



Development of Self-Esteem Assessment Instruments for Diabetic Ulcer Patients

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Abstract

Poor wound care in patients with diabetic wounds can lead to tissue death, which may require surgical intervention. One example is a foot wound known as a diabetic ulcer. If tissue death occurs in the wound area, surgery is indicated, which can have psychological impacts on the individual. This research aimed to develop a self-esteem assessment instrument for diabetic ulcer patients. The research method that will be carried out is a mixed method with a sequential exploratory design. This research design quantitative research methods that are carried out sequentially. The analysis results of the questionnaire feasibility score showed that the total score obtained by expert 1 was 0.90 and expert 2 was 0.8, included in the very feasible criteria. From the analysis of 38 question items, the results obtained were 35 valid and reliable question items and 3 invalid and unreliable question items. The test was carried out by comparing the calculated r-value of 0.981 for each question with the r-table value of 0.3494. The questionnaire for measuring self-concept in patients with diabetes mellitus wounds is mostly valid and reliable, therefore health workers can use this questionnaire to measure self-concept in patients with diabetes mellitus who have wounds.

Keywords: Development, Instrument, Self Esteem, Wounds.

INTRODUCTION

Diabetes Mellitus (DM) is a non-communicable disease that can cause various complications. According to data from the World Health Organization (WHO) in 2020, DM is classified as a chronic metabolic disease characterized by persistently elevated blood glucose levels. This condition can cause serious damage to the heart, blood vessels, eyes, kidneys, and nerves. Furthermore, DM also reflects a number of symptoms that arise from high blood glucose levels, caused by a progressive decrease in insulin secretion SC (Fauziah, 2020).

The prevalence of diabetic ulcers in Indonesia is quite high, with an amputation rate of 30% and a mortality rate of 32% annually. Furthermore, globally, more than one million people undergo amputation of one leg. It is estimated that 19-34% of diabetes patients are likely to develop diabetic ulcers in their lifetime. It is reported that 9.1 to 26.1 million people with DM are at risk of developing diabetic ulcers SC (Ministry of Health of the Republic of Indonesia, 2019).

Diabetic ulcers can lower a person's self-esteem because they affect feelings and self-assessment. Physical wounds can leave a person feeling worthless, insecure, and negatively evaluating themselves. Self-esteem is a crucial aspect of an individual's mental health and well-being. Understanding the factors that influence self-esteem and their impact can help individuals and healthcare professionals develop strategies to improve self-esteem, which in turn can improve overall quality of life and health. Understanding the variables of self-esteem is crucial, especially in the context of mental and physical health. When developing assessment instruments for patients with physical wounds, it is crucial to consider all these variables to provide a comprehensive picture of the patient's self-esteem and the factors that influence it (Townsend, M. C, 2018).

Managing the patient's psychological aspects is crucial for achieving optimal recovery. Therefore, it is crucial for nurses to focus not only on the physical aspects of wounds but also on the patient's mental health and self-esteem. A holistic approach, encompassing both physical care and psychological support, can help patients feel valued, more confident, and empowered, thus supporting their physical and emotional healing process (Videbeck, S. L, 2018).

The Positive Impact of Self-Esteem on Diabetic Ulcer Patients: Patients with high self-esteem tend to be more motivated to participate in rehabilitation and treatment programs, contributing to a faster healing process. Good self-esteem can help patients cope with the stress and anxiety that often arise from changing physical conditions, creating a more positive mental environment for healing. Patients with high self-esteem are more likely to interact with others, which can strengthen social support and improve their mental health. Good self-acceptance helps patients better accept their physical condition, which is important for reducing feelings of shame or low self-esteem that can hinder the recovery process (Suhron, 2017).

Healthcare professionals can provide more comprehensive care and improve patients' quality of life to enhance the self-esteem of patients with physical injuries during the recovery process. This approach also contributes to improving patients' overall mental health, which is crucial for supporting long-term treatment success (Yusuf et al., 2015). Developing a self-esteem assessment instrument for patients with physical wounds is crucial for understanding the psychological impact of their physical condition. The questionnaire will include variables such as self-perception, emotional impact, social interactions, independence and function, coping mechanisms, previous experiences, and environmental factors process (Suhron, 2017).

Several studies have shown that a comprehensive approach, including self-assessment and self-evaluation, can help improve patient self-esteem. A study by process Santosa & Hartono (2021) demonstrated an increase in patient self-esteem through increased knowledge about wound care and changes in negative perceptions of their wounds. A study by process Wulandari et al (2021) found that the majority of diabetic foot ulcer patients had wounds lasting ≥ 45 days (57.5%). The majority of diabetic foot ulcer patients had low self-esteem (52.5%). The chi-square test yielded a p-value of 0.049.

According to Baron & Byrne (2012), self-esteem is an individual's self-evaluation, a person's attitude toward themselves ranging from positive to negative. Baron & Byrne emphasized that self-esteem refers to a person's attitude toward themselves, ranging from very negative to very positive. High self-esteem means an individual likes themselves; this positive evaluation is partly based on the opinions of others and partly on specific experiences. Attitudes toward oneself begin with the earliest interactions between a baby and its mother or other caregiver. Cultural differences also influence what is important to a person's self-esteem. Self-esteem consists of several interrelated components.

The following are some of the main components of self-esteem according to Baron & Byrne (2012): 1) Self-Image: Self-image refers to how a person views themselves, including their physical appearance, abilities, and character. A positive self-image can increase self-esteem, while a negative self-image can decrease it. 2) Self-Confidence: Self-confidence is a person's belief in their ability to face challenges and achieve goals. Individuals with high self-confidence tend to have better self-esteem 3) Self-Acceptance: Self-acceptance is the ability to accept oneself, including one's strengths and weaknesses. Individuals who can accept themselves tend to have higher self-esteem 4) Social Comparison: The process of comparing oneself with others can affect self-esteem. If a person feels better than others, their self-esteem may increase, but if they feel worse, their self-esteem may decrease 5) Experiences and Achievements: Positive experiences and achievements in life, whether academic, social, or professional, can increase self-esteem. Conversely, failure or negative experiences can decrease it 6) Social Support: Support from friends, family, and other social environments can contribute to self-esteem.

Feeling accepted and appreciated by others can increase one's self-esteem 7) Values and Beliefs: Personal values and beliefs that a person holds also affect self-esteem. If a person feels that they are living according to their values, their self-esteem tends to be higher. 8) Resilience: The ability to bounce back from failure or adversity also contributes to self-esteem. Individuals who have good resilience tend to have a positive view of themselves (Pérez-Álvarez & Rodríguez-Fernández, 2017).

METHODS

This research method was conducted using a quantitative analysis design. Data were collected using convenience sampling from 30 patients. The measuring instrument used was the Development of a Feasibility Instrument for Self-Esteem in Diabetic Ulcer Patients, which contained 38 statements about self-concept in diabetic patients with wounds using a Likert scale with the following response options: Strongly Agree, Agree, Somewhat Agree, Disagree, Strongly Disagree.

Data analysis. The quantitative phase involved 32 respondents using the $n-2$ formula, resulting in 30 respondents with similar characteristics. The next step to determine instrument validity was an item validity test using the item-total product-moment correlation technique with a 5% error rate (0.05). Items were declared valid if the r value was greater than r table. For a 5% error rate, r table = 0.3494. For this calculation, the researchers used SPSS software for more practical and accurate results. The results of this validity test revealed that out of 38 items, 3 were invalid, leaving 35 valid items.

A reliability test is a calculated value of an indicator that remains constant, due to the measurement characteristics of the instrument itself. Reliability has three meanings: stability, consistency, and dependability. Sugiyono (2022), explains that the smaller the error in a reliability test, the more reliable the measuring instrument. The standard alpha (α) value used to indicate a good measuring instrument is >0.6 , so the higher the alpha value, the more reliable the measuring instrument. In this study, the reliability test used Cronbach's alpha was 0.981.

The ethical feasibility test for this study was conducted by the Ethics Commission of the Jambi Province Ministry of Health Polytechnic, with No. LB.02.06/2.195.2/2025. It was declared ethically sound from March 17, 2025, to March 27, 2026.

RESULTS

Based on the results of research conducted on 30 patients regarding the Development of Self-Esteem Assessment Instruments in Diabetic Ulcer Patients, the following results were obtained:

Table 1. Characteristics of participants based on gender, age, education, marital status and occupation

Variable	f	%
Gender		
Female	12	40
Male	18	60
Age		
Late Adulthood (36-45)	10	33,3
Early Elderly (46-55)	20	66,7
Work		
Working	25	83,3
Not working	5	16,7
Length of Illness		
< 6 months	20	66,7
> 6 months	10	33,3

Based on table 1, it is found that the characteristics of respondents related to age are mostly in the early elderly category, namely 20 (66.7%), gender is mostly female, namely 18 (60%), employment status is mostly employed, 25 (83.3%), and duration of illness is mostly less than 6 months, 20 (66.7%).

Table 2. Results of Expert Validator Assessment Based on Assessment Criteria for the Development of Self-Esteem Assessment Instruments in Diabetic Ulcer Patients

Assessment criteria	Assessment Guide (Scale 1-4)	Ahli 1	Ahli 2
Relevance of the instrument to the variable to be measured	1= irrelevant, entire item should be replaced 2= some items require extensive revision 3= relevant, but requires some revision 4= very relevant	3	3
The clarity of an instrument so that it can be interpreted correctly by respondents	1= unclear, all items should be replaced 2= some items need revision 3= clear, but some revision is needed 4= very clear	3	3
Relevance of the Instrument to the applicable theoretical context	1= irrelevant, entire item should be replaced 2= some items require extensive revision 3= relevant, but requires minimal revision 4= very relevant	4	3
The questions were designed to be varied so that they could reflect the actual conditions of the respondents	1= no variation, all items should be replaced 2= some items require significant revision 3= some variation, but some revision is needed 4= very high variation	4	3
The questions in the instrument do not create ambiguity in the assessment	1= ambiguous, entire item should be replaced 2= some items require extensive revision 3= moderately ambiguous, but requires minimal revision 4= very good with no ambiguity	4	4
Total Score	Maximum Score: 20	18	16

Based on table 2, the results of the feasibility test were obtained from 2 experts with expert 1's score of 18, expert 2's score of 16 out of a total score of 20.

Table 3. Assessment Results of Expert Validator Results for the Development of Self-Esteem Assessment Instruments in Diabetic Ulcer Patients

Respondent	Score	Description
Expert 1	0,90	Eligible
Expert 2	0,8	Eligible
Average rating	0,85	Eligible



Table 3 shows the results of the questionnaire feasibility scores obtained from each validator. Expert 1's score of 0.90 and expert 2's score of 0.80 fall within the very feasibility criteria. Expert 2's score of 0.85 falls within the feasibility criteria.

Table 4. Validity and Reliability Test Results

No Item	r-count	Cronbach's Alpha	r-table (n= 30)	Information
1	0.988	0.981	0.988	Valid and Reliable
2	-0.042		-.042	Not Valid and Reliable
3	-0.573		-.573	Not Valid and Reliable
4	0.981		0.911	Valid and Reliable
5	0.937		0.537	Valid and Reliable
6	0.915		0.815	Valid and Reliable
7	0.954		0.654	Valid and Reliable
8	0.292		0.292	Not Valid and Reliable
9	0.987		0.587	Valid and Reliable
10	0.935		0.435	Valid and Reliable
11	0.978		0.678	Valid and Reliable
12	0.999		0.699	Valid and Reliable
13	0.938		0.438	Valid and Reliable
14	0.972		0.572	Valid and Reliable
15	0.960		0.760	Valid and Reliable
16	0.975		0.375	Valid and Reliable
17	0.911		0.911	Valid and Reliable
18	0.988		0.988	Valid and Reliable
19	0.988		0.988	Valid and Reliable
20	0.988		0.988	Valid and Reliable
21	0.988		0.988	Valid and Reliable
22	0.988		0.988	Valid and Reliable
23	0.988		0.988	Valid and Reliable
24	0.988		0.988	Valid and Reliable
25	0.988		0.988	Valid and Reliable
26	0.988		0.988	Valid and Reliable
27	0.988		0.988	Valid and Reliable
28	0.988		0.988	Valid and Reliable
29	0.988		0.988	Valid and Reliable
30	0.922		0.922	Valid and Reliable
31	0.988		0.988	Valid and Reliable
32	0.935		0.835	Valid and Reliable
33	0.920		0.700	Valid and Reliable
34	0.995		0.495	Valid and Reliable
35	0.928		0.828	Valid and Reliable
36	0.922		0.822	Valid and Reliable
37	0.976		0.776	Valid and Reliable
38	0.988		0.988	Valid and Reliable

Based on table 4 above, it was found that 35 questions were valid and there were 3 questions that were not valid and reliable, namely questions 2, 3 and 8.



DISCUSSION

The analysis of 38 questions revealed that most items were of excellent quality. Testing was conducted by comparing the calculated r-value of each question with the r-table value of 0.3494. A question was declared valid if the calculated r-value was greater than or equal to the r-table. Furthermore, the overall reliability of the questionnaire, as measured using Cronbach's Alpha, was 0.981, well above the minimum standard of 0.7, indicating that the questionnaire was highly consistent and internally reliable. Self-esteem is a crucial component in an individual's life. It can foster self-confidence, belief in one's abilities, a sense of usefulness, and a sense of being needed in the world. Coppersmith defines self-esteem as an individual's evaluation of themselves, particularly regarding attitudes of acceptance and rejection (Ardhiani, Harsanti, & Fitriani, 2023).

Self-esteem indicates the level of confidence in one's abilities, significance, success, and worth. It can be concluded that self-esteem is the result of an individual's assessment expressed through attitudes (Khairat & Adiyanti, 2015). According to Coopersmith (1967), the formation of self-esteem is influenced by four aspects: individual significance, virtue, power, and competencies. Research Findings: Previous research on the Validity and Reliability of Self-Concept Instruments Using the Rasch Model indicates that the instrument effectively measures the desired dimensions of self-concept. The reliability of the self-concept instrument was assessed as high, while the reliability of the self-concept items was assessed as very good (Latifah M, dkk., 2024).

Items measuring self-concept change were developed, reviewed by a panel of experts, and pre-tested on a sample of 135 people with mental health problems (pwMS). The revised 51-item questionnaire was then administered to 1,307 people with mental illness (80.3% female; M age = 59.21 years, SD = 11.40), along with measures of illness impact and psychosocial functioning. Exploratory factor analysis using principal axis factor extraction in 643 randomly selected participants yielded 23 items measuring five latent factors for the final MSSCCS. Confirmatory factor analysis involving additional participants supported the five-factor model, as well as a second-order "global change" model. Internal consistency of the total scale was good ($\alpha = 0.89$). The MSSCCS also demonstrated evidence of concurrent and construct validity (Emery H, et al., 2023).

Other research further revealed a significant positive correlation between identity pathology and non-suicidal self-injurious behavior, two concepts that co-occur in psychopathology, such as borderline personality disorder, but have not been studied in Western populations with this instrument (James R, et al., 2023).

Another study, "Replicating the Self-Concept and Identity Measure (SCIM) Among Treatment-Seeking Samples," found that higher SCIM scores were also associated with other problems, such as emotion dysregulation and depression. These findings support the use and assessment of the SCIM in clinical populations (Kaufman EA, et al., 2020). The results of other studies similar to those conducted by researchers on the Psychometric Validation of the Revised Physical Self-Perception show the validity and reliability of the Italian version of the PSPP-R, which can be used to examine the physical self-concept of Italian adolescents and young adults, allowing the exploration of the interaction between competence and interest in the physical domain (Nicolosi S, et al., 2024).

The results of research conducted by Hijriana I (2022), related to interventions in diabetes mellitus patients related to stretching exercise interventions using the WHOQOL BREFF questionnaire to measure quality of life and BARTEL INDEX to measure showed that there was a difference between before and after stretching exercise interventions on the functional status of the elderly, quality of



life, general health dimensions, physical health, and social health with a p-value ($p = 0.00$), but there was no relationship in the psychological and environmental dimensions.

Of all the questions tested, 35 items were found to be valid and reliable, meaning they successfully measured what they were intended to measure and had high consistency across respondents' responses. Meanwhile, three questions were invalid: Questions 2, 3, and 8. The calculated r-values for all three were lower than the specified minimum limit, and two of them (Questions 2 and 3) were negative. This indicates that these questions are not aligned with the overall scale and likely need to be revised or removed to avoid compromising the accuracy of the measurement results.

CONCLUSION

The study concluded that the instrument was suitable for use, with a total expert score of 0.85, which met the criteria for appropriateness. Regarding validity and reliability, testing revealed 35 valid and reliable questions, while three questions were found to be invalid and unreliable. This was achieved by comparing the calculated r-value for each question with the table r-value of 0.3494. Furthermore, the overall reliability of the questionnaire, as measured using Cronbach's Alpha, was 0.981, indicating high internal consistency and reliability.

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