Diabetic Foot Ulcer among Elderly Patients: Role of Social Support

Eman Shokry Abd Allah [(1)], Eman Salah Ibrahim Mohamed [(2)], Fatma Mohammed Ahmed [(3)]

[(1)] Professor of Community Health Nursing and Gerontological Nursing, Faculty of Nursing, Zagazig University, Egypt. [(2)] Demonstrator of Gerontological Nursing, Faculty of Nursing, Zagazig University, Egypt. [(3)] Assistant Professor of Community Health Nursing, Faculty of Nursing, Zagazig University, Egypt.

Abstract

Background: Diabetic foot ulcer is one of the frightening complications of diabetes and is the leading cause of hospitalization among elderly diabetic patients. Social support has a direct effect on wellbeing, promoting the improvement of the psycho-emotional aspects of individuals. **Aim of the study:** The present study aimed to assess role of social support in diabetic foot ulcer among elderly patients. **Subjects and Methods: Research design:** A Descriptive cross-sectional study design was used to carry out the current study. **Setting:** The present study was be conducted at surgery and diabetic foot outpatient clinics at Zagazig University hospitals. **Subjects**: A purposive sample composed of 200 elderly patients with diabetic foot ulcer were enrolled. **Tools of data collection:** Two tools were used in the present study. Tool (I): A structured interview questionnaire composed of three parts Part **one:** Sociodemographic characteristics of the studied elderly, **Part two:** Clinical profile of the studied elderly and **Part three:** Self-care practices before ulceration. Tool **II:** Social support subscale. **Results:** The present study results revealed that 59.5% of the elderly DFU patients had moderate level of social support, 43% of the studied patients had a foot ulcer with partial thickness wound up to but not through the dermis grade. The majority (83.5%&83%) of them had one ulcer, or an ulcer for five to seven months respectively. Almost two third (67%) had the ulcer in the plantar surface of foot. **Conclusion:** Pertaining to social support, it tended to be moderately received by elderly diabetic foot ulcer patients, a statistically significant positive correlation was found between the studied patients` total diabetic foot ulcer classification and their total social support. **Recommendations:** Counseling sessions to provide emotional support to elderly DFU patients.

Key words: Diabetic foot ulcer, Elderly, Patterns, Social support.

Introduction

People worldwide are living longer. Today most people can expect to live into their sixties and beyond. By 2030, 1 in 6 people in the world will be aged 60 years or over. By 2050, the world's population of people aged 60 years and older will double (2.1 billion). The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million. In this context, the life expectancy in Egypt rose from 73.9 years in 2019 to 74.3 years in 2021 (73.4 years for male and 75.9 for female) **(Central Agency for Public Mobilization and Statistics: Arab Republic of Egypt [CAPMAS], 2022).**

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. the chronic hyperglycemia is

associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels. In 2019, it was estimated that 19.3% of people aged 65 to 99 years (135.6 million) live with diabetes globally. Over the next two decades, the number of people with diabetes will grow from 195.2 million to 276.2 million worldwide **(Abdel-Ghany et al., 2021).**

In this stream, in 2019, the international diabetes federation (IDF) estimated that one in five people with diabetes is above 65 years in Egypt **(American Diabetes Association**

(ADA), 2023). One important complication of DM is Diabetic foot ulcer (DFU); this complication constitutes an increasing public health problem and is a leading cause of hospital admission amputation and mortality **(Desalu et al., 2021).**

The prevalence of foot ulcers among diabetic elderly is 4% to 10%, the annual population-based incidence is 1.0% to 4.1%, and the lifetime incidence may be as high as 25%. In Egypt, 6.1% to 29.3% of diabetic patients have DFU. It is difficult to manage ulcers in the diabetic foot without a standardized classification system. There are numerous existing classifications, but none is universally accepted. Classification systems grade ulcers according to the presence and extent of various physical characteristics, such as size, depth, appearance and location. They can help in the planning and monitoring of treatment and in predicting outcome **(Fryberg et al., 2022).**

At present, all classifications consider only the state of the foot, without taking into account other factors with clear prognostic implications, such as the patient's age, time since the onset of diabetes, or the comorbidities the elderly patient might present. The Wagner system, which classifies an ulcer according to its depth and the extent of gangrene, is perhaps the most widely used **(Dumrongpanapakorn et al., 2021)**

Diabetic foot ulcer can be significantly socially isolating for individuals. Life changes including functional impairment may separate the elderly people from their friends and family, and a shift from "healthy" to "ill" in terms of self-identity can lead to a sense of social isolation. Research has shown that social isolation and perceptions of loneliness have significant negative impact on physical and psychological quality of life in elderly individuals with DFU **(Holt et al., 2022).** Furthermore, during a stressful experience such as DFU, social connections can provide valuable emotional and practical support. Research in the broader field of health Psychology has revealed significant influences of social support on the psychological well-being of elderly individuals as well as associations with disease processes (**Valtorta et al., 2022)**.

Although all team members have influence on reduction of the incidence of foot ulcer and amputation, however, the role of nurse and podiatrists are essential **Tamir, (2019).** Goals of nursing intervention in diabetic foot care improvement of elderly patient care and health services are one of the most important challenges for nurses. Obviously, there are several reasons for the presence of nurses in the health care team, but in general, the four major goals are included health promotion, prevention of diseases, elderly patients care, and simplify elderly patients' compliance. To achieve these goals, nurses can play different roles as, providing health care, collaborator, educator, consultant, leader, researcher, and supporting the rights of elderly patients **(Aalaa et al., 2021).**

Significance of the study:

Diabetic foot ulcer is considered a prominent cause of death in seniors. Diabetic foot ulcers accounts for 85% of lower limb amputations followed by a mortality rate ranging from 24.6% within five years to 45.4% within ten years in elderly, so it may have negative impacts on the patients, family and community in large **(Adem et al., 2020)**

DFU is complex to treat, take months to heal, result in poorer quality of life, and place patients at high risk of hospitalization and amputation. Thus, understanding the influence that different factors have on healing of DFUs is vital **(Zhang et al., 2021).**

Management of changes that accompany chronic disease states requires specific care and sometimes additional social support (SS) from family members, health professionals or others **(Figueira et al., 2021).**

Aim of this study:

The current study aimed to assess role of social support in diabetic foot ulcer among elderly patients.

objectives:

The aim of this study achieved through the following objectives:-

1. Categorize social support among elderly patients with diabetic foot ulcer
2. Describe self-care practices of elderly patients with diabetic foot ulcer before ulceration.
3. Determine patterns of diabetic foot ulcer among elderly diabetic patients.

Research questions:

1. What are patterns of diabetic foot ulcer among elderly diabetic patients?
2. What are the categories of social support among elderly patients with diabetic foot ulcer?
3. What is the relation between social support and pattern of diabetic foot ulcer?

Subjects and Methods:

Research design:

Descriptive cross-sectional study design was used to carry out the current study.

Study setting:

The study was conducted at surgery and diabetic foot outpatient clinic at Zagazig University hospitals.

Study subjects:

A purposive sample of 200 elderly patients with diabetic foot ulcer attending the above-mentioned outpatient clinics and fulfill the following inclusion criteria:

- Aged 60 years old and more, able to communicate, agree to participate in the study.
- Diabetic elderly patients with gangrene were excluded from the study.

Exclusion criteria:

- Elderly who have psychiatric problems, because they are unable to communicate effectively e.g. schizophrenia & dementia, etc.
- Diabetic elderly patients with gangrene

The sample size was calculated by software Epi-info package. Assuming the target elderly during one year (2022) was 650 and the estimated prevalence of social support was 71.6% **(Lapoulou et al., 2022)**; at 95% CI and effect size = 1, the estimated sample was 200 elderly admitted to the previous mentioned setting.

Tool for data collection:

In order to fulfill the objectives of the study two tools were used to collect necessary data:

Tool 1: a structured interview questionnaire which consisted of three parts;

Part one: demographic characteristics. It included data about age, sex, residence, income, educational level, marital status, number of family members, monthly income, ...etc

Part two: Patients' clinical profile. It included patients' clinical characteristics as comorbid conditions, medications, family history of diabetes, habits including smoking ……. Etc

Part three: History of Self-care habits before ulceration. This part is divided into five main subitems they are: Foot care, Wound care, Follow up, Previous history of foot problems, Current history of foot problems.

Tool II: Diabetic foot ulcer Classification by Wagner, (1981)

The Wagner classification is one of the most famous valid classifications for diabetic foot ulcers. Foot ulcer grades are as follows:

• 0= pre-ulcerative or post ulcerative site (no ulcer).

• 1= Partial -thickness wound up to but not through the dermis. (superficial ulcer).

• 2= Full thickness wound extending to tendon or deeper subcutaneous tissue but without bony involvement or osteomyelitis (ulcer with deep infection but no bone involvement).

• 3= Full thickness wound extending to and involving bone (ulcer with osteomyelitis).

• 4=localized gangrene.

Scoring system: There are four grades of wound severity according to Meggitt Wagner system: Grade 1 ulcers was scored with 1 point, grade 2 with 2 points, grade 3 with 3 points, and grade 4 with 4 points.

Tool III: Social Support subscale

It was developed by **Schmitt et al. (2022).** based on Inventory of Socially Supported Behaviors (ISSB) of Barrera (1983). It includes nineteen questions related to family and friend social support. This part was categorized into four domains and one additional item:

•**Emotional/ Informational support variables** (question 1-8) as Someone you can count on to listen to you when you need to talk, someone to turn to for suggestions about how to deal with a personal problem, etc.,)

•**Tangible support variables** (question 9-12) as someone to help you if you were confined to bed, someone to prepare your meals if you were unable to do it yourself)

•**Affectionate support variables** (question 13-15) as someone who shows you love and affection, someone to love and make you feel wanted, etc.)

•**Positive social interaction variables** (question 16-18) as Someone to have a good time with, someone to get together with for relaxation etc.)

•**Additional item** (question 19) as someone to do things with to help you get your mind off things). These questions (Q1 to 19) were in the form of closed ended questions (multiple choice questions).

Scoring system: The level of social support was assessed using three-point Likert scale ranging from:

•None of the time :1

•A little of the time: 2

•Most of the time: 3

A total score was estimated using the 19 general items; where applicable, a 19-item total score including the optional items was calculated. The total score ranged from 19 to 57. The higher score indicated higher level of social support. Level of support was categorized as follow:

•High social support: >70% (> 40 point)

•Moderate social support: 50-70% (28 to 40 point)

•Low social support: <50% (< 28 point)

Content validity and reliability

The tools were revised by three experts in the field of community health nursing, Faculty of Nursing, Zagazig University and community medicine, Faculty of medicine Zagazig University, where the panel reviewed the tools content for relevance, clarity, comprehensiveness and understandability. All recommended modifications were done. The reliability

of the items of the tools was assessed using Cronbach's alpha test, it, s results was 0.901 for total diabetes social support.

Field work:

Once the official permission was granted to proceed with the study, the researchers started to prepare a schedule for collecting the data. Each elderly was interviewed individually by the researchers who introduced self and explained the aim of the study briefly and reassured them that information obtained is strictly confidential and would not be used for any purposes other than research. After that, the oral approval was obtained to collect the necessary data. The study tools were answered individually for each elderly during the interview, and the time needed ranged from 20 to 25 minutes, according to understanding and cooperation of the elderly. The fieldwork was executed over six months from end of April 2023 up to the end of September 2023.

Pilot study:

A pilot study was carried on 20 elderly patients at diabetic foot outpatient clinic in Zagazig University Hospitals. The purposes of the pilot study were to test applicability, feasibility and practicability of the tools. It also, helped to estimate the time needed to fill out tools of data collection. According to the results of pilot study no modification was made. so, those who shared in the pilot study were involved in the study sample.

Administration and ethical consideration:

Firstly, the study proposal was approved by the Research Ethics Committee (REC) and Postgraduate Committee of the Faculty of Nursing at Zagazig University. The ethical code is M.D.ZU.NUR174(11/4/2023). Before starting any step in the study, an official letter containing the aim of the study was issued from post graduates affairs at faculty of nursing Zagazig University to the director of out-patient clinics in Zagazig University Hospitals explaining the nature and aim of this study and seeking cooperation and facilitating the role of researcher in data collection.

Then, oral informed consent for participation was obtained from each subject after full explanation of the aim of the study. Participants were given the opportunity to refuse participation, and they were notified that they could withdraw at any time of filling out the questionnaire. Anonymity of each elderly was protected by the allocation of code number for each elderly. They were assured that the information would be confidential and used for research purpose only.

Statistical analysis:

Data collected was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages and Mean ±SD. A correlation coefficient "Pearson correlation" was used to measure the relationship between two variables. Chi-square (χ^2) was used to determine the relationship between categorical variables. Linear regression analysis was used to predict the value of a variable based on the value of another variable.

Results:

Regarding demographic characteristics of elderly diabetic foot ulcer patients, the studied elderly` mean age was 64.82±3.57 years and 53% of them their ages ranged from 60 to less than 65 years old. Also, 67% of them were males and 60.5% of them were married. As regards educational level, 42.5% of them had secondary education and 21% of them were read and write. Concerning

professions before retirement, 57% of them were employees and all of them reported not working currently. Regarding their monthly income, 91% of them reported that it is not enough.

Regarding elderly patients' clinical profile, 41% of the studied patients reported comorbidity where 64.6% and 47.6% of them suffered from hypertension and cardiac diseases respectively. Regarding mean time of suffering from diabetes, it was Mean ± S.D 17.32±1.93 years and 63.5% of them suffered from it since 15 to less than 20 years. Additionally, 23% of them reported having family member with diabetic foot with a degree of kinship father (76.1%). Furthermore, 94.5% of them had insulin as a diabetic treatment and 30.5% of them were smokers.

As for history of diabetes self-care before ulcer,

Table 1 clarifies that 88.5% of the studied patients reported ability of reaching the bottoms of feet and examine them and all of them checked their feet regularly, they did so when they have a problem (73.5%) or once a week or less (14%). Additionally, all of them reported washing their feed daily, 45.5% of them soaked their feet in warm water every day, and 44.5% of them put moisturizing creams or Results lotions between fingers. Moreover, 67.5% of them never walked bare foot, 33.5% of them wearied soft socks and 87.5% of them were changing shoes when are damaged. Also, all of them reported never wearing shoes without socks and 94.5% of them reported always checking shoes for the presence of foreign objects.

Pertaining to level of ulcer, table 2 declares that 43% of the studied patients had a foot ulcer with partial thickness wound up to but not through the dermis grade. Moreover, 83.5% of them had one ulcer, 67% of them had an ulcer at planter surface of foot and 83% of them had an ulcer for five to seven months.

As for social support, Figure 1 depicts that 59.5% of the studied diabetic elderly received moderate social support while 26.5% of them received high social support. **Furthermore, table 3 categorize domains of social support.** the table shows that diabetic elderly patients had high Affectionate support, and tangible support (30.5% & 28%) respectively, and moderate emotional /informational support (61.5%).

Table 4 clarifies a significant statistical positive correlation between the studied patients` total diabetic foot ulcer classification and their total social support (p = .001)

Table 5 indicates that female gender, age, and being married are independent positive predictors of total social support. the results of r-square shows that the model accounts for 38% of the variation in this score.

Discussion:

Diabetic foot ulcer (DFU) is a major medical, socioeconomic problem and a leading cause of morbidity and mortality, especially in the developing countries. Following a diagnosis of diabetic foot ulcer, more intensive surveillance and aggressive care by a multidisciplinary team involved in diabetic foot care may improve patient's outcome and reduce risk of the amputation **(McDermott et al., 2023)** Self-care practice (SCP) is necessary therapeutic treatment that aims to improve the pathological, psychological

emotional and social domain, in order to cure chronic disease patients (**Mayberry et al., 2022)**

On the other hand, a good social support can provide protection from bad disease prognosis. in addition, people with positive self-care practices value the accessibility to social and familial support. When patients are more likely to openly communicate

with their families about their emotional and physical needs, this behavior further improves the adjustment to DFU **(Blanco et al. 2023).** Therefore, the aim of this study was to assess social support, self-care practices and patterns of diabetic foot ulcer among Elderly patients.

One of the noticeable findings of the current study was that more than two third of diabetic elderly patients included in the study were males. Possible explanation of this result is that of **Charles & Thomas, (2021)** diabetic men are at increased risk of foot ulcers or amputation compared with diabetic women. This finding is supported by **Mohsen and Shehata, (2022)** who published their study about foot self-care: knowledge, practice and barriers among elderly diabetic patients in Menoufia University and found that 55% of their study were males. In disagreement with **Mohamed, (2022)**, in Bennah, Egypt, who was studying factors contributing to diabetic patients' foot ulcers and concepts of prevention as perceived by geriatric nurses and reported that 83.5% of the study were female

Concerning age, the present study revealed that studied elderly mean age was 64.82±3.57 years. This result might be attributed to the fact that diabetic foot problems are unusual in young age patients, and occur most commonly in those aged 60 years and older. However, **Charles & Thomas, (2021)** reported that duration and control of diabetes are greater predictors of diabetic foot problems than chronological age. This finding is in agreement with **AlSayah et al. (2022)**, in Canada, who studied experience in diabetic foot management, and stated that the mean age of the patients presented with diabetic foot ulcer in the study was 64.75 ± 3.53years.

Concerning duration of being diabetic, the present study results revealed that, slightly less than two third of patients included in the study were diabetic since 15 to less than 20 years with mean 17.32±1.93 years. This long disease duration could explain the relatively DM-related complications among them. It is known that the complications of diabetes, especially the neuro vascular problems (e.g. DFU) increase with advancing age. This result agrees with the result of **Baye, (2022)** in Babol, North of Iran: who found that 65% of patients in their study were diabetic for 11-20 years and in accordance with **(Abd El Razak, 2021)**

in Tanta, Egypt, who reported that about one half of patients had diabetes of more than five years, and this finding might be due to the chronicity of the disease.

As regards family history of diabetes, the present study results revealed that almost one quarter of patients had positive family history of diabetic foot, this indicates that, family history may not essentially play significant role in increasing the incidence of diabetic foot ulcer. This finding is in agreement with **Abd El Razak, (2021)** who reported that elderly diabetic patients were having positive family history of diabetic foot (26%). Also, **Margolis, (2022)** in Bangladesh stated that, the lowest percentage of chronic disease among elderly patient's family in both groups were diabetes. In the same stream, the result of **Mokhtar, (2022)** in Tanta, reported that 24.5% of studied elderly sample had a family history of diabetic foot .

Meanwhile, almost two third of the studied elderly patients reported suffering from hypertension and almost half of them had cardiac diseases. This might be related to that hypertension and cardiac disease are commonly occurring disease after age 40 years and comorbidity of diabetes and hypertension is common. This result is in agreement with **Ali et al. (2022)** in Benha, Egypt, who found

that 55% of the elderly sample suffered from hypertension and cardiac diseases.

Considering self-care practices before occurrence of foot ulcers, all participants reported washing feet daily, this is quite expected as it is usually done for prayer in the process of ablution. Also, the highly reported practices were, moisturizing dry areas of the feet daily, never walking barefoot, cleaning the wound with warm water if having a cut on foot or when trimming nails, never wear shoes without wearing any socks and always check shoes for the presence of foreign objects. Possible explanation is that these practices would not cost any money or need any health literacy. these costless practices would save elderly diabetes patients lot of direct and indirect costs.

In line with this, **Buysman et al. (2022)** in the United States found that adherence to DFU preventive practices only would lead to significant reductions in healthcare costs. The finding is consistent with that of **Seid and Tsige, 2022**, in London who found that 85% the elderly diabetic patients wash foot daily, daily checking feet for injury and cleaning the wound with warm water if having a cut on foot or when trimming nails.

Concerning the answer of research question regarding pattern of DFU (wound grade), according to Wagner's classification, the present study results showed that less than one third of the patients in the study had wound grade two. This might be attributed to poorly managed diabetes, advancing age, long history of diabetes, changing shoes when slippers are damaged, ill-fitting foot wear (only 1% wear diabetes socks), commonly loss of sensation, poor circulation, poor foot care, this may increase the risk for recurrence of DFU with bad pattern, unsatisfactory self-care practices or lack of social support.

This result disagrees with **Kaewloet** in Saudi Arabia**, 2022**, who found that 57.3% of the sample had grade two but this result disagrees with **Phillipo et al. (2022)** in United Kingdom (UK), who found that Wagner's grade 4 and 5 ulcers (gangrenous diabetic foot ulcers) were prevalent at 29.4% and 23.5% respectively.

As for wound duration, the present study revealed that the duration of wound for the majority of the elderly patients in the study ranged from 5 to7 months. This might be attributed to the start of caring for wound at a delayed stage, advanced age and having other comorbidities that affect wound healing. This result is inconsistent with **Soliman (2021)** at Ain shams, Egypt, who found that 82% of the elderly patients' DFU wound duration was >7 days to one month.

Regarding wound location, the results of the present study revealed that the location of wound was on the planter surface of foot among around two third of the elderly patients in the study. Possible explanation is that this area is the most common site which encounters repetitive trauma and pressure sensation. This result was in agreement with **Schie et al. (2023)** who reported that 100% of the elderly patients had ulcers at the plantar surface of the foot.

Concerning the answer of research question regarding categories of social support, the results revealed that more than half of diabetic elderly patients reported receiving moderate level of social support. Possible explanation is life concerns that make caregivers unable to communicate and share their psychological stress and feeling about social support need, for instance maybe due to heavy work obligations or frequent absence from home. In the same line, **Al Dawish et al. (2022)** in Saudi Arabia, studied quality of life among elderly DFU patients and clarified that elderly DFU patients with

low social or a weak social network have been found to be less likely to receive proper help and social support was at a moderate level.

Concerning answering question regarding categories of social support, the results revealed that that more than half of diabetic elderly patients received moderate level of emotional /informational, positive social interaction, affectionate support, tangible support and additional item. A possible explanation is low economic status of caregivers and highly disease costs. In this context, **Emerenziani et al.(2022)**, in Italy, studied quality of life among elderly DFU patients, clarified that DFU patients with low social or a weak social network have been found to be less likely to receive proper help and emotional /informational social support and positive social interaction and were at a moderate level.

Social support and demographic characteristics:

I. Gender and social support:

The present study revealed significant relation between social support of elderly DFU patients and their gender .it was found that female gender was an independent positive significant predictor for social support. A possible explanation is that female patients sought more support in their social surroundings than male patients. Furthermore, **Bi et al. (2022)** showed that elderly female patients have relatively richer social activities, thus have more social support.

II. Age and Social support:

The present study revealed significant positive relation between social support of elderly DFU patients and their age. The patient's age was independent positive predictor for social support. This might be due to increasing in age lead to receiving more support through social resources. Congruently, **Abbasi, (2021)** investigated the relationship between social support and coping with stress in elderly patients with DFU and determined that increasing in age lead to more use of social resources that lead to higher social support and younger patients had lower level of social support.

III. Marital status and social support

The present study revealed significant positive relation between social support of elderly DFU patients and their marital status. This indicated that relationships as marriage can provide more sources of support, As having family is considered the most common source of support. In this context, **AlKaabi et al. (2023)** study about coping strategies among young adults and the elderly with DFU, found that married patients sought more support in their social surroundings than unmarried patients.

Correlation between the studied variable:

I. Correlation between social support and patterns of diabetic foot ulcer:

Regarding correlation between social support and patterns of diabetic foot ulcer, a statistically significant positive correlation was found between social support and patterns of diabetic foot ulcer. This might be attributed to empathy from others with their state. In agreement with this, **Ayfer and Sureyya, (2022)** in the United States of America showed a significant positive correlation between the total social support and wound pattern, Congruently, **Chavan et al. (2021)** reported significant association between total social support and total diabetic foot ulcer classification. A statistically significant positive correlation was found between social support and patterns of diabetic foot ulcer. This might be attributed by social support is supposed to affect health by providing instrumental or

emotional or informational help to buffer stressful situations and their adverse health effects, thereby in turn elderly adherence to healthy practices and instructions increases through reminding them about medications and regular follow up through additional economic support for highly disease costs which in turn their wound pattern state improve. In agreement with this, **Tabasi et al. (2021)** reported highly statistically significant correlation between total social support and total diabetic foot ulcer classification.

Ultimately, Diabetic foot ulcer is one of the common chronic diseases affecting older people, which has become an international health concern. Classification systems grade ulcers according to the presence and extent of various physical characteristics such as size, depth, appearance and location. They can help in planning and monitoring of treatment and in predicting outcome. Social support can be considered as an effective factor in patients wound pattern **AlKaabi et al. (2023)**

Conclusion:

The current study results bring about the conclusion that, elderly patients mostly had level of diabetic foot ulcer at the plantar surface of foot since five to seven months. Diabetic foot ulcer among elderly patients mostly graded as partial thickness wound up to but not through the dermis. Pertaining to social support, it tended to be moderately received by elderly diabetic foot ulcer patients.

Recommendation:

Based on findings, the study recommended:

- Empowerment program about self-care practices should be directed to diabetic elderly patients at an early-stage to tackle the occurrence of DFU.
- Counseling sessions to provide emotional support to elderly DFU patients.

Replicate the study on larger sample to permit for generalization.

Table 1: Distribution of the studied elderly patients according to their past history of diabetes self-care before ulcers "foot care" (n=200).

Items	N	%
Can reach the bottoms of feet and examine them		
Yes	177	88.5
Check feet regularly		
Yes	200	100.0
Frequency		
Daily	8	4.0
From 2-6 times a week	17	8.5
when having problem	147	73.5
Once a week or less	28	14.0
Wash feet every day		
Yes	200	100.0
Soak feet in warm water		
Yes	91	45.5
No	109	54.5
Put moisturizing creams or lotions between fingers		
Yes	89	44.5

Walk bare foot		
Yes	19	9.5
No	135	67.5
Sometimes	46	23.0
Kind of socks weared		
Soft socks	67	33.5
Synthetic	0	0
Wool	33	16.5
Cotton	42	21.0
Polyester -Synthetic Fibers	56	28.0
Diabetes socks	2	1.0
Change shoes when		
Damaged	175	87.5
Once a year	25	12.5
More than once a year	0	0
Wear shoes, without wearing any socks		
Yes	0	0
Always check shoes for the presence of foreign objects		
Yes	189	94.5

Table 2: Distribution of the studied elderly patients according to their level of ulcer (n=200).

Grade	**N**	**%**
Pre-ulcerative or post ulcerative site	**41**	20.5
Partial thickness wound up to but not through the dermis.	86	43.0
Full thickness wound extending to tendon or deeper subcutaneous tissue but without bony involvement or osteomyelitis	59	29.5
Full thickness wound extending to and involving bone	11	5.5
Localized gangrene	3	1.5
Gangrene of the whole foot	0	0
Number of ulcers		
1	167	83.5
2	18	9.0
3	15	7.5
Area		
Plantar surface of foot	134	67.0
Big toe	12	6.0
Plantar surface of foot + big toe	54	27.0
Duration		
5 – 7 months	166	83.0
8 – 10 months	25	12.5
≥10 months	9	4.5

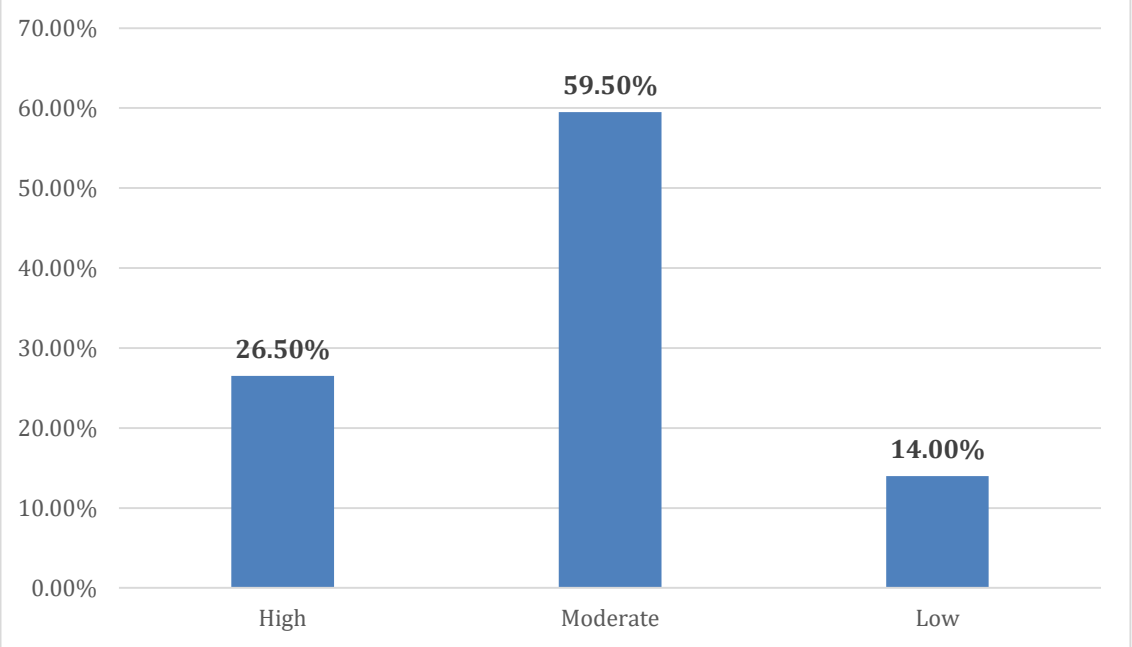

Figure 1: Distribution of the studied elderly patients according to their total social support (n=200).

Table 3: Distribution of the elderly patients according to their total domains of social support (n=200).

	High		Moderate		low	
Items	**N**	**%**	**N %**	**%**		**N**
Emotional/informational support	53	26.5	123	61.5	24	12.0
Tangible support	56	28.0	113	56.5	31	15.5
Affectionate support	61	30.5	120	60.0	19	9.5
Positive social interaction	49	24.5	116	58.0	35	17.5
Additional item	45	22.5	128	64.0	27	13.5
Total	53	26.5	119	59.5	28	14.0

Table 4: Correlation Matrix between study variables (n=200).

Variables		**1**	**2**	**3**
1. Total Diabetic foot ulcer Classification	**r**			
	p			
2. Total social support	**r**	.549		
	p	.001**		

(**) Statistically significant at p<0.01. r Pearson correlation

Table 5: Multiple Linear regression model for total social support (n=200).

	Unstandardized Coefficients	standardized Coefficients		
	B	B	**T**	**P. value**
Gender (Female)	0.314	.279	5.600	<0.01**
Age	0.280	.234	3.998	<0.01**
Marital status (Married)	0.190	.153	2.430	<0.05*

Model	**R^2**	**Df.**	**F**	**P. value**
Regression	**0.38**	2	6.700	<0.01**

a. Dependent Variable: total social support
b. Predictors: (constant): Gender, Age, Marital status (Married)

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