

## The Important Role of Specialist Nurse in the Improvement of Patients With Diabetic Foot Ulcer: Letter to the Editor

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Diabetic Foot Ulcer (DFU) is considered as one of the main causes of hospitalization in diabetic patients, which can lead to infection, gangrene, amputation, and even death if the necessary care is not provided. Based on the recent investigations, one of the most effective tactics to manage diabetic foot ulcer is to form a multidisciplinary team including a general practitioner, a nurse, an educator, podiatrists, and some consultants. Although all team members play their own important roles in reduction of DFU and amputation incidence, the role of nurses seems to be more essential. In the developed countries, the diabetes nursing is divided into several categories which one of them is diabetic foot specialist nurse. Totally, these specialists play an effective role in prevention, care, and rehabilitation of the patients with diabetic foot ulcer. Today, the specialist nurses provide effective foot ulcer management and treatment in many countries; however, these specialists, in some developing countries such as Iran, highlight a lack of specialist training as an obstacle to effective healthcare provision. Therefore, the current study aimed to emphasize on the important role of specialist nurses in the improvement of patients with diabetic foot ulcer to encourage the authorities in order to take appropriate strategies.

**Keywords:** Diabetic Foot Ulcer; Amputation; Diabetic Foot; Nurse Specialist

### Dear editor,

Diabetes Mellitus (DM) is one of the main problems in health systems and a global public health threat, which its prevalence has increased dramatically over the past two decades (1, 2). Recent studies report the number of patients with DM about 171 million in 2000, and estimate that by 2030 there will be more than 366 million people with DM (3, 4). Patients with DM are prone to multiple complications such as: retinopathy (51.5%), renal failure (47.7%), neurological complications (68.8%), myocardial infarction (MI), brain stroke, and physical deformity (16.8%) (5). One of the most common and devastating complications of DM, which originate from neuropathy, ischemic, or neuroischemic complications, is Diabetic Foot Ulcer (DFU), which has indicated an increasing trend in the past decades (6). Investigations show that 15% of patients with diabetes have DFU during their lifetime (7). To date, DFU is considered as a major source of morbidity and a leading cause of hospitalization in the patients with diabetes (8). It is estimated that approximately 20% of the hospital admissions among patients with diabetes are because of DFU (9). Also, this complication can lead to infection, gangrene, amputation, and even death if the necessary care is not provided (10).

Although there are various approaches to manage DFU such as: blood sugar control, wound debridement, ad-

vanced dressings, offloading modalities and surgery the management of DFU should be optimized by a multidisciplinary team approach (11). According to the protocol recommended by the American Diabetes Association (ADA), multidisciplinary team approach is one of the most effective tactics in DFU care (12). Based on the National Institute for Health and Clinical Excellence (NICE) strategies, continuous care of DFU should be done immediately with a multidisciplinary team including a general practitioner, a nurse, an educator, podiatrists and some consultants such as vascular surgeon, infection disease specialist, dermatologist, endocrinologist, dietician and orthopedist (13). Indeed, solving this problem requires close collaboration among health system and people to develop national and international strategies and interactions with the other health team members. To date, several studies have shown that a multidisciplinary team can reduce amputation rates, save costs and lead to better quality of life in patients with DFU (13-16). The results of a study conducted by a multidisciplinary healthcare team, established for 10 years on patients with DFU in Sao Paulo, Brazil, showed that this approach decreased the number of yearly amputations and re-ulcerations as well as prolonged hospitalizations. Authors suggested that multidisciplinary programs, as

an excellent model, should be established in the other diabetic clinical settings around the world (15). In another study in Turkey, results showed that amputation rate due to DFU declined after implementation of a multidisciplinary team work (14). Also, in France the multidisciplinary consultation for patients with DFU proved effective not only in curative treatment, but also in primary and secondary prevention (16).

Although all team members influence the reduction of DFU and amputation incidence, the role of nurses seems to be more essential. In a case reported by Malekian Raghheb and Naderi Beni, the diabetic patient's foot was saved from amputation as a result of the optimal home wound care and follow up treatment that the patient received from the trained nurses; although, the patient had visited several physicians, and it had been decided to amputate his leg (13). In another study Seaman reported that specialist nurses could successfully manage a patient with an uncomplicated DFU in USA (12). According to the World Health Organization (WHO), nurses are one of the largest health groups in the world who are actively involved in the prevention and early detection of diabetes and its complications. In the developed countries, diabetes nursing is divided into several categories, which provide more specialized and professional services to the patients in the shortest time and lead to their satisfaction and better quality of life (17).

One of the main categories of diabetes nursing is diabetic foot nursing. Totally, a diabetic foot specialist nurse, who has received additional training in DFU specialty beyond basic nursing education (18), can play effective role in prevention of DFU and lower limb amputation by educational interventions, screening high risk people, and providing health care. In the educational dimension, specialist nurses can address all factors that may impair wound healing, including hyperglycemia, peripheral arterial disease, infection, repetitive trauma secondary to peripheral neuropathy, bone or joint abnormalities, patient behavioral issues, and local wound factors such as necrotic or senescent tissue, calluses, and improper wound dressings. Also, nurses can teach patients how to perform physical examination and take care of their feet on a daily basis. For instance, they can encourage patients to carry out a series of simple rules in order to prevent foot ulcers or recurrence, such as checking the shoes before wearing, keeping the feet clean and continuing care of the skin and nails. In care dimension, they can be responsible for early detection of any changes in the skin and foot sensation, foot care, dressing, and applying novel technologies. On the other hand, nurses who specialize in foot care are involved in the early stages of care and treatment and play an important role in diabetic foot cares including foot examination with monofilament, wound dressing and encouraging patients and their families to appropriate care and regular follow up visits. In the rehabilitation dimension, they can help patients who have DFU or amputation by

encouraging and teaching them to use assistive devices such as canes, walkers and wheelchairs based on the patients' conditions to maintain their mobility. Therefore, applying these strategies, diabetic foot specialist nurses can help to reduce the number of amputations and enable people with diabetes to maintain their quality of life and independence.

Considering the above mentioned points, diabetic foot nurses as members of the diabetes care team can play an important role in diabetic foot care, and provide the effective services to promote diabetic patients' health. Today, diabetic foot specialist nurses are well-placed to provide effective foot ulcer management and treatment in many countries such as: USA, Australia, Canada, England, South Africa and Spain; however, nurses in some developing countries, such as Iran, highlight a lack of training as an obstacle to effective healthcare provision. In Iran, despite the increased number of patients with diabetes, there are no diabetes or diabetic foot specialist nurses; however, a study in the North of Iran showed that the main reason for inappropriate quality of ulcer and foot care in patients with diabetes was the lack of nurses trained in wound management (19). Thus, it suggested increasing the focus on diabetes and foot care temporarily by developing short term training courses for nurses about novel approaches in diabetic foot care. Above all, it is recommended to provide Master of Sciences courses in nursing to train diabetes or diabetic foot specialist nurses to diminish foot ulcer and its consequent problems.

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