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## BRIEF REPORT

## DEPRESSION IN DIABETIC FOOT ULCERS

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Diabetic foot ulcer (DFU) is a common complication of diabetes mellitus. According to estimates, 15% of diabetic patients may experience a DFU through their life.<sup>1</sup> The majority (60–80%) of DFUs will heal, while 10–15% of them will remain active, and 5–24% of them will finally lead to limb amputation within a period of 6–18 months after the first evaluation. The risk to develop a DFU increases with age and the duration of diabetes mellitus.<sup>2</sup>

A DFU entails a heavy physical and emotional burden for each individual since it involves impaired mobility and dependency on others, feelings of fear about the clinical outcome, changes in roles, powerlessness, need to follow complex medical procedures, failure to engage in social activities or in social interactions, change in family roles and poor quality of life.<sup>1,3,4</sup> Therefore, depression may be prevalent among this vulnerable population.

Interestingly, DFU patients are more likely to experience depression than diabetic patients without foot complications.<sup>3,5,6</sup> Furthermore, depression among DFUs patients is associated with hospital admissions<sup>3</sup> and with a two-fold increase of mortality over 5 years after their first foot ulcer.<sup>4</sup>

Depression and DFUs seem to share a bi-directional relationship. More, in detail, on the onset of diabetes mellitus treatment, depression is associated with an increased risk of developing DFU.<sup>7</sup> High levels of depression are associated with recurrence of DFU,<sup>3</sup> with delay in DFU healing<sup>8</sup> and with increased risk of amputation.<sup>3</sup> Additionally more, psychological factors seem to have direct effects on endocrine and immune function, thus affecting healing.<sup>9</sup> Moreover, depression consists an impede for regular monitoring and follow-up, thus posing a high risk for treatment disruption or failure to adhere to therapy.

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Several socio-demographic and clinical factors may trigger depression among DFU patients. A cross-sectional study among 195 DFUs outpatients in Greece showed high levels of depression in 20% of participants<sup>1</sup> while Udovichenko et al.,<sup>10</sup> illustrated depression in 39% of 285 DFU outpatients, with women to be more likely to be depressed and anxious than men (48% and 46% versus 27% and 25%, respectively). Ahmad et al.,<sup>2</sup> showed depression in 39.6% of DFUs patients which was more prevalent in those aged <50 years, in female, in those suffering more than three co morbid diseases and those who were current smokers.

Another relevant study in Greece showed moderate levels of depression among 180 DFUs patients while the depressed participants were more likely to be older, single/divorced, of primary education, pensioners, to have some other disease and to be current smokers.<sup>11</sup> It is noteworthy that patients' attitudes, perceptions and beliefs may trigger depression. Delays to seek for health care due to beliefs may have detrimental effects on DFU.<sup>12</sup>

Nurses need to early recognize depression, which is a major risk factor for diabetes related complications. More in detail, symptoms of major depression include lack of interest in activities, increased or decreased appetite, insomnia, lack of energy, feelings of guilt and suicidal thoughts or behaviors. These symptoms frequently overlap with anxiety while concentration problems and fatigue are symptoms of both anxiety and depression. Irritability can also manifest in forms of anxiety or depression (instead of low mood).<sup>3,13,14</sup>

Nurses need to expand their knowledge and understanding of depression with ultimate goal to facilitate better diabetes self-management. Also, need to include early screening of depression in their caring programs.<sup>3,13,14</sup>

On the other end of the spectrum, patients have to combat with depression and adjust to the demands of DFU in their daily lives. Developing psychological interventions will allow patients to manage their illness and modify their health behavior as well as to follow appropriate emotional and behavioral changes in order to gain a sense of control over their lives. Clinically important is to understand which type of psychological intervention could be most successful when developing intervention tailored to DFU needs. <sup>14</sup>

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