



## Investigating The Edmonton Symptom Assessment System (Esas) In Patients With Diabetic Foot Ulcers

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### Abstract

*In addition to somatic ailments, individuals afflicted with DFU often manifest psychological maladies. Research on the psychological aspects of DFU patients has not yet been conducted, especially using the Edmonton Symptom Assessment System (ESAS) instrument. The aim is to predict the Edmonton Symptom Assessment System (ESAS) instrument among DFU Patients. This research conducted Descriptive Quantitative Research design. The sample in this study consisted of 57 DFU Patients who were selected by total sampling. The data collected in this study was analyzed descriptive Statistic. the majority of respondents are aged > 45 years as many as 53 respondents or 68.83%. Based on gender, it is found that the majority of respondents are female as many as 57 people or 74.03%. Based on the level of education, it was found that the majority of respondents graduated from elementary school totaling 31 people or 40.25%. Screening results on the Ankle Brachial Index found that the majority of respondents' ABI was Moderate, 31 people or 40.25%. While ESAS predictions are in the moderate category totaling 31 people or 40.25%.*

**Keywords:** *Edmonton Symptom Assessment System, Diabetic Foot Ulcer, Screening*

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## 1. Introduction

DM is a disease that causes various chronic complications, if left untreated and not managed properly. One of the chronic complications in DM patients is diabetic foot ulcer. Approximately 15%-25% of DM patients experience DFU during their lifetime (Armstrong et al, 2017). The prevalence of DFU worldwide is 6.3% (Zhang et al, 2024). Meanwhile, the prevalence of DFU in Indonesia has also increased, which was 8.7% in 2018 and increased to 12% in 2022 and was reported to be higher than China and India (Yusuf et al, 2022). The increase in various countries is due to the increasing prevalence of the two main causative factors of DFU which continue to increase every year, namely peripheral neuropathic and peripheral ischemic (Ekejiuba, 2024).

As one of the impacts of DFU, lower limb amputation is reported to be one of the most feared and disastrous complications for patients (Wukich et al, 2018). Globally, 80% of lower limb amputations are due to DFU (Luo et al, 2023), while cases of lower limb amputation in patients with DFU in Indonesia reach 30% and more than one million people lose one of their legs due to amputation (Oktalia et al, 2021; Oktorina et al, 2023).

The results of a preliminary study at one of the Puskesmas in the Kubu Raya Regency Islands area found that the number of patients with DFU until December 2024 was 77 patients. 20 of them were patients with recurrent wounds, 15 had amputations and the rest were patients who had just experienced DFU. In addition to physical problems, DFU patients also experience psychological problems, especially in the archipelago. This is due to the large area and difficult access to health facilities.

Management of DFU wounds is currently still not comprehensive, only limited to physical problems, even though DFU patients are one of the terminal patients included in palliative care. The most important thing in the management of DFU is the psychological aspect, this is because there are changes in life before and after being affected by DFU, for example, those who initially often socialize with others but when affected by DFU will be silent at home (Jeffcoate, 2024).

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and the rest are patients who have just experienced DFU. The obstacle experienced by Puskesmas officers in dealing with DFU is the coverage of a very large area. The area covers 8 (eight) villages, namely Padang Tikar Satu Village, Padang Tikar Dua Village, Medan Mas Village, Tasik Malaya Village, Sungai Besar Village, Sungai Jawi Village, Ambarawa Village, and Tanjung Harapan Village. Meanwhile, the distance between one village and another is quite far and is connected by the sea, making it difficult for Puskesmas staff to access DFU patients.

With the difficulty of access to the area, some patients get treatment once a week. Whereas DFU treatment must be carried out maximum treatment every 2 days. Therefore, the impact on patients is a disturbance in the psychological aspect considering that the wounds experienced are getting worse while to carry out treatment outside the area takes about 4 hours using a speedboat and 6 hours using a motorized klotok. This psychological aspect is important to research because the impact of this psychological disruption is an increase in blood sugar which results in worsening wound conditions. The Edmonton Symptom Assessment System (ESAS) is a tool used to assess psychological aspects in terminal patients that has been previously tested for validity and reliability. The purpose of this study is to address the theme of ESAS Prediction in patients with Diabetic Foot Ulcers on the Islands.

The urgency of this study that there has been no specific research on the use of ESAS in the islands. However, there are several studies using ESAS in other terminal patients such as Chronic Renal Failure and cancer patients. This study was conducted because of the uniqueness of the islands that have not received serious and optimal handling. This is due to the limited facilities, area and distance experienced by families and health workers in treating DFU patients. Whereas these DFU patients need comprehensive treatment in order to have a productive life. Through this study, it is expected that health workers and families have concern from all aspects not only focusing on physical aspects but the most important is the psychological aspect of the patient. Cooperation between patients, families and health workers can increase the life expectancy of DFU patients in the islands.

## 2. Research Method





This research design is descriptive quantitative by assessing the characteristics of respondents using the ESAS instrument. The planned number of samples in this study was 77 with a total sampling technique. In this study, the criteria for patients to be taken are all patients with a medical diagnosis of DM, experiencing diabetic foot wound complications, in a compos mentis state, and good communication. ESAS interpretation is none (0), Mild (1-3), Moderate (4-6) Severe (7-10).

### 3. Result and Discussion

Table 1 Characteristics Respondents and ESAS Predicting

Characteristics Respondents	N	(%)
<b>Age</b>		
26 – 35 years	8	10,38
36 – 45 years	16	20,77
>45 years	53	68,83
<b>Sex</b>		
Male	20	25,97
Female	57	74,03
<b>Education</b>		
Elementary School	31	40,25
Junior High School	12	15,58
Senior High School	26	33,76
Bachelor Degree	8	10,38
Master Degree	0	0
<b>Ankle Brachial Index</b>		
Normal (1,0-1,4)	11	14,28
Acceptable (0,9-1,0)	10	12,98
Some Arterial Disease (0,8-0,9)	14	18,18
Moderate (0,5-0,8)	24	31,16
Severe Arterial Disease (<0,5)	18	23,37
<b>ESAS Predicting</b>		
None (0)	0	0
Mild (1 – 3)	25	32,46
Moderate (4-6)	31	40,25
Severe (7-10)	21	27,27





#### a) Characteristics Respondent

Table 1 above shows that based on age, the majority of respondents are aged > 45 years as many as 53 respondents or 68.83%. Meanwhile, 36-45 years of age amounted to 16 people or 20.77% and the rest were 26-35 years old. Based on gender, it is found that the majority of respondents are female as many as 57 people or 74.03% and the rest are male. Based on the level of education, it was found that the majority of respondents graduated from elementary school totaling 31 people or 40.25%, and high school totaling 26 people or 33.76%, 12 people from junior high school or 15.58% and the rest graduated from college. Screening results on the Ankle Brachial Index found that the majority of respondents' ABI was Moderate, 31 people or 40.25%. While ESAS predictions are in the moderate category totaling 31 people or 40.25%.

Based on the results of the frequency distribution analysis, it can be seen that the majority of respondents are more than 45 years old. This happens because at the age of over 45 years there will be a decrease in body function and impaired glucose tolerance is getting higher so that blood glucose increases. WHO which reveals that every individual over 45 years of age will experience an increase in blood glucose levels of 5.6-13 mg/dl at 2 hours after eating and will increase by 1-2 mg/dl / year during fasting (Rizky, et al, 2024). This study is in line with research conducted (Jansen, 2024) which reveals that type 2 diabetes mellitus often occurs in patients over 45 years of age and will increase. And it is reported that 15-25% at the age of over 45 years experience complications of Diabetic foot wounds (Purwono et al, 2024).

Gender is one of the factors that influence the risk and prevalence of Diabetic Foot Ulcer (DFU) in patients with diabetes mellitus. Some studies show that women have a higher risk of DFU than men, although there are also studies that show that men experience DFU more often. This can be due to various factors, including hormonal differences, lifestyle, and other risk factors. This is in line with the findings of this study that women are more at risk of DFU than men. Gender is one of the factors to consider in the management and prevention of DFU. Understanding the differences in risk





between men and women may help in developing more effective prevention and treatment strategies (Zamaun et al, 2024).

b) Ankle Brachial Index (ABI)

Ankle Brachial Index (ABI) in Diabetic Foot Ulcer (DFU) patients is an important examination to assess the circulatory status of the lower extremities, especially in diabetics at risk of foot ulcers. ABI measures the ratio of systolic blood pressure in the ankle (lower leg) to systolic blood pressure in the arm, helping to detect the presence of peripheral arterial narrowing (PAD). Low ABI values in DFU patients indicate arterial narrowing and may worsen wound healing (Poredos, et.al, 2024).

Meanwhile, the results of this study found that the majority of Ankle Brachial Index levels were in the Moderate category. These results are not in line with the results of research by Usman, 2025 which states that people with Diabetes Mellitus, especially those with complications of Diabetic Foot Wounds, on average have ABI values in the Severe category, namely with ABI results  $<0.5$ . In people with type II DM who experience complications at all cellular levels and all anatomic levels. Manifestations of chronic complications can occur at the level of small blood vessels (microvascular) in the form of abnormalities in the retina of the eye, kidney glomerulus, nerves, and in the heart muscle (cardiomyopathy). In large blood vessels (macrovascular), manifestations of chronic complications of DM can occur in cerebral blood vessels, heart (coronary heart disease) and peripheral blood vessels (lower limbs). Another complication of DM can be excessive susceptibility to infection with the result of easy urinary tract infections, pulmonary tuberculosis, and foot infections, which can then develop into diabetic ulcers or gangrene (Rasmayanti, 2024).

Type II diabetes mellitus is a chronic condition that occurs due to elevated blood glucose levels because the body cannot or does not produce enough insulin or the insulin hormone cannot be used effectively. Insulin is an important hormone produced in the pancreas gland and is responsible for transporting glucose from the bloodstream to the body's cells where it is converted into energy. Lack of insulin or the inability of cells to respond to insulin leads to high blood glucose levels, or hyperglycemia, which





is the hallmark of diabetes (Atrese, et al, 2024). Type II diabetes mellitus will lead to complications if not managed properly.

c) Edmonton symptom assessment scale

Edmonton symptom assessment scale predictions in this study found that the majority of patients were in the moderate category, meaning that DM patients with diabetic foot wound complications when using the ESAS instrument when assessed the majority of patients were in the moderate category, namely having a score of 4-6 as many as 40.25% (Gretarsdottir, 2026).

Loss of appetite and anorexia are common problems for palliative patients (Nordøy, 2005). In our study, 72 percent of patients had a symptom score  $>3$  on this question on admission. There may be many causes such as oral fungal infection, altered sense of taste, difficulty swallowing, obstruction of the gastrointestinal tract, side effects of radiation therapy or cytostatic treatment, accumulation of fluid in the abdominal cavity (ascites), pain, etc. In our study, 53 percent of patients rated fatigue at an intensity  $>3$  on admission. Cancer-related fatigue is estimated to affect 81 percent of patients. Its intensity increases during DFU.

Fatigue is a major challenge in DFU care and is often overlooked and therefore poorly managed (Lynch, 2014). The causes of fatigue are complex, and nutrition, pain, tumor-related medication side effects, and anxiety are important contributing factors. Therefore, it is imperative for nurses to be knowledgeable about the phenomenon.

Dry mouth (xerostomia) is indicated as a problem for more than half of patients with DFU (Nordøy, 2014). In our study, 61 percent rated dry mouth at intensity  $>3$  on the ESAS. Dry mouth is often caused by a combination of various drugs, chemotherapy, and radiotherapy, and more easily results in infections in the oral cavity. In addition, terminally ill patients have a decreased immune system, making them more susceptible to oral infections (Trier, 2014).

It is essential for nurses to pay attention to oral health. Focusing on this issue and early implementation of recommended measures can prevent and relieve symptoms. There are various measures that can relieve dry mouth, such as maintaining good oral hygiene, using lozenges or sprays to stimulate saliva secretion, and avoiding





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sugary foods in addition to drinking plenty of water. Medications can also relieve dry mouth (Nordøy, 2014; Trier, 2014).

Constipation has been reported as a serious problem for palliative patients (Myhra, 2010; Strand, 2007; Slåtten, 2010). However, only 26 percent of patients in this study scored  $>3$ . Other studies have revealed that constipation occurs in 50-60 percent of patients with advanced cancer, and up to 90 percent of patients taking opioids (Helsedirektoratet, 2015).

Constipation is often accompanied by flatulence, pain, loss of appetite, nausea, vomiting, headache, anxiety, and constipation-induced diarrhea (Helsedirektoratet, 2015), which can have a considerable negative impact on quality of life. Several publications have emphasized that constipation should be included in ESAS (Helsedirektoratet, 2015), which may have been a contributing factor in the inclusion of constipation in ESAS-R.

The low prevalence of constipation problems in this study may be partly explained by good preventive measures in the referral ward. Early referral to the palliative care unit during the course of the disease may also be a contributing cause. In response to the question 'Overall, how do you feel today?' 53 percent of patients scored  $>3$  on the ESAS. Successful palliative care demands the ability to interpret the patient's clinical picture and the ability and willingness to change palliative measures as the disease changes (Trier, 2014). Clinical experience of using the ESAS has shown that questions about well-being are difficult to answer as they are considered quite vague. Many patients answer this question by saying 'not too good and not too bad'. Bergh et al. found the same in a 2010 study (Bergh, 2010).

The accuracy of the answer to this question depends on the nurse taking the time to discuss how the patient is feeling. In discussions about everyday topics, important issues may arise. Such a conversation is exemplified by a nurse's dialog with an advanced cancer patient who was renovating a house. During the conversation, the patient showed a color chart and asked the nurse: "Do you think I would be happy with this color in my kitchen?" The question is of course related to the choice of color, but also the desire to get confirmation that the patient will live to see the newly painted





kitchen. The use of ESAS is often the starting point for good conversations about existential questions, questions that go far beyond symptom recording.

#### 4. Conclusion

The majority of respondents are aged > 45 years as many as 53 respondents or 68.83%. Based on gender, it is found that the majority of respondents are female as many as 57 people or 74.03%. Based on the level of education, it was found that the majority of respondents graduated from elementary school totaling 31 people or 40.25%. Screening results on the Ankle Brachial Index found that the majority of respondents' ABI was Moderate, 31 people or 40.25%. While ESAS predictions are in the moderate category totaling 31 people or 40.25%.

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