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Psychological and behavioural determinants in type 2 diabetes self-management: A scoping review

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Abstract

Background: Type 2 Diabetes Mellitus (T2DM) is a chronic disease with a continuously increasing prevalence both globally and nationally. Successful management of T2DM is highly dependent on patient self-management behaviors. Assessment tools such as the Diabetes Self-Management Questionnaire-Revised (DSMQ-R) and the Summary of Diabetes Self-Care Activities-Indonesia (SDSCA-I) have been widely used to assess independent diabetes management. However, the integration of these tools with the Indonesian Nursing Diagnosis Standards (INDS) in establishing nursing diagnoses is still limited.

Purpose: To map the existing scientific evidence regarding the use of DSMQ-R and SDSCA-I in assessing diabetes self-management and to explore their potential in supporting nursing diagnosis formulation based on INDS.

Method: A scoping review was conducted following the PRISMA-ScR guidelines. Literature searches were performed in Google Scholar, PubMed, and ScienceDirect for articles published between 2018 and 2025. Included studies were primary quantitative and mixed-methods research addressing DSMQ-R, SDSCA, self-management in Type 2 Diabetes Mellitus, and their correlation with clinical outcomes.

Results: Most studies demonstrated that DSMQ-R and SDSCA have good validity and reliability and are significantly correlated with glycemic control (HbA1c). DSMQ-R showed a stronger correlation with HbA1c compared to SDSCA. However, no studies were identified that directly integrated these instruments with INDS in establishing nursing diagnoses.

Conclusion: DSMQ-R and SDSCA-I have the potential to serve as foundational tools for developing INDS-based assessment models in nursing practice.

Keywords: DSMQ-R; INDS; SDSCA-I; Self-Management; Scoping Review; Type 2 Diabetes Mellitus.

INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by insulin resistance and progressive impairment of insulin secretion, with prevalence continuing to increase globally and nationally. According to the International Diabetes Federation (IDF) report, approximately 589 million adults aged 20–79 years worldwide are living with diabetes, and this number is projected to rise to about 853 million by 2050. In Indonesia, the prevalence of diabetes among adults has reached 11.3%, affecting

approximately 20.4 million individuals, and has increased from 6.9% in 2013 to 10.9% in 2018 based on national health survey data. This rising prevalence contributes to higher rates of complications, increased healthcare costs, and reduced quality of life among patients (Khosravizadeh, Ahadinezhad, Maleki, Yousefy, & Momeni, 2024).

Effective management of T2DM is strongly influenced by patients' self-management behaviours, including dietary regulation, physical activity,

medication adherence, blood glucose monitoring, and foot care (World Health Organization, 2022). Good self-management has been shown to be associated with better glycaemic control and a lower risk of complications; therefore, nurses require objective assessment instruments to support comprehensive evaluation and accurate nursing diagnosis formulation (Lorig & Holman, 2023; North American Nursing Diagnosis Association, 2022). Instruments commonly used internationally include the Diabetes Self-Management Questionnaire-Revised (DSMQ-R) and the Summary of Diabetes Self-Care Activities (SDSCA), both of which have demonstrated validity and reliability and show significant correlations with glycaemic control (HbA1c) outcomes (Schmitt, Kulzer, Ehrmann, Haak, & Hermanns, 2022).

In Indonesia, nursing practice refers to the Indonesian Nursing Diagnosis Standards (INDS), Nursing Intervention Standards (NIS), and Nursing Outcome Standards (NOS) developed by the Indonesian Nursing Diagnosis Standards (INDS) as standardized guidelines for nursing care (Gonzalez-Zacarias, Mavarez-Martinez, Arias-Morales, Stoicea, & Rogers, 2016). However, there is currently no established assessment model integrating self-management instruments such as DSMQ-R and SDSCA with INDS-based nursing diagnosis determination for patients with T2DM. Therefore, research is needed to develop an integrated DSMQ-R-INDS and SDSCA-I-INDS assessment approach

and to evaluate its effectiveness in improving the accuracy of nursing diagnoses among patients with T2DM. The findings are expected to provide scientific evidence to support nurses in selecting appropriate self-management assessment tools, thereby enhancing diagnostic accuracy and the quality of nursing care for patients with diabetes (Soelistijo, Lindarto, Decroli, Permana, Sucipto, Kusnadi, & Ikhsan, 2021).

RESEARCH METHOD

This scoping review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) approach. The literature search was performed across several electronic databases, including Google Scholar, PubMed, ScienceDirect, and Elsevier. The keywords used in the search strategy were "Type 2 Diabetes," "DSMQ-R," "SDSCA," "Self-management," "Nursing diagnosis," and "INDS," which were combined using Boolean operators (AND, OR) to optimize search results. The inclusion criteria were primary research studies (quantitative, qualitative, or mixed-methods) published between 2018 and 2025, involving respondents with Type 2 Diabetes Mellitus, utilizing DSMQ-R or SDSCA instruments, and available in full-text format. The exclusion criteria included literature reviews, editorials or opinion articles, and studies with inaccessible full-text versions.

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RESEACRH RESULTS

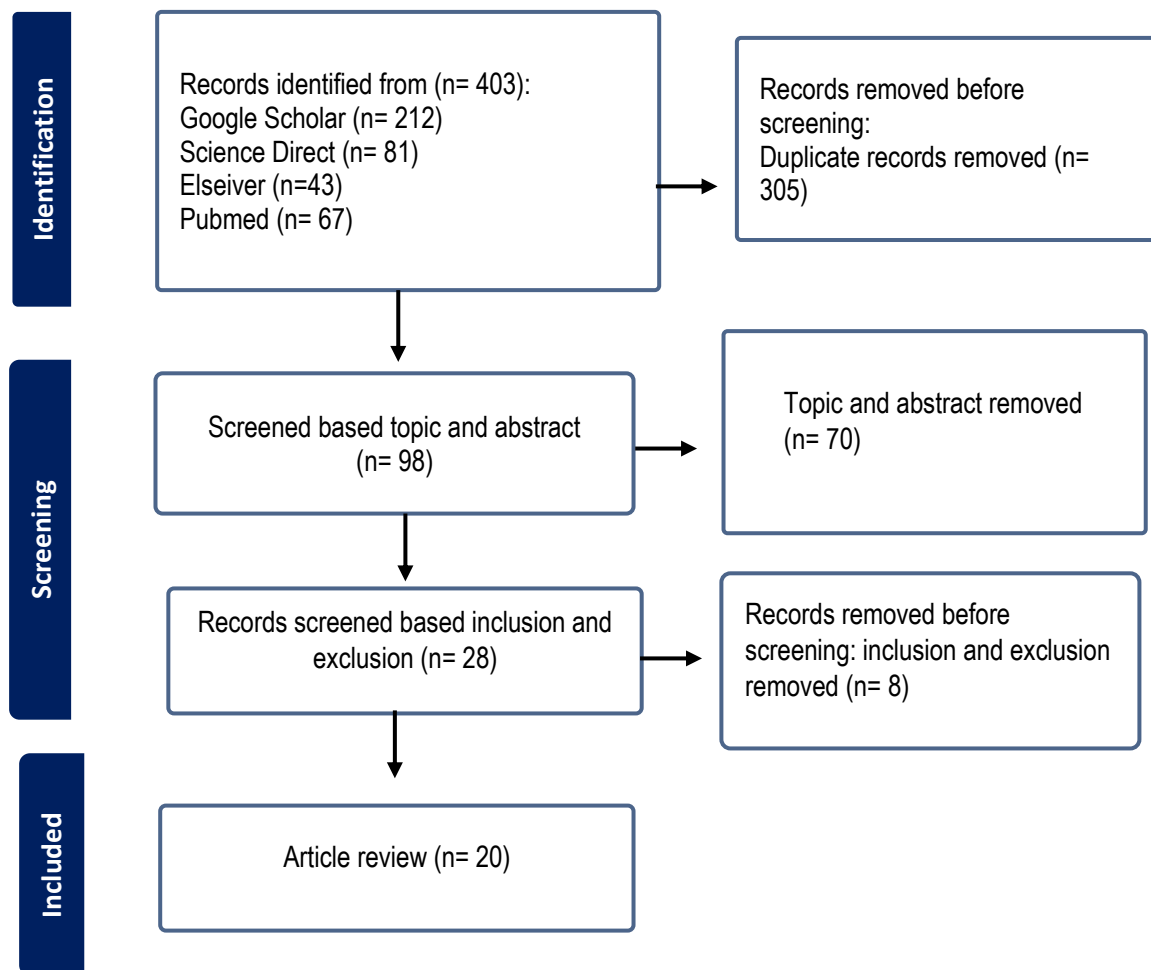


Figure. Diagram Prisma Flow

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Table. Article Review

(Author, Year) (Country)	Purpose	Method	Results
(Abate et al., 2021) (Ethiopia)	To identify the prevalence of non-adherence to diabetes self-care and associated factors.	Systematic review & meta-analysis	Non-adherence was high; education level, disease duration, and social support were significant factors
(Alblawi et al., 2024) (Saudi Arabia)	To evaluate patient responses to exercise therapy in diabetes.	Experimental study	Exercise improved glycemic control and metabolic parameters
(Alrasasimah & Alsabaani, 2024) (Saudi Arabia)	To determine predictors of self-management behavior among type 2 diabetes patients.	Cross-sectional	Self-efficacy, education, and family support were key predictors
(Azmiardi & Febrinasari, 2025) (Indonesia)	To evaluate the effectiveness of the Indonesian DSMQ instrument.	Instrument validation study	The Indonesian DSMQ was valid and reliable
(Chowdhury et al., 2024) (Bangladesh)	To assess the effectiveness of diabetes self-management education on glycemic control.	Systematic review & meta-analysis	DSME reduced HbA1c and cardiometabolic risk
(Embaye et al., 2024) (Netherlands)	To evaluate the MyDiaMate web-based app for mental health in diabetes.	Real-world study	Improved psychological well-being
(Februanti, 2020) (Indonesia)	To provide nursing care guidelines integrated with Indonesian standards.	Clinical guideline book	Improved documentation and interventions

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(Funnell & Anderson, 2024) (USA)	To explain empowerment in diabetes self-management.	Conceptual review	Improves adherence and outcomes
(Gonzalez-Zacarias et al., 2016) (USA)	To analyze demographic and psychological factors affecting glycemic self-management.	Observational study	Psychosocial and socioeconomic factors influenced control
(Hinkle & Cheever, 2018) (USA)	To provide medical-surgical nursing reference.	Textbook	Comprehensive diabetes management explanation
(Khosravizadeh et al., 2024) (Iran)	To evaluate self-care activities among type 2 diabetes patients.	Systematic review & meta-analysis	Self-care activities were generally low
(Lorig & Holman, 2023) (USA)	To explain history and mechanisms of self-management education.	Theoretical review	Improves outcomes via self-efficacy
(Lumadi & Kurniawan, 2017) (Indonesia)	To analyze family roles in supporting diabetes self-management.	Descriptive study	Family support improves adherence
(McClernon, 2023) (USA)	To examine psychosocial factors and self-efficacy related to self-management.	Quantitative dissertation	Self-efficacy was a strong predictor
(NANDA, 2022) (USA)	To provide standardized nursing diagnoses classification.	Standard reference	Supports evidence-based care planning
(Oliveira et al., 2024) (Portugal)	To validate the Portuguese DSMQ-R.	Psychometric validation	Valid and correlated with HbA1c

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(Reisi et al., 2021) (Iran)	To predict self-care behavior using Social Cognitive Theory.	Cross-sectional	Social cognitive factors influenced behavior
(Schmitt et al., 2022) (Germany)	To examine DSMQ-R clinimetric evidence.	Multi-study analysis	Reliable and sensitive to metabolic control
(Soelistijo et al. 2021) (Indonesia)	To develop national guidelines for type 2 diabetes management.	Clinical guideline	Comprehensive pharmacological and lifestyle management
(Word Health Organization, 2022)	To report the global burden of diabetes.	Global report	Diabetes prevalence continues to rise

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DISCUSSION

The synthesis results indicate that both DSMQ-R and SDSCA demonstrate good validity and reliability in measuring diabetes self-management behaviours. The internal consistency values of DSMQ-R are generally within the strong category, and this instrument shows a significant correlation with glycaemic control measured by HbA1c (Alblawi, Albalawi, Alajaji, Alenzi, Alsheekh, Alshehri, & Albalawi, 2024). Several studies reported that DSMQ-R has better predictive ability for HbA1c compared with other instruments, particularly in the domains of glucose management and treatment adherence. This finding suggests that DSMQ-R not only describes self-management behaviours but also has clinical value in predicting patients' metabolic outcomes. Meanwhile, SDSCA has also been proven valid and reliable and is widely used due to its simplicity and practicality in assessing daily self-care activities, such as diet, physical activity, glucose monitoring, and foot care. However, some studies indicate that the correlation between SDSCA and HbA1c tends to be more moderate than that of DSMQ-R, as SDSCA primarily measures the frequency of self-care behaviours and is therefore more descriptive rather than predictive (Abate, Dessie, Workineh, Gedamu, Birhanu, Ayalew, & Endalamaw, 2021).

Overall, most studies included in this review demonstrate a significant relationship between self-management scores and glycaemic control (Alrasasimah & Alsabaani, 2024). Patients with better self-management levels tend to have more controlled HbA1c levels. In addition, several studies associate optimal self-management with reduced risk of complications and improved quality of life. Nevertheless, no studies were identified that directly integrate DSMQ-R or SDSCA assessment results with the Indonesian Nursing Diagnosis Standards (INDS) in the process of establishing nursing diagnoses. Existing research still focuses on the relationship between self-management instruments and

clinical outcomes without examining their implications for nursing processes based on national standards. This finding indicates a gap between the scientifically validated use of self-management instruments and their application in nursing diagnosis practices in Indonesia (Embaye, de Wit, & Snoek, 2024). The results of this scoping review confirm that DSMQ-R and SDSCA have strong evidence as assessment tools for self-management in patients with Type 2 Diabetes Mellitus, yet their integration with INDS has not been systematically developed, creating opportunities for future research to design assessment models that bridge self-management instruments with INDS-based nursing diagnosis determination (Chowdhury, Harrison, Siddiquea, Tissera, Afroz, Ali, & Billah, 2024).

Both instruments consistently demonstrate good validity and reliability across various populations and healthcare settings (Azmiardi & Febrinasari, 2025). These findings confirm that self-management measurement can be conducted objectively and in a standardized manner, rather than relying solely on subjective observation or unstructured interviews. DSMQ-R shows a stronger correlation with glycaemic control, particularly HbA1c levels, compared with SDSCA. This may be explained by the fact that DSMQ-R was designed to assess diabetes management behaviours more comprehensively and in closer alignment with metabolic control aspects. Its multidimensional structure allows identification of specific areas contributing to blood glucose instability, indicating greater potential as a tool to detect ineffective health management problems in patients with Type 2 Diabetes Mellitus (Reisi, Fazeli, Mahmoodi, & Javadzade, 2021).

On the other hand, SDSCA offers advantages in simplicity and ease of use. This instrument is effective in describing the frequency of daily self-care behaviours and is therefore highly suitable for clinical practice with limited time, especially in primary healthcare settings (Hinkle & Cheever,

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2018). Although its correlation with HbA1c is relatively moderate, SDSCA remains relevant as an initial screening tool to identify behaviours that may increase the risk of unstable blood glucose levels. An important finding of this review is the gap between the use of scientifically validated self-management instruments and their application in nursing diagnosis processes based on INDS. All analysed studies focus on the relationship between self-management and clinical outcomes but do not explicitly link these findings with nursing processes, particularly the diagnostic phase, even though the domains within DSMQ-R and SDSCA are conceptually closely related to nursing diagnoses such as ineffective health management, nonadherence, and risk for unstable blood glucose levels (Oliveira, Costa, Henriques, Curado, Schmitt, & Nogueira, 2024).

The absence of integration indicates that nursing practice still has substantial opportunities to develop instrument-based assessment models aligned with national standards. Without integrated instruments, the assessment process may become less systematic and less objectively documented (McClernon, 2023). The integration of DSMQ-R-INDS and SDSCA-INDS could represent an innovation in improving diagnostic accuracy, strengthening evidence-based nursing practice, and supporting the quality of nursing documentation for patients with Type 2 Diabetes Mellitus (Febuanti, 2020). The use of standardized instruments may enhance consistency among nurses in establishing diagnoses, thereby reducing subjective clinical variation. This is essential in modern healthcare contexts that demand accountability, quality, and patient safety (Funnell & Anderson, 2024). With a systematic integration model, self-management assessment results would not merely remain numerical scores but could be directly transformed into a foundation for nursing clinical decision-making. Overall, this discussion emphasizes that DSMQ-R and SDSCA have substantial potential to be

developed as part of an INDS-based nursing assessment system; however, further research is needed to design and test integration models that are valid, practical, and appropriate to the Indonesian nursing practice context (Lumadi & Kurniawan, 2017).

CONCLUSION

Both instruments have been shown to correlate significantly with glycaemic control, particularly HbA1c values, which are the main indicator of successful diabetes therapy. The DSMQ-R shows a higher correlation with HbA1c than the SDSCA, thus having greater potential in predicting patients' metabolic control. Meanwhile, the SDSCA has the advantage of simplicity and ease of use in clinical practice. Despite having a strong evidence base, no studies have been found that directly integrate the DSMQ-R or SDSCA with the Indonesian Nursing Diagnosis Standards (INDS) in the nursing diagnosis process. All of the studies reviewed still focus on the relationship between the instruments and clinical outcomes, without examining their implications for the national standard-based nursing process. Thus, there is a gap between the use of scientifically validated self-management instruments and their application in nursing diagnosis practice in Indonesia. The integration of DSMQ-R-INDS and SDSCA-INDS has the potential to be an innovation in improving the accuracy of nursing assessment and diagnosis in patients with Type 2 DM.

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