Quality of life & satisfaction of diabetic foot patients: Comparative study

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Abstract: Background: Foot complications are common in diabetic patients and are associated with a high amputation rate as well as being life threatening. It also accounts for substantial health care cost and resources. It is a major burden to the patient and the healthcare system., the impact of diabetic foot ulcers on quality of life is large, especially on physical functioning, social functioning and mobility. **Objectives:** The aim of the present study is to assess the quality of life and satisfaction level of diabetic patients with diabetic foot. **Subject and methods**: descriptive comparative with convenience random sampling was used sampling 77 from Egypt and 100 from Sudan, carried out in Egypt in diabetic out patient clinic in Port Said general hospital which it is the first specialized diabetic governmental center and in Sudan in Jabir Abu Alaiz diabetic specialized center which it is also the first specialized governmental diabetic center. One modified tool for data collection was used divided into 4 main parts related to socio-demographic characteristics, duration of diabetes mellitus, feeling, quality of life, satisfaction respectively. **Results:** results of the present study revealed significance difference in many items related to quality of life &diabetic foot patients satisfaction between Egyptian & Sudanese patients. **Conclusion**: Sudanese diabetic foot patients had low quality of life & satisfaction regarding their disease. **Recommendations:** various educational programme regarding proper self management and coping strategies is very important issue.

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1.Introduction

Diabetes is a serious disease that can result of insufficient insulin production in the body or due to the inability of the body's insulin to perform its normal functions. Insulin is a substance produced by the pancreas gland that helps process the food to turn into energy. ***(Frykberg et al., 2001)***

Diabetes mellitus affects approximately 16 million Americans and is classified into 2 different types: Type 1 and Type 2. Type 1 is usually associated with juvenile diabetes and is often linked to heredity. Additionally, diabetes mellitus is a common disease affecting 30 million people worldwide. In Malaysia, the prevalence rate has been increased from 6.3% in1986 to 14.6% in 1996. There are about 10 million people in the United States today that suffer from diabetes. The incidence of diabetes is more prevalent in Blacks, Hispanics, Native Americans, and Asian Americans ***(Richardson et al., 2000 & Girod et al., 2003)***

A very disabling long-term complication of diabetes mellitus is the diabetic foot syndrome. The diabetic foot syndrome can be defined as an array of foot abnormalities, resulting from peripheral neuropathy, macro-angiopathy and other consequences of metabolic disturbances. These different causal factors may be present alone, but mostly occur in combination in patients with diabetes mellitus. Neuropathy, particularly symmetric distal polyneuropathy, is the major etiological factor, and is present in 85% of the patients with a diabetic foot problem 2. A clinical important manifestation of the diabetic foot syndrome is the diabetic foot ulcer, sometimes followed by amputation. ***(Links, 2001).***

In 2000, worldwide 157 million people are suffering from DM, of which about 20 million in Europe. In 1994 the prevalence of DM in the Netherlands among men and women of 20 years and older was estimated to be 33.4/1000, and 42.5/1000, respectively, leading to 442.300 people with DM. Type 2 DM is most frequent, with a presence of 80-90%, however, type 1 DM is present in 10-20% of the population. As a sequence of demographic changes of the Dutch society, as there are growths of the population and changes in age and sex distribution, the prevalence of DM will increase to 35-45% during the period from 1994 to 2015. This increase will be even higher due to the development of more adequate case finding/screening techniques and the tendency of increasing incidence rates in certain population subgroups ***(Suarez, 2005)***

In Sudan knowledge of diabetes epidemic in Sudan is limited the most recent data come from small scales study that was carried out in 1996 the result of the study indicate prevalence of 3-4% but recent estimates place the diabetes population at around one million 95% of whom have type 2 diabetes. ***(Azvedo and Alla, 2008).*** Diabetic foot syndrome is an important challenge for all of us. Patient care can be improved by

using a multidisciplinary approach, and by offering attention to the consequences of diabetic foot syndrome on daily functioning and quality of life.(***Geertzen, 2004)***

The **World Health Organization**, 2002 defines the diabetic foot as an infection, ulceration and/or destruction of deep tissues associated with neurological abnormalities and various degrees of peripheral vascular disease in the lower limb. In the Dutch consensus the diabetic foot is defined as a diversity of foot abnormalities caused by neuropathy, macro-angiopathy, limited joint mobility and other consequences of metabolic disturbances, mostly occurring in combination, in patients with diabetes mellitus. ***(Ellabany& Abel-Nasser, 2005***)

Foot complications are common in diabetic patients and are associated with a high amputation rate as well as being life threatening. It also accounts for substantial health care cost and resources. It is a major burden to the patient and the healthcare system. Currently there is variation in the management of these patients due to various factors stressing the need for a patient oriented multidisciplinary approaches as well as a structured organization with facilities for providing foot care.(***Girod et al.,2003)***

Diabetic foot ulcers are estimated to affect approximately 15% of all diabetic individuals during their lifetimes. Data from the American 1983 -1990 National Hospital Discharge Surveys (NHDS) indicate that 6% of hospitalizations listing diabetes on discharge records also listed a lower extremity ulcer condition. In British studies, diabetic foot ulcer incidence was reported to be 1%, while prevalence in two community-based studies in British & United Kingdom of America ranged from 5.3%-7.4% respectively prevalence of current or previous foot ulceration, and investigating Type 2 Diabetic outpatients, reported a 41.6% neuropathy prevalence, and a prevalence of 11% for peripheral vascular disease (PVD). ***(Duim-Beytell, 2007)***

In Egypt, Egypt needed to conduct a survey to measure the burden and the actual prevalence of chronic diseases due to difficulty in reporting these diseases, additionally, different health facilities dealing with non-communicable diseases (NCD), (chronic diseases) e.g. Ministry of health and population, Universities, Police and Military health services, Private sector, Non-governmental organizations health facilities. Epidemiology and Surveillance Unit at the Egyptian Ministry of Health and Population has moved towards implementing non-communicable diseases and their risk factors Surveillance System since 2002 (***Ellabany& Abel-Nasser, 2005and Gawish,2008)***

In Sudan, Similar to other African countries, diabetes is no longer rare in Sudan. The country's resource strained health care system is far from ready to deal with the rising burden of diabetes. Superficial heel ulcers in diabetic patients with a short history of diabetes and with good limb circulation are more likely to heal within an average duration of 25 weeks. At 3 years of follow-up, 75% showed a favorable outcome for ulcer healing, and 22 patients underwent lower extremity amputation (25%), of whom 14 were dead within 3 years. (***Azevedo,2008 & IDF Diabetes Atlas, 2009)***

In Saudi Arabia, **Alwahabi,2006** stated that diabetic foot problems throughout the world, but few has been written about the problem in the Middle East and even in the Arab world. After reviewing some discussions, we realized that the magnitude of the problem is not yet appreciated for many reasons. In addition to, **In Malaysia**, Fifteen percent of patients with diabetes mellitus will develop a lower extremity ulcer during the course of their disease. Diabetic foot complications pose a substantial problem in the Malaysian diabetic population. Furthermore, it is a major source of morbidity, a leading cause of hospital bed occupancy and account for substantial health care costs and resources. Foot complications have been found to account for 12% of all diabetic hospital admissions, which in turn made up 17% of all hospital admissions..***(Girod et al.,2003)***

Regular foot checks, undertaken according to clinical guidelines (see section on Guidelines and review of evidence), are important to monitor the health of the feet and reduce the likelihood of complications. The “Get Checked” free annual check should include a foot check if one has not been undertaken during the preceding twelve months. So, nurse play central role in education self inspection, shoes, stocking, prevention of injuries, diet life style. Therefore, to increase awareness about diabetic foot care and prevention of complications, it very important for well-being socially, physically and emotionally. ***(Robbins, 2005)***

Neuropathy, particularly symmetric distal polyneuropathy, is the major etiological factor, and is present in 85% of the patients with a diabetic foot problem 2. A clinical important manifestation of the diabetic foot syndrome is the diabetic foot ulcer, sometimes followed by amputation. ***(Meijer, 2002)***

Early recognition of the at risk foot, they promote institution of prevention measures and the profession of rapid and intensive treatment of foot complication in diabetic patient. The aim of this study is to measure the quality of life among diabetic foot. Additionally, People with diabetic foot ulcers report poor quality of life. However, prospective studies that chart quality of life from the onset of diabetic foot ulcers are lacking ***(Winkley,2002)***.However, the impact of diabetic foot ulcers on quality of life is large, especially on physical functioning, social functioning and mobility. Physical

disabilities seem to be primarily responsible for the decrease in quality of life. In the care for patients with a diabetic foot disorder, these aspects are underexposed. Parallel to the medical care for the diabetic foot ulcer, including metabolic control. Such a programme should be offered to decrease disabilities on mobility and social functioning by providing for example physical training and advice about adaptations. There is no literature available about the effect of these programmes on quality of life. So, an evaluation of this issue will be necessary.***(Meijer, 2002)***

The term quality of life is used to evaluate the general well-being of individuals and societies. Moreover, the term of quality of life is used in a wide range of contexts, including the fields of international development, healthcare, and politics. Quality of life should not be confused with the concept of standard of living, which is based primarily on income. Instead, standard indicators of the quality of life is not include only wealth and employment, but also the built environment, physical and mental health, education, recreation and leisure time, and social belonging. According to ecological economist ***(Costa,2011).***

Objectives of study:

General objectives:

To assess quality of life for diabetic foot patients between two geographical areas (Egypt and Sudan)

Specific Objectives:

- Assess the quality of life among diabetic foot patients
- Compare between diabetic patients in Sudan and in Egypt regarding quality of life
-Assess factors affecting level of patient satisfaction with diabetic foot in Egypt and in Sudan

2.Subjects and Methods

Research design

A descriptive comparative research design will be utilized in this study

A-Study Setting

This study was carried out in Egypt in diabetic out patient clinic in port said general hospital which it is the first specialized diabetic governmental center and in Sudan in Jabir Abu Alaiz diabetic specialized center which it is also the first specialized governmental diabetic center.

Sample

Convenience diabetic foot samplings in both Egypt and Sudan in the mentioned setting before were included in this study. They were 77 patients in Egypt and 100 patients in Sudan

Inclusion criteria:

- Adult patients
- Both sexes
- Have diabetic foot

Exclusion criteria:

- Patients with diabetic foot complications as amputation

Tool of data Collection

Data was collected using modified WHO Quality of life questionnaire. The tool was modified by researchers then translated to Arabic language and retranslated to English again to be suitable for both Egyptian and Sudanese community value & perceptions.

The tool consists of the following parts:

Part I: This part contains demographic characteristics of the studied patients of Egypt & Sudan as name, age, level of education, occupation, marital status and religion

Part II: Part two It includes 4 questions regarding duration of diabetic foot disease, another disease associated with diabetes & diabetic foot, feeling and patient perception toward diabetic foot disease.

Part III: Part three contains 14 questions regarding quality of life in common daily activities and feeling of patients

Part IV: This part includes 11 Questions which 10 of them related to patient's satisfaction level regarding diabetic foot in many daily activities practice and one question for assess the impact of diabetic foot on psychological status & feeling of those patients

Pilot Study

Pilot study was carried out after the modification of the tools on 10% of the diabetic foot patients to test its applicability then necessary modification was done according to the results of pilot study and expertise opinions. Otherwise, the ten patients were then excluded from the sample of research work to assure the stability of answers

Methods

The questionnaire was filled out by the patients. Data was collected from the selecting settings by the researcher using in both countries within 8 months which started at September 2010 until April 2011. The questionnaire was collected from all the patients in Egypt and in Sudan for 2 days /week in Monday and Wednesday while they are in free time of clinic attendance and check- up, purpose of the study was explained prior to get the questionnaire sheet, and it distributed to be answered within (20 -30 minutes).

Ethical considerations

1. Formal approval was taken from hospital directors from Egyptian and Sudan hospital.
2. The aim the study was explained to each nursing supervisors of diabetic clinics in both countries to be familiar with the importance of diabetic foot patient's participation.
3. A brief explanation of the purpose and importance of the study was clarified to the patients and assured them that the obtained

information will be confidential and used only the purpose of the study.

Scoring system:

The scoring systems for part II including duration and feeling of disease is ranged from 1-2 score which zero score for No answer and 1 for yes answer, part III are includes 14 questions regarding quality of life ranged from 1 to 5 scores ranking from very bad, bad, no good no bad, good, very good answer while the rested of questions were ranking from no at all, low degree, moderate degree, large degree, very large degree, final tool including 10 questions regarding level of satisfaction and one question for assess the impact of diabetic foot on psychological status and feeling ranged also from 1 to 5 degree for ranking of very unsatisfied, unsatisfied, no satisfaction and unsatisfied, satisfied, very satisfied respectively.

Data analysis:

The data was managed, entered and analyzed using SPSS 19 computer software statistical package. Regarding comparing the (quality of life and satisfaction) with socio-demographic characteristics, Chi – Square or Fisher Exact test was used. Statistical significance was considered at *P*-value <0.05

3.Results:

Table (1) shows that about 44.2% of Egyptian sample was males and 55.8% was females while 70% of Sudan sample was males and 30% was females. Additionally 46.8% of Egyptian sample worked while 53.2% did not work. ON the other side 48% of Sudan sample worked and 52% did not work.Also the most of Egyptian patients was single and having secondary level of education(35.06%) while above half of Sudanese patients were married (82%) and about had primary level of education (52%) with statistically significance difference (P=0.011). Additionally, the study results revealed that the Mean & standard deviation of Egyptian patients regarding duration of diabetic disease was (8.2819± 9.34) and Sudanese was (11.629± 10.99) with *P* value of 0.000 diabetic foot. The study result also founded that 98% of Sudanese patients for diabetic foot is disease while 77% of Egyptian patients feeling that diabetic foot is disease with statistically difference between the two countries (*P*=0.000)

Table (2): shows that the most of both Egyptian and Sudanese diabetic foot patients perception of their illness was a disease (83.1, 80%) respectively with no statistically significance difference between Egyptian and Sudanese diabetic foot patients in these regard (p = 0.698).

Table (3): Clarifying that there was a statistically significance difference between egyptin and sudanes in the feeling of their diabetic disease p = (0.000).

Table (4): It can be seen clearly that there were a highly negative psychological feeling resulting from diabetic foot disease present among Sudanese patients in comparing with Egyptian patients with highly statistically significant difference p = (0.000).

Table (5): shows that there are a significant differences between Egyptian and Sudanese patients regarding quality of life variable mainly in items related to patient's perception of quality of life, his\her life is purposive, patient's ability to concentrate, patient's feeling of peace, are patient lived in healthy environment, are he \she have adequate energy for practice daily activities, his \her acceptance of appearance, are he \she have enough money for requirements, he \she feel of health is good with p=(0.000) respectively. while there were no statistically significant difference between both of them founded in items related to pain interfered with patient's work, patient's demand of money to continue their work, patient's enjoy with his\ her life p = (0.007, 0.007, 0.654) respectively.

Table (6): concentrated on discovering satisfaction of diabetic foot patients pattern among both Egyptian and Sudanese and founded that their were a statistically significant difference between them in only items related to satisfaction with sleeping pattern, self, living place. p = (0.002, 0.027 and 0.033) respectively.

4.Discussion

The burden of diabetic foot ulceration is the heaviest in the resource-poor parts of the world where the incidence is high but sophisticated and efficient diagnostic, therapeutic and rehabilitative facilities are sparse. The challenge of management challenge of diabetic foot ulcer in developing countries is that most patients with diabetic foot ulcer present to healthcare facilities late with advanced foot ulcers. The reasons for late presentation include poor economic capabilities in cost shared healthcare systems, inadequate knowledge of self-care, socio-cultural reasons and poor and /or inadequate diabetes health care. Studies in Tanzania have shown that surgical intervention of diabetic foot ulcer after the onset of gangrene may be too late to prevent death. ***(Chalya et al., 2011).*** Thus, the prevalence of patients living with diabetic foot ulcers is steadily increased. Rural communities have limited access to diabetes educational programs which can exacerbate the decreasing of complications of the disease. The prevention or delay of a diabetic foot ulcer can improve the quality of life for this population. Exploring the lived experiences and how educational programs affect the perceptions of patients with diabetic foot ulcer in western Nebraska is important in developing effective diabetes educational and prevention programs (**Costa, 2011**).

Table (1): Socio-demographic characteristics for both Egyptian & Sudanese diabetic foot patients

Sociodemographic characteristics	Grouping				*P*- value
	Egypt Total N = (77)		Sudan Total N = (100)		
	No	%	No	%	
Age					
20 years >	3	3.8	1	1	
20-40 year	5	6.49	5	5	0.560
40-60 year	47	61.3	61	61	
60 year<	20	25.9	33	33	
Gender					
Male	34	44.2	70	70	.001*
Female	43	55.8	30	30	
Working					
Worker	36	46.8	48	48	. 870
Not- working	41	53.2	52	52	
Level of education					
Illiterate	24	31.16	17	17	
Primary	17	22.07	52	52	
Secondary	27	35.06	17	17	
University	9	11.7	7	7	.011*
Postgraduate	0	0	7	7	
Marital status					
Single	9	11.7	8	8	
Married	47	61.03	82	82	
Widow	16	20.6	8	8	
Divorced	5	6.5	2	2	.012*
Religion					
Moslem	76	98.7	100	100	.022*
Christian	1	1.3	0	0	

*statistically significance difference

Table (2) : Comparison of Egyptian & Sudanese Perceptions of diabetic foot patients regarding their illness.

Patient's perceptions of their illness	Grouping				Fisher's Exact Test
	Egypt Total N = (77)		Sudan Total N = (100)		
Problem	13	16.9%	20	20.0%	0.698
Disease	64	83.1%	80	80.0%	

Table (3) : Comparison of total Quality of life scoring between Egyptian & Sudanese diabetic foot patients

	Grouping		Statistic	Chi-Square
Total Quality of life scoring	Egyptian	Mean	76.2208	.000***
		±Std. Deviation	±16.83795	
	Sudan	Mean	88.1200	
		±Std. Deviation	±17.07930	

*** Highly statistically significant differences

Table (4): Impact of diabetic foot on presence of negative psychological feeling between Egyptian & Sudanese patients

Grouping	N	%	Mean	±Std. Deviation	T test	*P*- value
Egyptian	77	43.5%	3.7273	±1.39205		
Sudan	100	56.5%	3.0500	±1.13150	3.570	.000***
Total	177	100.0%	3.3446	±1.29241		

*** Highly statistically significant differences

Table (5): comparison between Egyptian & Sudanese diabetic foot patients regarding their quality of life

Quality of life items		Sudan Total N = (100)	Egypt Total N = (77)	F	*P* - value
Patient's perception of his quality of life	**Mean**	3.1039	3.7900	3.159	.000***
	±SD#	±1.04610	±.84441		
Pain feeling interference with patient 's work	**Mean**	3.4156	2.9500	.086	
	±SD#	±1.05569	±1.19236		.007
Patient's demands to medication for continue his work	**Mean**	3.9740	3.9000	.280	.007
	±SD#	±1.07574	±1.10554		
Patient;s enjoyed with his life	**Mean**	2.7662	3.3700	.977	.654
	±SD#	±1.05001	±1.10696		
My life is purposive	**Mean**	2.8052	3.7100	.683	.000***
	±SD#	±1.13600	±1.19168		
Patient's ability to concentrate	**Mean**	2.8442	3.5300	2.371	.000***
	±SD#	±1.11290	±1.16736		
Patient's feeling of peace	**Mean**	3.0390	3.9700	.074	.000***
	SD#	1.06920	1.08670		
Are you life in healthy environment	**Mean**	2.8701	3.5100	2.969	.000***
	SD#	1.08033	1.15902		
Are you have adequate energy for daily activities	**Mean**	2.2857	2.9500	.298	.000***
	SD#	.94392	1.17529		
Are you accept your appearance	**Mean**	3.0260	3.8500	.115	.000***
	SD#	1.15820	1.05768		
Are you have enough money to your requirements	**Mean**	2.6364	2.4500	3.277	.000***
	SD#	1.08711	1.28216		
Are you obtain enough information needed for your daily life activities	**Mean**	2.7013	3.0300	.006	
	SD#	1.00085	1.13222		.046*
Are you have chance to spend avocation	**Mean**	2.4416	3.0700	.001	.042*
	SD#	1.14125	1.18283		
Are you feel that your health is good	**Mean**	2.7143	3.6300	1.432	.000***
	±SD#	±.95775	±.84871		

*statistically significance difference, *** Highly statistically significant differences
#Standard Deviation

Table (6) : Comparison between Egyptian & Sudanese diabetic foot patients regarding satisfaction level

Satisfaction items	**Grouping**	Sudan Total N = (100)	Egypt Total N = (77)	**F**	***p*-value**
Satisfaction of health	**Mean**	3.2208	3.0700		
	±SD#	±1.19894	±1.31237	3.178	.076
Satisfaction of sleeping pattern	**Mean**	2.9091	3.7200		
	±SD#	1.24796	1.01583	9.460	.002*
Satisfaction toward daily life activities	**Mean**	2.4805	3.2700		
	±SD#	1.22055	1.33979	.749	.388
satisfaction of work	**Mean**	2.4935	3.1400		
	±SD#	1.28374	1.40000	.303	.583

Satisfaction of self	**Mean**	3.2727	4.0100		
	±SD#	1.29408	1.15902	4.942	.027*
Satisfaction of personal relations	**Mean**	3.3247	4.1200		
	±SD#	1.21873	1.14838	1.440	.232
Satisfaction of sexual relation	**Mean**	3.1277	3.0854		
	±SD#	1.15377	1.26882	1.297	.257
Satisfaction of friends support	**Mean**	3.0649	3.3800		
	±SD#	1.36051	1.44096	.601	.439
Satisfaction of living place	**Mean**	3.4545	4.0300		
	±SD#	1.28294	1.13222	4.629	.033*
Satisfaction of delivered health services	**Mean**	2.7792	3.4400		
	±SD#	1.31413	1.32054	.093	.761
Satisfaction of transportation	**Mean**	2.9610	2.6500		.095
	±SD#	1.27157	1.43812	2.822	

*statistically significance difference, #Standard Deviation

In response to these diabetic foot patient needs to promote optimum health and to adapt and coping with diabetic foot disease. The aim of the present study is to identify and assess quality of life and satisfaction of diabetic foot patients among two geographical areas namely Egypt and Sudan. The present Findings clarified the sociodemographic characteristics among both Egyptian and Sudanese diabetic foot patients reveled that most of both Egyptian and Sudanese patients in age ranged 40-60 years and more than half of Egyptian patients were female sex group and not worked while near one quadrant of Sudanese patients were male and also half of them were not working. Additionally, more than one quarter of Egyptian patients had secondary level of education while more than half of Sudanese patients were had primary level of education. These finding goes in the same way with ***Maruskova et al., 2001***, in contrast, ***Adam et al., 2009 and Chalya1 et al., 2011*** founded in their study that most of diabetic foot sample were male and had junior middle school education with above 60 years old Concerning feeling and duration of diabetic foot patients acquired diabetes disease. the present study founded that both of two items reported a highly statistically significant difference between Egyptian and Sudanese diabetic foot patients.This finding goes in the line with ***Chalya et al., 2011*** who reported in his comparative study between Germany, Indian and Tanzanian diabetic foot patients that there were a significally long mean duration of German and Indian patients than among Tanzanian patients. By contrast Paterson in 2001 mentioned that newly diagnosed people with an illness in the foreground and overwhelmed by the disease but can also be adopted in other situations including some threating to control science this perspective has a protective, maintenance or utilarian function, suffering, loss and burden.

Based on the present results it was found that there are no statistically significance difference between Egyptian and Sudanese diabetic foot patients in patient's perception of their illness it could be related to the majority of study sample in both geographical area were adult and matured enough to be realistic with their illness. Ideally, The foot ulcer has severe consequences for patients, family, health care system and society and many patients with foot ulcers become dependent on home nursing services. Mortality in this patient group is high especially for patients with critical ischemia. (Prompers ***et al., 2007***).

In this regard, the present study revealed a highly statistically in some items of totally quality of life items mainly in terms related to patient's perception of his quality of life, his\her life is purposive, patient's ability to concentrate, patient's feeling of peace, are patient lived in healthy environment, are he \she have adequate energy for practice daily activities, his \her acceptance of appearance, are he \she have enough money for requirements, he \she feel of health is good, this finding supported with ***Murabito et al., 2003 and Diehm et al., 2004)***. Also, ***Zwarts, 2002*** reported that quality of life in diabetic patients with foot ulcers and their caregivers, by semi-structured discussions on the domains of social, psychological, physical and economic impact. Two groups participated, consisting of 14 patients and 11 caregivers without a control group. A negative impact on all domains of quality of life was experienced because of the limitations in mobility caused by the ulcer. The conclusions were group findings and not based on individual assessments. And concluded that quality of life in diabetic patients with foot ulcers is greatly influenced

by physical (especially mobility), social and psychological impairments and disabilities. However, it is not clear which specific domains of quality of life are most affected by diabetic foot ulcers.

Additionally, **Wittemore *et al.*, 2003** recommended increased programme that supported patient self management and enhance Quality of life, Quality of life as well as health outcomes has also been shown to increase as a result of individualized nursing care after education among persons newly diagnosed with diabetes mellitus type 2, a multi-method (***Steed, et al., 2003***). In addition to that,***Francioni & Silva (2002)*** recommended interviewed people with diabetes in order to understand the process of accepting to live with diabetes. They highlight four categories, namely: "to find out was terrible"; "it is hard to live with it"; "but you have to accept it"; and "it is possible to have a good life, even with diabetes". Consequently, there is a potential for increasing the quality of the treatment, and the quality of life for the patient if the treatment can be performed at home while the experts are enabled to collaborate with the visiting nurses performing the treatment. In this sense, treatment of diabetic ulcers is an apposite scenario for exploring the conception of Pervasive Home Care. (***Larsen, 2006***)

On the other hand,***Chalya et al., 2011*** imply the differences in the quality of diabetes care where German and Indian patients, on average have longer duration of diabetes exposure before they develop foot ulcers. It is possible that better diabetes care that they receive delays the onset of foot ulcer disease. In contrast ***Norman et al., 2006*** mentioned that diabetic foot has huge impact of patients' quality of life and imply his risk factors which affected quality of life in their study to Contributing factors are hypertension, obesity, physical inactivity, elevated blood lipids and smoking. Treatments to improve peripheral arterial blood circulation are cessation of smoking, reduction of blood pressure and weight, low intake of saturated fat, increased physical activity, pharmacological treatment of lipids, anti coagulant drugs, and vascular surgery. In a European multicentre study, about 50% of all patients at first visit to a diabetes foot clinic presented signs of peripheral arterial disease.

Otherwise, ***Larsson et al., 2011*** identified a complexity of factors related to outcome, of which co-morbidity, duration of disease, extent of tissue involvement and extent of peripheral vascular diseases were strongly related to probability of primary healing. These findings underline the need for recognition of diabetic foot ulcers as a sign of underlying multi-organ disease. Non-compliance in a patient with diabetes and foot ulcer as a risk factor for amputation is difficult to distinguish from true neglect and lack of awareness due to complications such as neuropathy and visual impairment. Potential communication bias between healthcare providers and patients highlights the need for individually adjusted education and improved communication methods for nurses providing life style-changing patient education.

Furthermore, ***Barry et al., 2001*** highlight that in order to provide good diabetes care it is important for the health care professionals to share patients' personal understanding of living with diabetes, which differs from a professional understanding of the illness. Patients' beliefs about health, illness, control and cure are predictive of the outcome of lifestyle changes and pharmacological treatment. Narratives about illness could be used to elucidate what people believe to be central to their experience of an illness and its management.

Also, ***Struthers, 2003 and Weems, 2008*** emphasized on importance to elicit the client's views of the pros and cons of making lifestyle changes. Individualized educational strategies can reinforce learning, prevent complications, and encourage lifestyle changes. One-to- one teaching techniques can identify the factors that contribute to noncompliance with medical treatment.

Regarding diabetic foot patients satisfactions, the present study revealed that that their were a statistically significant difference between Egyptian and Sudanese diabetic foot patients in only items related to satisfaction with sleeping pattern, self, living place. ***Hornsten, 2004*** stated that The theme being attended to and feeling welcome versus being ignored, in which "being attended to" was interpreted as satisfying, emerged from narratives about professionals who paid attention to the patients and were friendly and welcoming, which gave them a feeling of trust and an experience of co-operation. "Being ignored", on the other hand, dissatisfying, wounded and insulted the patients. Lastly, the theme of feeling safe and confident versus feeling unsafe and lacking confidence, in which "safe" and "confident" were interpreted as satisfying, was exemplified by experiences of encounters that made the patients feel secure, for example in in-patient care.

Concerning negative psychological feeling the present study founded that their were a highly negative psychological feeling resulting from diabetic foot disease present among Sudanese patients in comparing with Egyptian patients with highly statistically significant difference. This finding goes in the same line with ***Adam, 2006*** who reported that Diabetic foot ulcers have negative effect on psychological well being, social functioning, employment, and quality of life. The cost of treating diabetic foot ulcers and their complications is high. ***Bakheit et al., 2012*** Supported this finding in special scope of view by stated that wellness-in-the-foreground perspective should be focuses on the emotional, spiritual and social aspects

of life rather than on the diseased body, which is objectified and placed at a distance. Benefits of adopting a wellness-in-the-foreground perspective may include being allowed to mediate the effects of the disease, and shifting from the position of a victim to that of creator of circumstances.

In this regard, ***Rankin, 2003*** recommended A health plan encourages clients to take an active role in their health care. Therefore, noncompliance, patient dissatisfaction, and a loss of economic resources can be avoided. Occasionally,***Zwarts, 2002*** stated that Diabetic foot disorders cause physical limitations, secondary enhanced by treatment and prevention advice's about minimizing loading to spare the feet, which has consequences for mobility and social functioning of the patients.

Otherwise, the client's noncompliance can cause providers to become overwhelmed and confused. This does not mean that the clients are hopeless. Educators can have success utilizing new innovative teaching strategies. The clients need to receive the support of family members and providers. This allows for the implementation of educational and behavioral strategies.((***Butcher,2007 & Daniel, 2010)***. However, ***Bastable, 2007 and Weems, 2008*** had special idea regarding psychological feeling of diabetic foot patients that evidence indicating that critical thinking is influenced by psychological factors. Critical thinking requires motivation that is defined as the force that drives the subject. Motivation is required to create a change in behavior. Beliefs and values affect motivation; the clients learn new knowledge that helps them change their mind and their behavior.

However, ***Harwell et al., 2001*** assessed psychological adjustment to illness (PAIS), anxiety and depression (HAD) and life satisfaction (QoL ladder) and concluded that the psychological status of mobile amputees is better than that of the diabetic foot ulcer patients, but not as good as diabetic controls.

5. Conclusion

From the present study, it can concluded that quality of life and satisfaction of Sudanese diabetic foot patients are needed to improved in most items important for good quality of life and increased numbers of instructional scheme contains informed resources as mass media should be available for each diabetic foot patients who cannot read and write, also this disease leafs great negative psychological feeling on those patients which needed for handling and great attention to psychological needs and coping strategies of those patients.

Recommendations

In order to improving quality of life and satisfaction among diabetic foot patients in both Egypt and Sudan, the following recommendations pertaining to podiatry nurse, the future studies and hospital administrator are suggested :

1- Educational programme should be simply presented by podiatry nurses through visual aids such as poster, illustrated pamphlets, simple and clear language booklets and some related models about leg care and examination should be available to all diabetic foot patients as a guide for correct action.

2- Diabetic foot has a considerable profound physical problem.So leg examination in addition to observing skin condition should be applied as a routine follow up measure to those patients. Generally, the creation of specially founded prognosis to develop awareness and early intervention strategies in this area in necessary and also, should be focused on secondary prevention or early case identification through routine screening for those victims after discharge and up till one year.

3- Educational programs should be planned and offered on instructed basic knowledge to nurses working on both diabetic clinic and podiatry to minimize diabetic foot complications especially amputation.

4- Further research studies should be undertaken on the diabetic food patients in many geographical areas to investigate the confounding factors that hinder the form of quality of life, satisfaction.

5- Hospital Administrator needed to Support expands both podiatry nursing and patient education and research to ensure quality care for future diabetic foot survivors.

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