

# Experiences of nurses within a nurse-led multidisciplinary approach in providing care for patients with diabetic foot ulcer

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## ABSTRACT

**Background and Aims:** Diabetic foot ulcers require special attention due to their complex and chronic nature and special care and the Nurse-led approach has emerged in the current situation in response to the increasing need for health care as a way to treat chronic patients and provide them with ongoing care. Providing this specialized duty in nursing can be promoted and enhanced the professional independence of nurses and presents challenges. This study has been conducted to make an understanding of the nurses' experiences about their participation in a nurse-led multidisciplinary team to providing care for patients with Diabetic Foot Ulcer. **Methods:** This was a qualitative, phenomenological research, carried out with the participation of 8 nurses of Shariaty Hospital of Tehran. Data collection was done through in-depth and semi structured interview. Diekmann method was used for data analysis. **Results:** 2 themes and 4 categories emerged during data analysis: antecedents (background and nursing skills) and manifestation of multidisciplinary function (from despair to tranquility, professional worthiness, promotion of self-confidence, preference of multidisciplinary approach). **Conclusion:** The findings of this study, which were the lived experiences of the participants, indicated that most of them had experienced positive effect of nurse-led multidisciplinary team care, training and development, appropriate skill mix, quality and outcome of care. Therefore, despite working on a multidisciplinary team is complex and demanding, management attributions and communication strategies is well situated to meet the challenge.

**Keywords:** Diabetic foot ulcer, nurse-led, nursing, phenomenology

## Introduction

The disease of diabetes is one of the important problems of the world and the number of patients suffering from it, is growing day by day. Statistics show that rising diabetes in the world is also on the rise and every 10 seconds, 2 people get diabetes. The World Health Organization (WHO) estimates that the

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number of people with diabetes will double by 2030.<sup>[1]</sup> Patients who have poor control of the disease have acute metabolic complications such as ketoacidosis and chronic complications such as retinopathy, nephropathy, neuropathy, delayed healing and ulcers.<sup>[2]</sup> However all the above mentioned complications lead to many problems for diabetic patients, but diabetic foot ulcers require special attention due to their complex and chronic nature and special care.<sup>[3]</sup> The spread of diabetic foot ulcers results in foot infections, decreased quality of life, more time and cost for treatment and eventually amputation and disability.<sup>[4]</sup> Statistics show that one out of every 5 diabetic patients admitted to the hospital had foot problems and it is estimated that 4-10% of diabetics develop foot ulcers. The results of Iranian studies also show that 20% of hospitalized diabetic patients have foot problems.<sup>[5]</sup>

The primary approach to reducing the incidence of diabetic foot and its complications is its timely prevention and diagnosis and it is clear that careful attention to foot care and rapid management of minor foot injuries is key to this prevention.<sup>[6]</sup> In many countries, specific guidelines for the prevention and screening of patients with diabetes have been developed and it is done with the participation of the health system staff of physicians and nurses.<sup>[7]</sup>

Indeed Multidisciplinary team work is a complex process in which different types of staff work together to share expertise, knowledge and skills to impact on patient care. Despite increasing emphasis on interdisciplinary teamwork over the past decade,<sup>[8]</sup> there is little evidence as to the most effective way of delivering interdisciplinary team work.<sup>[9]</sup> This difficulty is compounded by the multifactorial nature of team work, which comprises the skill mix, setting of care, service organization, individual relationships and management structures. This is why diabetic foot ulcer is a disease that affects all physical, mental, psychological and social aspects.<sup>[10]</sup> Optimal control of the disease is one of the important goals of health care interventions performed by nurses and the medical team. The experience of diabetic foot ulcer (DFU) is an unfamiliar and stressful for the patients and nurses as multidisciplinary team member who providing care for this patients. It is essential for medical team to inter to in to this experienced world during the hospitalization period. It is almost impossible to propose an affective and desirable nursing care, without analyses and studying this experiences. So the first step in caring and treatment is to know this phenomenon and this will happened only by getting closer to the patients and their nurses, discovery of their experienced world, analyze of their situation, and then proposing useful caring suggestions, according to this situation. Various studies have focused on the care of patients with diabetic foot ulcers over time. Based on the results of these studies, providing nursing care as multidisciplinary team has been reported useful and the need for a coherent structured intervention in foot care has been demonstrated.<sup>[11]</sup> But there is no study in Iran in this field. Also, it must also be noted that the value of knowledge in creativity has to do with its relevance to human understanding. In order to gain understanding, nursing is looking for ways to enable these experiences, and this can be

accomplished through qualitative researches. Searching for valid internal and external databases such as PubMed, Science direct, SID, up to date in the field nurses' experience of multidisciplinary team care were not achieved. Therefore, present study as more than one article, is intended to examine the experiences of nurses in this particular case.

## Methods

The present study is a qualitative research carried out in the context of the nurses' experiences about their participated in a nurse-led multidisciplinary team to providing care for Patients with Diabetic Foot Ulcer. Hermeneutic interpretive phenomenology, based on Heideggerian philosophy,<sup>[12,13]</sup> is a qualitative research methodology used when the research question asks for meanings of a phenomenon with the purpose of understanding the human experience.<sup>[14]</sup> This method is accepted as a method of careful research and regular study of important phenomena in nursing. Omry is one of the first prominent nursing researchers to introduce this method. In his introduction to phenomenology he writes: the phenomenological approach is a descriptive and inductive research method whose task is to deeply and comprehensively describe all phenomena, including the description of human experiences as they appear.<sup>[15]</sup>

This study focuses on understanding the nurses' experiences of being involved in the care of patients with diabetic foot ulcers as a team. Regarding the nurses' first time participation in the team approach, and due to have a unique characteristics and different understanding of the experience, phenomenological research is the best way to understand these experiences and to describe their meaning in the language of the study participants.

In this study, a purposive sampling method was used to select study participants. During one year (2018-2019), 9 nurses were interviewed with a bachelor's and master's degree working in Tehran's Shariaty Hospital. Written consent and willingness to participate in the study were at least 5 years of experience with the inclusion criteria. The participants consisted of 2 men and 6 women. In-depth and semi-structured face-to-face interviews were used as the main method of data collection. The process of the interview was that after identifying the qualified nurses, the participants were initially given an explanation of the purpose of the study and the method of doing the research and they were invited. After the participants agreed on the timing and location of the interview, agreement was reached. In this case, the viewpoints of the study participants were more important. All the interviews were conducted. The interview sessions lasted between 1-2 minutes. At the beginning of each session, an explanation was given about the recording of the interview and its purpose, and the researcher was obliged to stop recording the conversation, if requested, by the nurse in each part of the interview. To begin the interview and to gain a comprehensive understanding of the participants' view of the phenomenon of team care for diabetic foot ulcer patients, they were asked to describe their experiences at the end of the study.

Koch argues that the question provides a context for study participants to provide a broad and long description of their experience.<sup>[16]</sup> Subsequent questions were asked according to the descriptions provided by the nurse and in order to deepen them by using the speculation technique. The following questions are an example of these questions:

Can you explain more about this?  
 What do you mean by that?  
 How would you describe your perception of this?  
 What do you think this experience means?

At the end of the meeting, participants were asked to write in full, if possible, a written description of their diabetic foot care team participation days and deliver it to the researcher. In total, 5 submitted their written submissions. At the end of each interview session and at the earliest opportunity, the researcher personally transcribed the recorded conversations verbatim.

Dieklemann method was used for data analysis. Thus, the text of all interviews was read several times in order to gain a general understanding of the phenomenon in question. After reaching a general understanding and feeling of being overwhelmed with the data, the second phase of the analysis began. At this stage, each of the interviews was examined using the textual interpretation method. Explicit and hidden meanings were extracted in the participants' descriptions. Each interview was then extracted according to the meanings and coded to determine the initial theme.

In the third step, the coded texts were discussed and analyzed by the research team. The main goal of the researcher was to reach a common understanding of the descriptions provided by the study participants. In the fourth step, the inconsistencies in the interpretation provided by the research team were clarified and resolved. During the fifth stage, the codes were determined and described using the comparison method. The outcome of this step was 5 categories and 2 themes that were extracted from the participants' experiences to explain the different dimensions of multidisciplinary team care. Next, the study findings were reviewed by the research team, and the final outline of the findings was presented in the form of a main theme consisting of professional worthiness, promotion of self-confidence, autonomy, preference of multidisciplinary Approach. As to the validity and reliability of the present study, as interpretive phenomenology was considered, confirmation of the findings of the research, which is a result of the merging of the researcher's and the participant's views, was not considered. Therefore, attempted to provide the reader with an interpretation of the data. Also, long-term contact with participants was a frequent review of interviews. The team's interpretation of the data also added to the validity of the research.

### Ethical considerations

We followed all the principles for confidentiality of the data and getting the conscious consent for the interviews and

tape-recordings. Having the right to stop participating in the study at any time was among the ethical principles that were followed.

## Results

The participants in the present study included 8 individuals. All participants at hospitals affiliated with one of the universities of medical sciences were those who worked there. Most research participants (%29.5) aged from 35-58 years old. Among them, 58.8% were female and 82.4% were married. The first nurse who had the inclusion criteria was selected. According to the results of the interviews, nurses who provide diabetic foot care as a member of multidisciplinary team face with different factors during their experience. Thus, do a series of actions which could worsen or improve quality of care and disease management which is itself related to continuation of care. The analysis of the participant interviews resulted in the extraction of 2 themes and 4 categories consisting of: Antecedents (Background and Nursing skills) and Manifestation of multidisciplinary function (From despair to tranquility, professional worthiness, promotion of self-confidence, preference of multidisciplinary Approach) [see Table 1]. Each describes a particular aspect of team-based nursing care.

### Antecedents

The main categories of patient experiences were nurse-led multidisciplinary care, and participants described it as a risk factor for foot ulcers and the need for a care team, and subcategories of "disease background, inadequate knowledge/lack of knowledge, clinical beliefs and skills of nurses" has resulted. It was inferred from participants' experiences that factors such as neuropathy, wearing inappropriate shoes, diet and medication adherence, family history of diabetes, and diabetes-induced blurred vision were the causes and causes of foot ulcers. In this case, a 4-year-old nurse states the reason for the wound in the patient under his care:

**Table 1: Themes extracted from the experiences of study participants**

Theme	Categories	Subcategories
Antecedents	Context	Disease precursors Lack of awareness Beliefs
	Nursing skills	History of Diabetic Foot Ulcer Care Provide expert care
Manifestation of multidisciplinary function	From despair to tranquility	Stress due to weakness in disease management Hope to healing Peace of mind
	professional worthiness	Nurse Dominance Efficiency
	promotion of self-confidence	Autonomy Empowerment of Nurses
	Challenges of Implementing a multidisciplinary team Care	Conflict in role Accuracy and follow-up Coordination interdisciplinary

*“A 63-year-old man referred with a DFU and said I was upset to tell the my children to go out and change our minds. I wanted to get warm by the fire. I wouldn't have cared for the hot charcoal. The bottom of my left foot was burnt with charcoal. I didn't feel it at all.”*

Participants stated that patients in their care had beliefs and beliefs regarding their circumstances, situations, cultures and customs, and their religion (regardless of the positive and negative impact of these beliefs on one's lifestyle) which affects the healing or healing of diabetic ulcers. Also, nurses noted that skill in caring for foot ulcers had an impact on patients' confidence in nurses. The 9-year-old nurse said of her experience with dealing with the patient:

*“My patient told me while changing my dressing; I didn't think the nurses would know the examination. Usually, doctors would examine and nurses would wash. Well, it was interesting to see in this caring method that you examining, controlling, training and dressing and answer more of your sick questions. You said you are a nurse. It was very good.”*

### **Manifestation of multidisciplinary function**

Other powerful classes emerging from participants' experiences of multidisciplinary care were outcomes such as increased knowledge and skills, enhanced self-care, and a sense of independence and relief from helplessness. It was cited as improving the general mood, reducing stress, the importance of self-care and autonomy in nurses and appeared with the decrease in the size of the wound, the depth and degree of the wound. Also lead to improve nurse-patient relationship, increase satisfaction with the quality of care provided too. This category consists of four sub-classes “From despair to tranquility, professional worthiness, promotion of self-confidence, preference of multidisciplinary approach.”

#### **From despair to tranquility**

The nurses' experience during the care of a team of patients was anxious, fearful, hopeless, ashamed, and stressed because of poor management of the disease at the onset and diagnosis of the DFU, followed by delay in wound healing and the possibility of amputation. These patients were extremely mentally fragile and said they had been struggling with diabetes for many years. Whenever the possibility of amputation arose, frustration and despair were evident in all their movements, actions, and behaviors, and the slightest hope for healing was the least, and the least attention and listening to their heart was accompanied by a significant reduction in stress and anxiety.

In this regard, a client, a 61-year-old woman with a 16-year history of diabetes, stated:

*“It's so hard my daughter. It's really hard. I always wish that no one would get diabetes and not get this. I think one can get cancer but not diabetes.”*

Nursing experiences during the study revealed the mood of patients. With each assessment, examination and dressing of

the wound and observation of the healing process, response to treatment and care they expressed happiness and hope, recognizing the importance of self-care, follow-up treatment and prevention. Hopes for healing, satisfaction, and comfort can be deduced from the participants' conversations. One of the experienced nurses says:

*“When you talk to your patient and explain to him that your foot is healing, their eyes glow with joy. It is a good feeling to be the result of the care and treatment of all colleagues when you find that the patient is satisfied that the leg is not amputate.”*

#### **Professional worthiness**

Another category of themes that can influence the practice of nurse-led multidisciplinary care is professional worthiness, which itself consists of subcategories “nurse dominance and efficiency”. The participants' experiences indicated consistent, comprehensive, coordinated, and regular care, with reported dominance, seriousness, and nurse-centered care. These statements represent the whole spectrum of professionalization in nursing, providing a good quality care to chronic patients such as diabetic foot ulcers and consequently wound healing.

Because of the complexity of the role, nursing is a professional activity that requires a great deal of responsibility and care. Obviously, any deficiency in the education of this group will affect the quantity and quality of care provided and will also ultimately affect the health of individuals and society.

The main mission of nursing education is to train competent and competent nurses to have the knowledge and skills needed to provide quality nursing care, maintain and promote community health. There are many factors that influence nursing professionalism, including clinical experience, competence, professional development, ethics and human values, and quality assurance of patient care. When the nurse is presented to the patient as a nurse-led, holistic view, responsible for overall coordination, management and continuity of care for a specific part of treatment or intervention and this in turn can improve patient-nurse relationships, patient satisfaction with follow-up care, timely diagnose and treat patients' problems and improve them faster. Examples of participants' experiences include:

*“One patient told me; See this time the treatment and nursing and glucose control and Pam examinations were done early. I no longer needed my family to follow me. Something was done more consistently. The orthopedic specialist visited my foot, then a surgeon. A physician came to explain and give consent too. You also dress and scrape every day. Well it all means things are going well. Nothing left. I find myself wondering every time that I feel comfortable treating her well.”*

#### **Promotion of self-confidence**

Participants' experiences indicated that the multidisciplinary care method had an impact on the wound healing process, as well as affecting their ability to help healing and lead to nurses' independent and promotion of self-confidence them. This

category was extracted from two subcategories of “Autonomy and Empowerment of Nurses”.

One contributor explains this:

*“After the multidisciplinary team care was established at this hospital, nursing is not just about the therapeutic role and implementation of ordered medications. Nursing came up with its own concept. A nurse should use her own knowledge and take full care, coordinate and act with the all the team members and physicians when it was necessary. In addition to administering medication and therapeutic role, I had other nursing roles during this period too.”*

### Challenges of Implementing a multidisciplinary team care

The hospital system’s unwillingness to implement team care has, in many cases, produced adverse emotional reactions for participants. Conflicts, lack of collaboration, lack of teamwork, and lack of nurse-centered team care were the most prominent reactions experienced by almost all participants. These reactions created challenges among team members. The following excerpts support this theme:

*“Despite the usefulness and effectiveness of guided nurse care, it should be noted that expanding the role of nurses in the field of care may pose inter-professional challenges.”*

And:

*“Providing care in this way will increase with the increase of nurses’ workload, which will require increasing the number of nurses. Managing these challenges requires time and skilled human resources.”*

Overall, this is the authors’ final understanding of the participants’ experiences in the study that however nurse-led multidisciplinary care has proven to be beneficial and its positive impact is clear, but there is no proper context and working environment that can enhance the nursing profession and provide effective adaptation of nurses and other staff to new conditions.

## Discussion

The findings of this study are the concrete experiences of the study participants, was found that many study participants were not prepared to provide multidisciplinary care for patients with diabetic foot ulcer. Reviewing and comparing the above findings with the results of other studies reveals similarities and differences between the experiences of participants in the present study and other studies. The qualitative study conducted by Pazargadi et al., Had similar results to the present study.

In this study, “providing desirable and safe services” and “client satisfaction” are the main categories of study mentioned<sup>[17]</sup> that confirm the qualitative results of the present study. Asgharpour et al., in a qualitative study “The process of caring for patients with diabetic foot ulcers” have studied the way of care for

patients with foot ulcers and three main themes of “disease management”, “disease experience”, and “continuous care” are derived from the study. In the end, they acknowledged that awareness of their patients’ experiences and how to deal with these conditions in the face of foot ulcers can lead to better decision-making by the treatment team, quality care delivery and consequently faster recovery for these patients.<sup>[18]</sup> The results of this qualitative study were similar, overlapping and confirming the findings of the present study. Some countries have specific guidelines for the prevention and screening of patients with diabetes.

This is done with the participation of health system staff consisting of physicians and nurses.<sup>[19]</sup> Bentley and colleagues acknowledged that diabetic foot ulcers require specific management and. Diabetic foot ulcers require accurate and rapid assessment, diagnosis, treatment, and long-term follow-up in order to maintain the foot. This complex treatment cannot be managed by one individual and it should involve a multidisciplinary team to ensure that these complex wounds are properly treated.<sup>[20]</sup> These teams can be coached by a member of the team. Most teams are guided by a nurse in which nurses play a central role.<sup>[21]</sup> The role of nurses as nurse-led and empowered leadership is not new, and Florence Nightingale noted this with her evolving skills in evidence-based leadership and nursing care.<sup>[22,23]</sup> Julian and his colleagues in the United Kingdom (UK) stated that real-world evidence suggests that wound management was largely successful in the Nurse-led system. But the hospital staff’s cooperation and acceptance to implement this procedure led by nurses is not fully accepted and the environment is not ready. However, given the clinical benefits of using this care approach, one can expect to modify care systems and increase awareness of the impact of the nurse-guided approach on wound management in patients.<sup>[24]</sup>

Therefore, providing a suitable program for nurses and physicians who can adapt the clinical environment to multi-disciplinary team practices seems to be of great importance. However, endocrinology and diabetes clinics and staff training to care for patients with foot ulcers are expected to be outpatient and even hospitalized, and try to provide ongoing care to these patients and prevent ulcers in diabetics. But these arrangements appear to be ineffective and do not provide the right environment for care. Therefore, reviewing the current treatment and care plan for foot ulcers is suggested as the main recommendation of this study. Certainly, it is important to use the experiences of other countries, like England, which are implementing multidisciplinary team care.

## Conclusions

The findings of this study, which were the lived experiences of the participants, indicated that most of them had experienced positive effect of nurse-led multidisciplinary team care, training and development, appropriate skill mix, quality and outcome of care. Therefore, despite working on a multidisciplinary team is complex and demanding, management attributions and

communication strategies is well situated to meet the challenge. Furthermore policymakers should be aware that implementing nurse substitution in primary care teams may affect the performance and quality of care provided by the entire care team. Also, since this study was the first qualitative study on nurses' experience of multidisciplinary team care, it is of an interpretive nature. Other similar studies by other researchers are suggested.

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### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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