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DIABETIC FOOT ULCER (DFU) PATIENTS' PSYCHOLOGICAL REACTIONS ABOUT REOCCURRING DFU

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ABSTRACT

Foot ulcers are a problem for people with Diabetes Mellitus. Diabetes is a lifelong condition that can cause amputation, pain, stress, vision loss, and peripheral neuropathy. These factors cause psychological effects on the individuals through which they are stigmatized. These lead to financial burdens due to their inability to work efficiently and effectively. Frequent hospital visits and admissions deprive the patient and their families of the fullness of life. This literature review examines past research on the psychological effects of Diabetes Foot Ulcers (DFU). Research shows that the psychological impact of DFU is complicated, leading to poor quality of life. This review will focus on the various psychological factors that can cause a poor quality of life and suggest interventions to improve the patients' quality of life.

Keywords: *Diabetes Foot Ulcer, amputations, ulceration, financial burden, stress, depression, psychological effects, emotional simulations, biological hemostasis, peripheral neuropathy, re-ulceration.*

DIABETIC FOOT ULCER

Diabetes is a significant cause of chronic disease and limb loss around the globe. Globally as it stands, three hundred and eighty-two million people have Diabetes. Yearly, more than one million people lose a lower limb due to Diabetes. Diabetic Foot Ulcer (DFU) contributes to about 80% of diabetes-connected amputations in the lower extremity, according to Hingorani et al. (2016). Diabetes is a fatal and lethal disease that can cause excruciating pain and aches, affecting how individuals live. According to Hingorani and his colleagues (2016), Diabetes leads to reduced energy levels in an individual and increases hunger levels while

still inhibiting appetite. Diabetes leads to a loss of interest, focuses on activities around vision loss, and suppresses the efficiency of the body's ability to heal wounds (Mavrogenis et al., 2018). Diabetic foot ulcers are critical indications of Diabetes that can result in even more complications (Armstrong et al., 2017).

DFU is a typical persistent diabetic-related difficulty. DFU requires maximum financial and human resources for effective management. The foot ulceration ordinarily presents itself as ulcers, either containing or not containing infection, within the presence of peripheral neuropathy or peripheral vascular disease (Smith-Strøm et al., 2017). Approximately 8.5% of the patients with Diabetes are affected by foot ulceration, which is higher than the global prevalence rate (Beattie et al., 2014). DFUs are, on ordinary occasions, brought about by repetitive pressure or stress over a dependent zone upon high vertical or sheer pressure in people with peripheral neuropathy, per Everett and Mathioudakis (2018).

With proper treatment and therapy, including off-loading and appropriate treatment of the infection, foot ulceration decreases in numerous patients and, therefore, decreases the need for amputation (Armstrong et al., 2017). DFU healing is difficult, but re-ulceration increases at a high rate after healing.

According to Armstrong et al. (2017), after healing, ulceration's recurrence rate is soaring, with 40% of patients estimated to develop a new ulcer. The ulcer develops at either the last spot or another within 12 months (Armstrong et al., 2017). The reoccurrence rate firmly emphasizes that DFU healing is in remission instead of considered a cure (Armstrong et al., 2017). Therefore, a person in foot disease remission attempts to get a similar kind of care and follow-up as a cancer patient undergoing remission (Beattie et al., 2014). There is a long-term need to monitor a patient by a specialist to prevent reoccurrence. The research examines the psychological effects on a patient living with the increasing risk of re-ulceration.

THEORETICAL FRAMEWORK

Diabetic Foot Ulcers patients experience psychological effects after being free of the disease concerning the recurring condition. Quality of life is one of the significant ways to determine patients' psychological impact concerning re-ulceration. Psychological factors determine how one reacts to changes, people, and the environment around them and, therefore, broadly reflect on an individual's quality of life (Beattie et al., 2014). There is no study to determine exclusively psychological effects in the face of remission to a patient, per Beattie et al. (2014).

DFU is a leading factor in affecting the quality of life of a patient. Patients with DFU seem to have a lower life rate than individuals who do not have ulceration. Studies suggest that ulceration leads to depression and relates to mortality after

five years, according to Jeffcoate et al. (2018). Reports indicate that patients having DFU fear major amputations more than they fear death (Jeffcoate et al., 2018). Jeffcoate et al. (2018) stated that several studies report that patients with Diabetes Foot Ulcers and Diabetes Mellitus (DM) are more depressed.

In contrast, a recent study found no connection between depression and DFU, as there were no differences between patients with ulceration and those without ulceration (Crews et al., 2016). Another study suggests that depressive symptoms and the patient's quality of life are reversed by healing, according to Jeffcoate et al. (2018). The report shows that approximately 75% of patients experience an improved quality of life after amputation (Jeffcoate et al., 2018). A recent study on the quality of life of patients with DFU finds depressive symptoms independent in determining a low rate of life regardless of the presence of foot ulceration or not (Crews et al., 2016).

LITERATURE REVIEW

Amputations

Amputations are significant fears for patients who have recently recovered from a DFU (Beattie et al., 2014). According to Beattie et al. (2014), these patients' fears include undergoing an amputation if another ulceration occurs or fear and anxiety due to an already done amputation that has significantly changed a patient's quality of life. DFU spurs an increase in the lower limb's mortality and amputation (Smith-Strøm et al., 2017). Approximate 20% of people with foot ulceration experience some level of amputation, according to Armstrong et al. (2017). They further stated that after amputation, the rate of mortality due to diabetes-related complications exceeds 70% for diabetic patients in five years, of which 74% of the patients received renal therapy (Armstrong et al., 2017). The thought of possible amputation on an individual may positively lead to negative psychological impacts.

Financial Burden

Diabetic Foot Ulcers are common and constitute a significant health concern. DFU leads to the suffering of the patient. It frequently recurs and is linked to considerable care costs and high mortality (Jeffcoate et al., 2018). They stated that ulceration is related to the patient's financial burden due to the increase in emergency visits to hospitals and hospital admissions (Jeffcoate et al., 2018). Ulceration also carries a lot of pain to the patient, causing emotional pain and distress, leading to a decline in their quality of life. According to Jeffcoate et al. (2018), the financial burden experienced by a DFU patient may cause

psychological effects on an individual who has healed but with a risk of reoccurrence.

Risk of Reoccurrence

People with previous incidences of Diabetic Foot Ulceration are at a very high risk of developing more ulceration in the future, as per Beattie et al. (2014). They believed that a foot ulcer's experience could lead to various emotions, including anger, stress, depression, fear, and loss of self-esteem that harms a patient's life (Beattie et al., 2014). According to them, some research suggests that the negative emotions experienced in patients who have experienced foot ulceration may affect the risk of re-ulceration due to certain factors such as physical activity, adherence, glycemic control, and specific behaviors of self-care (Beattie et al., 2014). Individuals who believe that their power of an illness is limited are probable to be in a state of distress, leading to them taking less care of their wellbeing than those who possess greater control (Beattie et al., 2014). However, specific strategies are applicable to prevent reoccurrence (Beattie et al., 2014).

The primary ulceration prevention strategy is caring for oneself while practicing specific recommended practices (Beattie et al., 2014). They explained that appropriate footwear should also be available to patients with plantar ulceration (Beattie et al., 2014). To them, targeted education has also proved essential in preventing recurrence (Beattie et al., 2014). Studies have also reported that daily observation of the foot's skin temperature can help avoid reoccurrence (Jeffcoate et al., 2018). According to Armstrong et al. (2017), the New England Journal article points out that ulceration prevention also requires reasonable diabetic control.

Knowledge

In DFU, patient education is critical in helping the prevention of further ulceration at a future date, according to Del Core et al. (2018). They emphasized that a recent study found that most patients had no knowledge of their condition and the treatment processes involved (Del Core et al., 2018). Patients are enlightened on the behaviors and activities to adopt and the actions to avoid (Del Core et al., 2018). As most new patients lack knowledge of ulceration causes, people who have experienced ulceration before clearly understand the reasons and the prevention measures involved (Yazdanpanah et al., 2018). As a result, such patients relate to their experiences. The knowledge may lead to psychological effects as they do their best and pressure themselves to avoid that same experience, per Beattie et al. (2014).

Psychological Effects

Psychological effects involve the mental state or the patient's mind (Del Core et al., 2018). In research conducted on patients free of DFU, the participants reported having limited control in preventing the reoccurrence of further DFUs in the future (Beattie et al., 2014). The lack of power led to the patients experiencing negative emotions that included stress and fear if they developed other foot ulcers, possible amputations, and guilt. The tension is reported to be high between participants. There is a conflict between what the participants are doing to prevent further development of foot ulcers and what they believe is correct to ensure prevention (Beattie et al., 2014). The psychological effects are explained in the following statements.

According to Beattie et al. (2014), blame and guilt are significant psychological effects of DFU patients having recurring DFU. Many participants experience guilt and blame themselves for not taking proper care of their feet from the beginning (Beattie et al., 2014). In research, some patients accepted the fate the ulceration presented as they believe to be paying for the mistake of not taking care of their feet before ulceration and fault themselves for the neglect (Beattie et al., 2014). Some patients blame themselves for poor control of their diabetes condition in the past (Beattie et al., 2014). Constant blame and guilt on oneself may lead to unworthiness and failure and affect an individual's quality of life. Alienation is also another psychological effect experienced by patients.

Some individuals believe that DFU is malodorous, hence has a certain stigma attached to it (Beattie et al., 2014). They described that the belief causes alienation to patients suffering or are likely to suffer again because they are reluctant to discuss their problems with people around them, leading to stigmatization. This stigma can cause feelings of loneliness and may even lead to stress (Beattie et al., 2014). Also, patients were found not to discuss their worries and fears with friends for fear of becoming a burden to them (Beattie et al., 2014). Alienation may also lead to stress, which is another psychological effect.

Illness is considered a biological source of stress and can significantly impact an individual's homeostasis (Papathanasiou et al., 2015). High levels of emotional stimulation, regardless of whether negative or positive, can affect a person's efficiency and can lead to adverse health impacts if held for a prolonged period (Papathanasiou et al., 2015). The fact that ulceration may recur causes great emotional concern of patients recently healed from foot ulceration. The patients have little control and live in the possibility that the ulceration may develop again, leading to high-stress levels (Papathanasiou et al., 2015). Stress affects the efficiency levels of an individual.

In a study to determine the efficiency of a person when in high emotional stimulation, 15% of the study population effectively functioned, with the highest

percentage, 75% showing some form of disorganization (Papathanasiou et al. 2015). In comparison, the remaining 15% exhibited total disorganization while dealing with stress (Papathanasiou et al., 2015). Papathanasiou et al. (2015) emphasized that due to psychological pressure, individuals living free of DFU may experience some disorganization in their lives and, therefore, not provide maximum output in their day-to-day activities. Possible reoccurrence of ulceration is also likely to lead to increased anxiety in an individual.

Even though healed, a possible recurrence of DFU leads to anxiety for those who have undergone amputation, according to Beattie et al. (2014). A patient in a recent study accepted that ulceration takes over one's life (Beattie et al., 2014). Due to amputation, there are specific tasks that one could previously perform with ease but then is later able to perform. The thought of re-ulceration and the possible impact on the patient's life leads to the individual living an anxious life filled with worry (Beattie et al., 2014). Constant anxiety in patients is likely to lead to fear and disrupt their lives and relationships.

Patients expressed great fear of uncertainty about the future (Beattie et al., 2014). The fear mainly involves possible immobility if a DFU develops again, and amputation is the only healing option or alternative. Even then, that would probably not be the last time that the re-ulceration would occur (Beattie et al., 2014). Also, a reduction in and little sensation in the feet is a fear of re-ulcerating patients (Beattie et al., 2014). Patients also exhibit a fear of doing certain things or wearing particular shoes, thinking it might lead to an ulcer's development (Beattie et al., 2014). The fear of doubt about the future may result in a feeling of hopelessness in an individual (Crews et al., 2016). According to them, an investigation conducted reports on adherence using custom-made footwear to patients to prevent secondary DFU, building hope in patients (Crews et al., 2016). The self-reported adherence was low despite the patients' positive attitude towards footwear usability (Crews et al., 2016).

In another study, even though a patient practiced all the necessary foot care measures to prevent re-ulceration, she describes the process of prevention as hopeless and defeating (Beattie et al., 2014). A patient may also exhibit obsessiveness as a psychological effect on possible recurrence, which may be present in their behavior, according to Beattie et al. (2014). In the endeavors to prevent re-ulceration, participants in a study proved to have adopted obsessive behaviors due to fears (Beattie et al., 2014). The actions include putting on shoes even when around the house and vacuuming the carpet regularly to prevent damage to their feet by any debris in the carpet (Beattie et al., 2014). Obsessive behaviors involve paying attention to tiny details, which can be frustrating and lead to depression (Beattie et al., 2014).

Specific symptoms of depression are present in patients who continuously live in fear of remission of DFU (Beattie et al., 2014). The symptoms include the absence of interest or pleasure, hypersomnia, and decreased energy levels (Beattie et al., 2014). They believe it results in the loss of mobility in a patient, preventing them from doing simple tasks and leading to depression (Beattie et al., 2014). Crew et al. (2016) believe that depression is especially prevalent when the patient has in mind that significant changes in their lifestyle would again need implementation if it could reoccur. However, specific measures are applicable to help reduce patients' psychological effects.

Some of the essential interventions for people experiencing psychological effects include getting enough rest and sleep, reducing anxiety, engaging in forms of physical exercises, identifying relaxation techniques applicable when in need, eating a well-balanced diet, and following the doctor's instructions precautions to prevent reoccurrence (Beattie et al., 2014). Getting enough rest and adopting relaxation techniques significantly reduce anxiety and stress, according to Beattie et al. (2014). Beattie et al. (2014) stated that rest, in turn, results in an improved quality of life for the individual. Physical exercise increases the overall health and leads to the production of endorphins that stimulate anti-anxiety effects and promote joy in a person (Crews et al., 2016). Physical activity also leads to increased energy and reduces stress (Crews et al., 2016).

SUGGESTIONS FOR FUTURE RESEARCH

This literature reviews unlock avenues for future research on how DFU free patients could correctly manage their mental health while dealing with the risk of re-ulceration for a better quality of life (Beattie et al., 2014). Although efforts are evident in studying such patients' emotional and behavioral characteristics, finding ways to deal with mental issues could greatly complement the studies (Beattie et al., 2014).

CONCLUSION

In conclusion, Diabetic Foot Ulcer is a significant complication that can affect an individual's quality of life. Having experienced the difficulties brought about by DFU in the first ulceration, patients who have healed know the condition and know precisely the experiences it brings. The possible reoccurrence of DFU is high, which takes control of the patients and leads to psychological effects like depression, stress, anxiety, guilt, and helplessness in individuals. Therefore, individuals should take the necessary precautions to prevent reoccurrence while also taking care of their mental health by using the interventions mentioned above.

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