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Comparison of shid and wagner wound classifications for assessing quality of life in patients with diabetic foot ulcers

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Abstract

Background: Diabetic Foot Ulcer (DFU) is a chronic complication of diabetes mellitus that significantly affects patients' quality of life. Several wound classification systems are used to assess DFU severity, including the Wagner and SHID classifications. However, evidence comparing the application of these classifications in evaluating quality of life (QoL) among DFU patients has not been comprehensively mapped.

Purpose: To map and compare existing evidence regarding the use of SHID and Wagner wound classifications in evaluating quality of life in patients with diabetic foot ulcer.

Method: A scoping review was conducted following the Arksey and O'Malley framework. Literature searches were performed in electronic databases (PubMed and Google Scholar) for studies published within the last five years. Eligible articles were analyzed using descriptive and thematic approaches.

Results: Most studies applied the Wagner classification as the primary clinical assessment tool, while SHID was reported to provide a more comprehensive depiction of wound conditions.

Conclusion: A consistent association between wound severity and decreased quality of life was identified, although direct integration of both classifications with QoL instruments remains limited.

Keywords: Diabetic Foot Ulcer; Wagner Classification; SHID; Quality of Life; Scoping Review.

INTRODUCTION

Diabetes mellitus is a global public health problem with a steadily increasing prevalence and the potential to cause various serious complications, including diabetic foot ulcer (DFU). DFU is a chronic foot wound resulting from vascular impairment and neuropathy, which frequently leads to infection, amputation, high morbidity, and a reduced quality of life (Barker, Stone, Sears, Klugar, Tufanaru, Leonardi-Bee, & Munn, 2023). The classification of DFU wounds is a crucial component of clinical management, as it assists in therapeutic decision-making, prediction of healing outcomes, and assessment of the risk of complications such as amputation (Monteiro-Soares, Hamilton, Russell, Srisawasdi, Boyko, Mills, & Game, 2024). Two

commonly used classification systems are the Wagner system and the SHID system (Suriadi & Imran, 2021). The Wagner system assesses ulcer severity based on wound depth and the extent of deep tissue involvement (grades 0–5), whereas the SHID system is a newer classification developed to improve ease of use and predictive validity within the Indonesian clinical context (Jais, Pratama, Fahrain, Junaidi, Kardiatur, & Kawuryan, 2022).

Validity studies indicate that the SHID system demonstrates higher predictive value than the Wagner system in identifying wound conditions and the likelihood of healing, with superior area under the curve (AUC) values and Youden index scores (Jalilian & Shiri, 2022). Empirical research has shown that wound severity, as measured by ulcer

classification systems, is significantly associated with decreased patient quality of life, with higher-grade ulcers correlating with lower quality of life scores, as measured by the SF-36 (Munawwarah, Khansa, Oktariani, & Amir, 2023). The quality of life of patients with DFU encompasses physical, psychological, social, and functional dimensions. More severe ulcers often negatively affect mobility, pain levels, self-confidence, and daily activities, thereby further deteriorating overall quality of life (Qomariyanti, Sauriasari, & Sartika, 2024).

To date, many DFU classification studies have focused primarily on clinical severity; however, comprehensive analyses comparing the SHID and Wagner classification systems, particularly in relation to quality of life, remain limited. Therefore, conducting a systematic scoping review is essential to map the current scientific evidence regarding the comparison between SHID and Wagner wound classifications in evaluating quality of life among patients with DFU. The findings are expected to provide both conceptual and empirical foundations for clinical practice and future research in nursing, rehabilitation, and holistic wound management (Gul, Basit, Ali, Ahmadani, & Miyan, 2016).

RESERCH METHOD

This study employed a scoping review design to comprehensively map the available scientific evidence regarding the use of SHID and Wagner wound classifications in evaluating quality of life among patients with diabetic foot ulcer (DFU). This approach was selected because the topic is still evolving and involves diverse study designs and measurement instruments, requiring broad literature mapping in accordance with the guidelines of the Joanna Briggs Institute as outlined in the JBI Manual for Evidence Synthesis, and reported following the framework of PRISMA-ScR. The literature search was conducted systematically through PubMed and Google Scholar for publications from 2020 to 2025 using Boolean combinations of the keywords "diabetic foot ulcer," "Wagner classification," "SHID classification," and "quality of life." The selection process considered publication metadata and full-text availability, yielding approximately 230 articles in the initial search, which were subsequently screened based on predefined inclusion and exclusion criteria

related to study design, language, relevance to wound classification and quality of life, and focus on adult diabetic ulcer populations.

Of the ten articles analyzed, most used a cross-sectional design and showed that the severity of DFU wounds was consistently associated with a decline in quality of life, particularly in the physical and functional domains. The Wagner classification is still the most widely used, while empirical evidence related to the SHID classification is beginning to develop and shows strong potential in describing the impact of wounds on patients' quality of life. However, no studies have been found that directly compare SHID and Wagner in terms of quality of life outcomes, making this a major gap identified in this scoping review. This theme includes studies that assess the reliability, validity, and predictive ability of wound classification systems. SHID is reported to have advantages in ease of use and clinical assessment accuracy, particularly in the context of nursing practice and wound management. Most studies show that the higher the degree of DFU (based on either Wagner or SHID), the lower the patient's quality of life. This decline is particularly evident in the physical, mobility, pain, and social function domains. This theme highlights the role of wound classification in treatment planning, determining interventions, and predicting patient prognosis. More accurate classification contributes to a more holistic and patient-centered approach to care. There is still limited research that directly compares the SHID and Wagner classifications in relation to quality of life as the primary outcome. Most studies still focus on clinical outcomes such as wound healing or risk of amputation.

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RESEARCH RESULTS

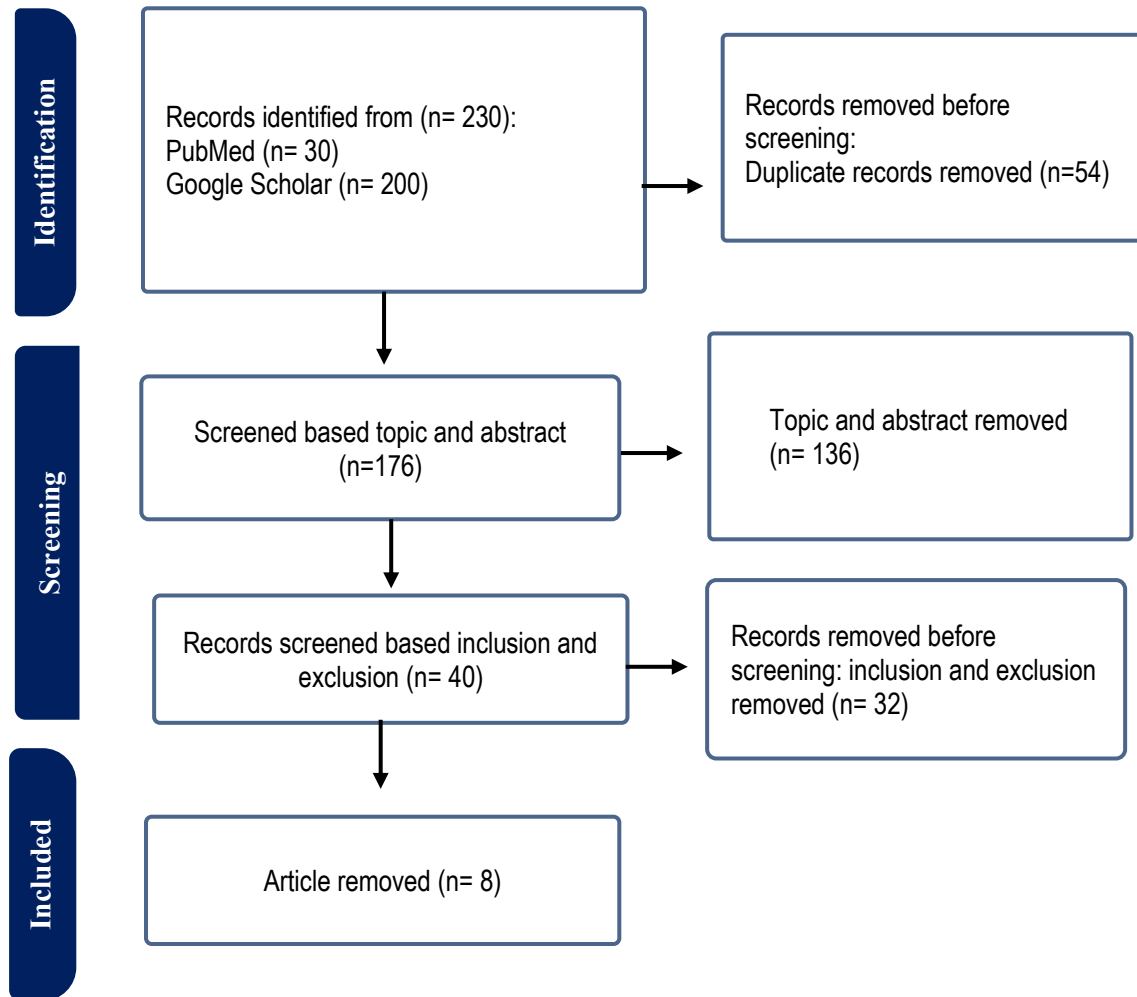


Figure. Diagram Prisma Flow

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Table. Article Review

(Author,Year) (Country)	Purpose	Method	Results
(Jais et al., 2022) (Indonesia)	To test the validity of the SHID wound classification system.	Validity study	The SHID system was valid for assessing diabetic foot ulcer severity.
(Jalilian & Shiri, 2022) (Iran)	To evaluate the reliability of the Wagner Scale in diabetic wound assessment.	Literature review	The Wagner Scale remains reliable and widely used in clinical practice.
(Pratama et al., 2025) (Indonesia)	To compare the accuracy of two wound classification systems in predicting healing.	Comparative study	Differences were found in classification accuracy for predicting wound healing.
(Monteiro-Soares et al., 2020) (Portugal)	To critically review diabetic foot ulcer classification systems.	Systematic review	No single classification system is superior; combined clinical parameters are recommended.
(Monteiro-Soares et al., 2024) (Portugal)	To systematically review foot ulcer classification in people with diabetes.	Systematic review	Classification systems are important for predicting clinical outcomes and research standardization.
(Munawwarah et al., 2023) (Indonesia)	To determine the relationship between wound grade and quality of life in DFU	Cross-sectional	Higher wound grade was associated with lower quality of life.

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	patients.		
(Oe et al., 2024) (Japan)	To assess the impact of ulcer-related factors on quality of life in diabetic patients.	Prospective observational	Pain, ulcer size, and infection significantly affected quality of life.
(Dias et al., 2022) (Portugal)	To assess quality of life in patients with diabetic foot ulcers.	Cross-sectional	Patients with ulcers had lower quality of life, particularly in physical and psychological domains.

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DISCUSSION

This scoping review indicates that research on diabetic foot ulcer (DFU) over the past five years has been dominated by studies examining the relationship between wound severity and decreased quality of life (QoL) among patients. Most studies employed observational designs, particularly cross-sectional and prospective observational studies, focusing on the assessment of health-related quality of life using standardized instruments such as EQ-5D, SF-36, and WHOQOL-BREF (Monteiro-Soares, Boyko, Jeffcoate, Mills, Russell, Morbach, & Game, 2020). In terms of wound classification, the Wagner classification remains the most widely used system in both clinical practice and research, mainly due to its simplicity in categorizing DFU severity based on wound depth and tissue involvement (Geravand, Nasli-Esfahani, Montazer, Jalalzadeh, & Azadbakht, 2025). These findings consistently demonstrate that higher Wagner grades are associated with lower QoL scores, particularly in the physical, mobility, and activities of daily living domains (Niță, Arhire, Mihalache, Popa, Niță, Gherasim, & Gaur, 2023).

In recent years, however, more comprehensive wound classification systems, such as DMIST and SHID, have begun to gain attention. These systems assess not only wound depth but also other characteristics, including wound size, tissue condition, signs of infection, and healing progress (Oe, Saad, Jais, & Sugama, 2024). Studies using these classifications indicate that certain wound characteristics—especially wound size and infection—are significantly associated with patients' QoL, even after controlling for demographic and clinical factors (Amrullah, Pratama, Agustini, Khairillah, & Saun, 2024). Nevertheless, most existing studies still focus on a unidirectional relationship between wound severity and QoL, without conducting comparative analyses between different wound classification systems. In addition, QoL is often treated as a secondary outcome rather than a primary variable of interest (Peters, Godfrey, McInerney, Munn, Tricco, Khalil, & Munn, 2020).

Based on the literature mapping results, this

scoping review identifies several important research gaps. First, there are no studies that directly compare the SHID and Wagner wound classification systems in evaluating the quality of life of DFU patients. Most studies use only one classification system, making it difficult to determine which system is more sensitive in reflecting the clinical and psychosocial impact of DFU on patients' QoL (Ahmad, 2016). Second, the dimensions of QoL assessed remain limited, with primary emphasis on physical and functional aspects. Psychosocial, emotional, and patient-perceived illness dimensions are often not comprehensively integrated with wound classification findings, despite evidence suggesting that psychological factors significantly contribute to reduced QoL among DFU patients (Dias, Ferreira, Vilaça, & Pereira, 2022). Third, most studies adopt cross-sectional designs, which do not adequately capture longitudinal changes in QoL alongside improvements or deteriorations in wound severity based on specific classifications. This limitation restricts understanding of the predictive ability of wound classification systems in relation to QoL changes over time. Fourth, research integrating the nursing care context and the use of wound classification as a clinical decision-support tool for QoL outcomes remains very limited, particularly in developing countries, including Indonesia (Pratama, Suyanto, Bhakti, & Jais, 2025).

Based on the identified findings and gaps, several recommendations for future research can be proposed. Future studies are encouraged to conduct direct comparative analyses between SHID and Wagner wound classification systems, with quality of life positioned as the primary outcome rather than merely a secondary variable (Kumar, 2021). This approach would provide clearer evidence regarding which classification system more accurately reflects the impact of DFU on patients' lives. Moreover, longitudinal or prospective cohort designs are strongly recommended to evaluate changes in patients' QoL in parallel with changes in wound severity according to each classification system. Such designs would enable a more comprehensive evaluation of wound classification systems as clinical monitoring tools and predictors of patient outcomes (Sachin, 2016).

Future research should also integrate

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psychosocial aspects and patient perceptions, including anxiety, depression, and coping mechanisms, into analyses of the relationship between wound classification and QoL. This multidimensional approach aligns with the paradigm of DFU management that emphasizes patient-centered care. Finally, more contextual studies in Indonesian healthcare settings are needed to ensure that the use of SHID and Wagner wound classifications is clinically relevant, practical, and capable of contributing to improved quality of life among patients with DFU (Steel, 2024).

CONCLUSION

Most studies show that the higher the degree of DFU (based on either Wagner or SHID), the lower the patient's quality of life. This decline is particularly evident in the physical, mobility, pain, and social function domains. This theme highlights the role of wound classification in treatment planning, determining interventions, and predicting patient prognosis. More accurate classification contributes to a more holistic and patient-centered approach to care. There is still limited research that directly compares the SHID and Wagner classifications in relation to quality of life as the primary outcome. Most studies still focus on clinical outcomes such as wound healing or risk of amputation.

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