

Assessment of depressive symptoms in people with diabetes mellitus and foot ulcers

Avaliação de sintomas depressivos em pessoas com diabetes mellitus e pé ulcerado

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A B S T R A C T

Objective: To evaluate the intensity of symptoms of depression in patients with diabetic foot ulcers. **Methods:** a exploratory, descriptive, analytical and cross-sectional study was held at the wound clinic of a public hospital in Sorocaba, São Paulo State, Brazil. Fifty patients with diabetes mellitus and foot ulcers were enrolled. To assess the intensity of the symptoms of depression, a Beck Depression inventory was used. **Results:** Of the 50 patients evaluated, 41 had some degree of depressive symptoms and 32 (64%) had moderate depression, with symptoms of self-loathing, grief, body image distortion and decreased libido. **Conclusion:** Patients with diabetic foot ulcers showed varying degrees of depressive symptoms.

Key words: Depression. Diabetes mellitus. Diabetic foot. Foot ulcer.

INTRODUCTION

Ulcers of the lower limbs are common in patients with chronic diseases, especially those related to the circulatory system and diabetes mellitus^{1,2}.

In Brazil the wounds are a serious public health problem due to the large number of people with chronic and degenerative diseases, but there is no record of the number of individuals affected. It is estimated that 15% of patients with diabetes mellitus will develop at least one foot injury throughout their lives^{3,4}.

Advances in the treatment of wounds allowed progress in assisting these patients. Research has been developed to identify the best treatment. However, there is a need to understand the complex process of healing, as well as the biopsychosocial aspects purporting to these individuals^{2,5-9}.

Feelings such as fear, discontent and helplessness are common in patients with wounds. In a society where independence is valued, depending on others may lead to fear and frustration. Fear is a feeling that is part of the process of living human beings. It causes emotional clutter, with periods of conflict, doubts and unexpected reactions^{2,10}.

People living with a difficult-to-heal wound, with the risk of having the limb amputated, experience feelings such as fear, sadness, helplessness, frustration and isolation^{1,11-13}.

Foot ulcers have a significant impact on quality of life. For example, loss of mobility associated with foot ulcers affect a patient's ability to perform simple everyday tasks and participate in leisure activities.

Several studies have shown that patients with diabetes and foot ulcers were more depressed and had poorer quality of life than those who did not have complications from diabetes¹³⁻¹⁷.

Depression is considered one of the ten leading causes of disability worldwide, limiting physical, social and personal skills. However, a small part of those affected receive appropriate treatment, and over them the stigma still weighs significantly. The way people identify the symptoms of depression and beliefs about its cause may influence the process of seeking help, treatment adherence, as well as the community's attitude and behavior in relation to those with the disorder¹⁸⁻²⁰.

Depression is underdiagnosed and undertreated. Around 50-60% of cases of depression are not detected by physicians. Often depressed patients do not receive adequate and specific treatment¹⁹. The morbidity and mortality associated with depression can be prevented in large part (around 70%) with the right treatment²⁰.

Foot injuries in patients with diabetes can influence significantly their daily lives and may have consequences, such as psychosocial disorders^{21,22}, including depression, so this study aimed to evaluate the intensity

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and degree of depression and the depressive symptoms presented by diabetic patients with foot injury.

METHODS

We conducted an exploratory, descriptive, analytical and cross-sectional study. Fifty patients with diabetes mellitus and foot ulcers were enrolled. All were treated in the outpatient wound clinic of a hospital complex in the interior of São Paulo State, Brazil.

We included patients with type 1 or 2 diabetes, with foot ulcer and age over 18 years. Patients who had physical and mental conditions that prevented them from responding to the questions were excluded.

Data were collected during the period from December 2008 to April 2009, after approval by the Ethics Committee in Research of the Federal University of São Paulo, under No. 1611/08. Data collection was conducted by the researchers themselves, after signing, by the patient, of the consent in a room prepared in advance, ensuring comfort and tranquility to respondents.

We used an instrument to collect data that had socio-demographic and clinical information.

The instrument used to assess depression was the Beck Depression Assessment inventory, developed in the 1960s, translated to Portuguese and validated in Brazil. It has 21 categories of symptoms and attitudes characteristic of the manifestations of depression and involves mood, vegetative, social, cognitive and irritability expressions^{23,24}. Each category consists of a series of four different degrees of intensity of manifestation (0-3 points), totaling 63 points.

In this study, we considered the following scores: <9 corresponding to no or minimal depression; 10-18, mild to moderate depression; 19-29, moderate to severe depression; 30 to 63, severe depression²⁴.

Data analysis was performed using the Kruskal-Wallis test, Spearman correlation and multiple comparisons of Dunn.

For all statistical tests we considered the significance levels of 5% ($p < 0.05$).

RESULTS

Table 1 shows that 64% of patients had moderate depression and 10% severe depression.

Table 2 presents a statistical difference between the levels "Minimal or none" and "Moderate", with the number of depressive symptoms ($p < 0.001$). The differences between the other levels of depression were not significant ($p > 0.05$).

It can be seen in table 3 that 49 (98%) patients had symptoms of depression: sadness and self-deprecation; 46 (92%) patients had a distorted body image; 45 (90%) felt social withdrawal; and 41 (82%) felt decrease in libido. There was a significant difference between depression scores and the number of depressive symptoms ($r = 0.542$, $p < 0.001$).

Table 4 displays that 25 (50%) patients were aged between 60 and 69 years, 41 (82%) patients were white and 30 (60%) patients were female; 25 (50%) patients were married, 29 (58%) were illiterate and 28 (56%) retired.

Table 1 – Classification of symptoms of depression in diabetic patients with foot ulcers by the Beck questionnaire.

| Classification of depressive symptoms | n | % | Valid % | accumulated % |
|---------------------------------------|-----------|--------------|--------------|---------------|
| Minimal or none | 9 | 18.0 | 18.0 | 18.0 |
| Mild | 4 | 8.0 | 8.0 | 26.0 |
| Moderate | 32 | 64.0 | 64.0 | 90.0 |
| Severe | 5 | 10.0 | 10.0 | 100.0 |
| Total | 50 | 100.0 | 100.0 | |

Table 2 – Comparison of symptoms of depression of diabetic patients with foot ulcers by the Beck questionnaire.

| Comparison | Difference between the average rankings | P value |
|--------------------------|---|-----------------|
| Minimal or no x Mild | - 6.014 | ns – $p > 0.05$ |
| Minimal or no x Moderate | - 22.905 | $p < 0.001$ |
| Minimal or no x Severe | - 17.489 | ns – $p > 0.05$ |
| Mild x Moderate | - 16.891 | ns – $p > 0.05$ |
| Mild x Severe | - 11.475 | ns – $p > 0.05$ |
| Moderate x Severe | 5.416 | ns – $p > 0.05$ |

Multiple comparisons test of Dunn.

Table 3 – Responses of Beck Depression inventory for depressive symptoms in patients with diabetic foot ulcer.

| Occurrence of depressive symptoms | Answers | | |
|-----------------------------------|------------|----------------|------------|
| | n | % of responses | % of cases |
| Sadness | 49 | 11.9 | 98.0 |
| Self-deprecation | 49 | 11.9 | 98.0 |
| Distortion of body image | 46 | 11.2 | 92.0 |
| Social retraction | 45 | 10.9 | 90.0 |
| Decreased libido | 41 | 10.0 | 82.0 |
| Sense of failure | 36 | 8.7 | 72.0 |
| Irritability | 36 | 8.7 | 72.0 |
| Somatic concern | 33 | 8.0 | 66.0 |
| Disqualification for work | 29 | 7.0 | 58.0 |
| Pessimism | 27 | 6.6 | 54.0 |
| Indecision | 5 | 1.2 | 10.0 |
| Sleep disorder | 4 | 1.0 | 8.0 |
| Crying Crisis | 4 | 1.0 | 8.0 |
| Lack of satisfaction | 3 | 0.7 | 6.0 |
| Feeling of guilt | 3 | 0.7 | 6.0 |
| Fatigue | 1 | 0.2 | 2.0 |
| Suicide ideas | 1 | 0.2 | 2.0 |
| Total responses | 412 | 100.0 | - |

Spearman rank correlation test.

It can be seen in table 5 that 40 (80%) patients were hypertensive, 19 (38.0%) had heart disease and 16 (32%) were smokers.

In table 6 it can be seen that 32 (64%) ulcers had presence of exudate and odor; 26 (52%) had a size above 11 cm; 34 (68%) patients lived with the wound from seven months to one year; and 39 (78%) had ulcer recurrence.

DISCUSSION

The increase of patients with wounds in the population is a fact known by health professionals and has provided several discussions on the subject. The health care of people with wounds is a big problem, representing a challenge faced daily by both those who experience the problem and caregivers. Living with the condition of having a wound imposes a number of changes in people's lives and, consequently, in their families', difficulties emerging that often the person, the family and the health team are not prepared to cope with, and understand all aspects involving, this problem^{2,10,11}.

In this study, most patients had moderate depression. The depressive symptoms that showed statistical differences were: self-loathing, grief, body image distortion. Studies indicate that one third of diabetics who develop foot ulcer suffer from depression and that this state is associated with increased mortality^{25,26}.

Patients with diabetes mellitus have significantly higher rates of depressive symptoms²⁶, especially when they develop complications such as ulceration of the foot²⁷.

Depressive symptoms are present in 10-20% of patients with clinical disease and approximately 5% of them have significantly more depressive symptoms²⁸. Depression is a mental disorder that affects the physical and psychological functioning of the person. The depressive disorder implies a major loss in personal and family spheres, reaching twice as many women as men²⁹.

Depression was estimated as the fourth leading specific cause of disability, in the nineties, through a global scale for comparison of various diseases. It is expected to be the second specific cause in developed countries and the first in developing countries by the year 2020²⁴.

Lower limb ulcers are common, difficult to treat and contribute substantially to the loss of quality of life. These ulcers are often painful, decrease the ability to walk and independence of the patient, generating unemployment, economic losses and low self-esteem. They cause further social isolation due to its unpleasant appearance and odor. Most patients from our study had exudate and odor in their wounds.

Despite all these effects, leg ulcers are not being valued appropriately, their care being often placed in the background. Part of this attitude stems from the fact that treatment is difficult. They are resistant to therapy, heal slowly and recur easily^{1,2,11}.

Table 4 – Distribution of diabetic patients with foot ulcers according to demographic partners.

| Variables | | | |
|------------------------------|----------|----------|----------------|
| Age interval | n | % | Valid % |
| 28 to 40 years | 4 | 8.0 | 8.0 |
| 40 to 49 years | 11 | 22.0 | 22.0 |
| 50 to 59 years | 5 | 10.0 | 10.0 |
| 60 to 69 years | 25 | 50.0 | 50.0 |
| 70 to 86 years | 5 | 10.0 | 10.0 |
| Total | 50 | 100.0 | 100.0 |
| Color | n | % | Valid % |
| White | 41 | 82.0 | 82.0 |
| Not White | 9 | 18.0 | 18.0 |
| Total | 50 | 100.0 | 100.0 |
| Gender | n | % | Valid % |
| Female | 30 | 60.0 | 60.0 |
| Male | 20 | 40.0 | 40.0 |
| Total | 50 | 100.0 | 100.0 |
| Marital State | n | % | Valid % |
| Married | 25 | 50.0 | 50.0 |
| Divorced | 10 | 20.0 | 20.0 |
| Single | 9 | 18.0 | 18.0 |
| Widowed | 6 | 12.0 | 12.0 |
| Total | 50 | 100.0 | 100.0 |
| Education | n | % | Valid % |
| Illiterate | 29 | 58.0 | 58.0 |
| Incomplete elementary school | 9 | 18.0 | 18.0 |
| Complete elementary school | 4 | 8.0 | 8.0 |
| Incomplete high school | 5 | 10.0 | 10.0 |
| Complete high school | 1 | 2.0 | 2.0 |
| Complete higher education | 2 | 4.0 | 4.0 |
| Total | 50 | 100.0 | 100.0 |
| Profession | n | % | Valid % |
| Retired | 28 | 56.0 | 56.0 |
| Unemployed | 10 | 20.0 | 20.0 |
| Housewife | 5 | 10.0 | 10.0 |
| Security | 2 | 4.0 | 4.0 |
| Painter | 2 | 4.0 | 4.0 |
| Merchant | 3 | 6.0 | 6.0 |
| Total | 50 | 100.0 | 100.0 |

The diabetic foot is a chronic complication of diabetes mellitus, characterized by infection, ulceration or destruction of deep tissues, associated with neurological disorders in various degrees of peripheral vascular disease of the lower limbs, which has great social and economic repercussions, translated by amputations, disabilities to work, work absenteeism and the high cost associated with its control or treatment and its acute and chronic complications³⁰.

In this study, 28 (56%) patients with foot ulcers were retired. The ulceration affects productivity at work,

generating disability retirement, and restricts the activities of daily living and leisure.^{2,10,11,13,31}

According to the results of this survey, half of the patients were aged between 60 and 69 years and were married; most patients were female.

Depression is 50-75% more common in women than in men, the causes of these differences being unknown, but there are possibilities relating to hormonal influences, genetic predisposition linked to chromosome X and the relationship of depression being more culturally observable in female because of their greater ease of

Table 5 – Distribution of diabetic patients with foot ulcers according to clinical data.

| Variables | | | |
|------------------------------|----------|----------|---------------|
| Arterial hypertension | n | % | valid% |
| No | 10 | 20.0 | 20.0 |
| Yes | 40 | 80.0 | 80.0 |
| Total | 50 | 100.0 | 100.0 |
| Heart Disease | n | % | valid% |
| No | 31 | 62.0 | 62.0 |
| Yes | 19 | 38.0 | 38.0 |
| Total | 50 | 100.0 | 100.0 |
| Smoking | n | % | valid% |
| No | 34 | 68.0 | 68.0 |
| Yes | 16 | 32.0 | 32.0 |
| Total | 50 | 100.0 | 100.0 |

Table 6 – Distribution of diabetic patients with foot ulcers according to data related to the wound.

| Variables | | | |
|----------------------------|----------|----------|---------------|
| Presence of exudate | n | % | valid% |
| Yes | 32 | 64.0 | 64.0 |
| No | 18 | 36.0 | 36.0 |
| Total | 50 | 100.0 | 100.0 |
| Presence and odor | n | % | valid% |
| Yes | 32 | 64.0 | 64.0 |
| No | 18 | 36.0 | 36.0 |
| Total | 50 | 100.0 | 100.0 |
| Size of lesion | n | % | valid% |
| 1 to 5 cm | 10 | 20.0 | 20.0 |
| 6 to 10 cm | 14 | 28.0 | 28.0 |
| Above 11 cm | 26 | 52.0 | 52.0 |
| Total | 50 | 100.0 | 100.0 |
| Time with ulcer | n | % | valid% |
| Up to 6 months | 11 | 22.0 | 22.0 |
| 7 months to 1 year | 34 | 68.0 | 68.0 |
| Above 1 anos | 5 | 10.0 | 10.0 |
| Total | 50 | 100.0 | 100.0 |
| Relapse | n | % | valid% |
| Yes | 39 | 78.0 | 78.0 |
| No | 11 | 22.0 | 22.0 |
| Total | 50 | 100.0 | 100.0 |

expressing their emotions and seeking treatment, making this disorder more visible in them than in males^{31,32}.

Depression occurs more frequently among widowed, divorced or separated people than among married or single ones. In this sense, it is worth noting that the situation of recent widowhood is associated with high

incidence of depression. Also, people who live alone appear to be vulnerable³³. A study by Ribu³⁴ detected worsening of quality of life in patients with diabetic foot ulcer and was common in men who lived alone.

In this study, most patients had a wound from seven months to one year, and relapsing wounds. The

person with an ulcer should be helped to understand that the injury does not constitute a restriction on social life, but needs to be seen as a new condition that requires adaptation. Whereas it is difficult to adapt to any change, the help of a professional is necessary so that the patient feels supported and motivated to seek aid^{2,35}.

Depression is considered a risk factor for cardiovascular disease, since the more severe the depression, the greater the likelihood of cardiovascular disorders³⁶. Depression increases these risks, augmenting platelet adhesion and aggregation and causing prolonged or excessive release of catecholamines and corticosteroids due to excessive stress or anxiety, which may precipitate ventricular arrhythmia or sudden death²⁸. In this study the majority of patients were hypertensive, but not cardiopathic.

Cigarette smoking increases the concentration of deep abdominal fat, decreases insulin sensitivity and

increases considerably the concentration of glucose after an oral glucose tolerance test. The consumption of tobacco should be avoided; 95% of all leg amputations happen in smokers, being an avoidable traumatic procedure³⁶. More than half of our patients were smokers.

Through the assessment of depression inventory of Beck, the results showed that diabetic patients with foot ulcers had varying degrees of depressive symptoms. This research reinforces the need to redirect the health care of patients with wounds, seeking to identify emotional disorders among these patients and propose preventive measures.

Future studies should be conducted in order for the sample size to be increased and the magnitude of possible changes in the emotional aspects and their consequences for patients with wounds understood.

R E S U M O

Objetivo: Avaliar a intensidade de sintomas de depressão nos pacientes diabéticos com úlceras no pé. **Métodos:** Estudo exploratório, descritivo, analítico e transversal, realizado no ambulatório de feridas de um hospital público, de Sorocaba/SP. Participaram 50 pacientes com diabetes mellitus e pé ulcerado. Para mensurar a intensidade dos sintomas de depressão foi utilizado o inventário de Avaliação de Depressão de Beck. **Resultados:** Dos 50 pacientes avaliados, 41 apresentavam algum grau de sintoma depressivo, sendo que 32 (64%) com depressão moderada, apresentando sintomas de autodepreciação, tristeza, distorção da imagem corporal e diminuição da libido. **Conclusão:** Pacientes diabéticos com pé ulcerado apresentaram graus variados de sintomas depressivos.

Descritores: Depressão. Diabetes mellitus. Pé diabético. Úlcera do pé.

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