respectively [6].

Miraj et al conducted study on effect of patient education on health-related quality of life (HRQoL) of diabetic foot ulcer patients in a Tertiary care Hospital. The study finding revealed that subjects in the both IG and CG reported poor HRQoL scores, (similar in each group) on all the eight subscales at baseline. But, after six months of educational intervention, HRQoL improved substantially in IG with respect to CG as well as IG at baseline. Likewise, in both CG and IG,

the physical component summary scale (PCS) scores and the mental component summary scale (MCS) scores were similar and poor before educational intervention. However, six months post educational intervention, in IG, the Both PCS and MCS scores increased dramatically respectively[7].

Recommendations:

The educational intervention may be included in nursing strategies for routine interventions to manage diabetic foot ulcer patients. Nursing researcher can use this study as a guide for conducting further study in the field of nursing. The study findings need to be communicated to hospital authority, for utilizing the study finding in day today care of patients. The findings should be published so that other members can use this intervention as evidence-based practice. The nurses should follow regular educational intervention in day to day patient care activities to enhance the patient compliance on foot-care and improve the quality of life. Nurses must undergo special training on planned health educational intervention skill to update their knowledge on effective communication. The nurse educator should organize periodical seminar, workshop and conference regarding diabetic foot ulcer, foot care, and educational intervention. The nurse administrators need to facilitate the utilization of research based nursing intervention such as planned educational intervention to improve the patient quality of life and prevent the recurrence of diabetic foot ulcer. Nurse administrators should encourage the clinical nurse and nursing students to practice planned educational intervention on diabetes and diabetic foot care. Nursing administrator should motivate the staff nurse in the surgical wards to do plan educational intervention on diabetic foot care. Nurse administrator should arrange seminars and workshops for communicating all the research findings. The nurse administrator should provide facility to practice the research findings. The nurse researcher may be conducted the similar study on other patients who have non-diabetic and non-healing wound.

CONCLUSION:

The study finding concluded that the educational intervention and repeated reinforcement on prevention of diabetic foot ulcer and proper foot care practice may be enhance the awareness on foot care, wound healing, prevent recurrences of foot ulcer has influenced on patient illness and the quality of life. The diabetic foot ulcer may be prevented by following simple strategy like self-foot examination, leg exercise, selection of foot wear and proper foot care. It may improve the quality of life.

Ethical consideration: The study was obtained permission from JIPMER scientific advisory committee and Institute ethical committee (Human studies) JIPMER. The official permission also was got from head of department of surgery, JIPMER.

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Conflict of Interest: None.

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