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PSYCHOSOCIAL AND INTERPERSONAL FACTORS INFLUENCING DIABETES SELF-MANAGEMENT: THE ROLES OF SELF-EFFICACY, PSYCHOLOGICAL STRESS, FAMILY SUPPORT, AND HEALTHCARE COMMUNICATION

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Abstract

Background: Diabetes mellitus is a major global health challenge requiring lifelong self-management. Optimal diabetes self-management is influenced not only by clinical factors but also by psychosocial and interpersonal aspects, including self-efficacy, psychological stress, family support, and healthcare communication.

Objective: This study aimed to analyses the influence of psychosocial and interpersonal factors on diabetes self-management among patients with Type 2 Diabetes Mellitus (T2DM).

Methods: A cross-sectional analytical study was conducted among 50 T2DM patients at RSUD Jombang from January to March 2025. Data were collected using validated instruments, including the Summary of Diabetes Self-Care Activities (SDSCA), Diabetes Management Self-Efficacy Scale (DMSES), Perceived Stress Scale (PSS-10), Multidimensional Scale of Perceived Social Support (MSPSS), and a healthcare communication questionnaire. Data analysis included descriptive statistics, correlation tests, and multiple linear regression.

Results: Self-efficacy showed a significant positive correlation with diabetes self-management ($r = 0.521$; $p = 0.001$), while psychological stress showed a significant negative correlation ($r = -0.463$; $p = 0.002$). Family support ($r = 0.487$; $p = 0.001$) and healthcare communication ($r = 0.455$; $p = 0.003$) were positively associated with self-management. Multiple regression analysis revealed that all variables significantly influenced diabetes self-management, with self-efficacy as the strongest predictor ($\beta = 0.41$; $p = 0.002$). The model explained 50.7% of the variance. However, this study is limited by its cross-sectional design, small sample size, and reliance on self-reported data, which may affect generalizability and causal interpretation.

Conclusion: Psychosocial and interpersonal factors significantly influence diabetes self-management. Interventions should focus on improving self-efficacy, reducing stress, enhancing family support, and strengthening healthcare communication to improve patient outcomes.

INTRODUCTION

Diabetes mellitus remains a major global public health challenge, characterized by its chronic nature and the need for lifelong management. The increasing prevalence of diabetes worldwide has significantly contributed to morbidity, mortality, and reduced quality of life, particularly due to complications arising from poor disease control. Effective diabetes management relies heavily on patients' ability to perform consistent self-management behaviors, including medication adherence, dietary regulation, physical activity, and blood glucose monitoring. However, many patients struggle to maintain optimal self-management, highlighting the need to understand the underlying determinants influencing these behaviors (Sukma Wicaturatmashudi et al., 2024).

Self-management in diabetes is not solely determined by clinical or biomedical factors but is strongly influenced by psychosocial and interpersonal dimensions. Psychosocial factors such as self-efficacy and psychological stress have been identified as critical determinants in shaping patients' health behaviors. Self-efficacy, defined as an individual's belief in their ability to perform specific behaviors, plays a central role in promoting adherence to diabetes self-care practices. Higher levels of self-efficacy are consistently associated with better self-management outcomes and improved emotional well-being among patients with diabetes (Ataya et al., 2024).

Conversely, psychological stress, including diabetes-related distress and depressive symptoms, has been shown to negatively impact self-management behaviors. Individuals experiencing high levels of stress often exhibit reduced motivation, impaired decision-making, and lower confidence in managing their condition. Recent studies indicate that psychological distress not only directly affects self-management but also indirectly influences it through its interaction with self-efficacy, suggesting a complex and dynamic relationship between these variables (Heo et al., 2025).

In addition to intrapersonal factors, interpersonal influences such as family support and healthcare communication play a crucial role in diabetes self-management. Family support, encompassing emotional, informational, and instrumental assistance, has been shown to significantly enhance patients' adherence to treatment and lifestyle modifications. Patients who receive strong family support are more likely to engage in effective self-management behaviors and demonstrate better health outcomes (Alfatikhathu Khoirun Nisak, Suyanto Suyanto, & Indah Sri Wahyuningsih, 2025; L. Wang, Li, Qiu, Li, & Wang, 2024).

Furthermore, effective communication between patients and healthcare providers is an essential component of chronic disease management. Clear, empathetic, and patient-centered communication can improve patients' understanding of their condition, increase their confidence in managing diabetes, and foster better adherence to treatment recommendations. Studies have highlighted that open communication and supportive interactions with healthcare professionals are associated with improved glycemic control and self-management behaviors (Köse, Geçkil, Sabetsarvestani, & Bolat, 2024).

Despite the growing body of evidence, many studies have examined these factors in isolation, limiting the understanding of how psychosocial and interpersonal variables collectively influence

diabetes self-management. A more integrative approach is needed to explore the combined roles of self-efficacy, psychological stress, family support, and healthcare communication in shaping patient behavior. Understanding these relationships is particularly important in developing comprehensive and culturally appropriate interventions aimed at improving diabetes outcomes.

Although previous studies have examined the effects of self-efficacy, psychological stress, family support, and healthcare communication on diabetes self-management, most of these studies have investigated these factors independently. There is still limited evidence that simultaneously integrates both psychosocial and interpersonal determinants within a single analytical model, particularly in the Indonesian healthcare context. This gap limits a comprehensive understanding of how these factors interact and collectively influence self-management behaviors.

This study aims to examine the influence of psychosocial and interpersonal factors—specifically self-efficacy, psychological stress, family support, and healthcare communication—on diabetes self-management. By identifying the key determinants and their interactions, this study is expected to contribute to the development of more effective, holistic, and patient-centered diabetes management strategies.

METHODS

Study Design

This study employed a cross-sectional analytical design to examine the influence of psychosocial and interpersonal factors on diabetes self-management. A cross-sectional approach is appropriate for identifying associations between variables within a specific population at a single point in time and is widely used in studies investigating behavioral and psychosocial determinants of chronic disease management (Innab & Kerari, 2024).

The study aimed to assess the relationships between self-efficacy, psychological stress, family support, healthcare communication, and diabetes self-management. This design allows for the simultaneous measurement of multiple variables and provides an efficient method for exploring complex interrelationships among psychosocial and interpersonal factors in patients with diabetes mellitus.

Settings and Participants

The study was conducted at a regional public hospital, RSUD Jombang, which provides comprehensive healthcare services, including outpatient management for patients with chronic diseases such as diabetes mellitus. This setting was selected due to its accessibility to a stable population of patients with Type 2 Diabetes Mellitus (T2DM) receiving routine care and monitoring.

The study was carried out from January to March 2025, during which data collection was performed in the outpatient clinic.

The study population consisted of patients diagnosed with T2DM who attended the outpatient clinic at RSUD Jombang. A total of 50 participants were included in this study. Participants were

recruited using a convenience sampling technique, which is commonly applied in cross-sectional studies conducted in clinical settings (AlJohani, Kendall, & Snider, 2024).

The inclusion criteria were: (1) patients aged 18 years or older, (2) diagnosed with T2DM for at least six months, and (3) willing to participate and able to provide informed consent. The exclusion criteria included patients with severe complications, cognitive impairments, or critical conditions that could interfere with their ability to complete the questionnaire.

All participants were informed about the purpose of the study, and written informed consent was obtained before data collection. The selection of participants and study setting align with previous studies that emphasize the importance of clinical-based sampling for assessing diabetes self-management behaviors (Innab & Kerari, 2024).

Instruments and Data Collection

Data in this study were collected using a structured questionnaire consisting of several standardized and validated instruments. Diabetes self-management was measured using the Summary of Diabetes Self-Care Activities (SDSCA), which comprises 11 items covering diet, physical activity, blood glucose monitoring, foot care, and medication adherence. Each item is scored based on the number of days (0–7 days) the respondent performed specific self-care activities over the past week. The total score is calculated by averaging item scores, with higher scores indicating better self-management behavior. For interpretation, self-management was categorized into poor (≤ 3 days), moderate (4–5 days), and good (≥ 6 days) adherence (AlJohani et al., 2024; Maghalian et al., 2025).

Self-efficacy was assessed using the Diabetes Management Self-Efficacy Scale (DMSES), which includes 20 items measuring patients' confidence in performing diabetes-related self-care activities. Each item is rated on a Likert scale ranging from 1 (not confident at all) to 5 (very confident). The total score ranges from 20 to 100, with higher scores reflecting greater self-efficacy. The scores were categorized into low (20–46), moderate (47–73), and high (74–100) levels of self-efficacy (Zaini et al., 2025).

Psychological stress was measured using the Perceived Stress Scale (PSS-10), consisting of 10 items assessing the degree to which individuals perceive situations in their lives as stressful. Each item is rated on a 5-point Likert scale (0 = never to 4 = very often). The total score ranges from 0 to 40, with higher scores indicating greater perceived stress. The scores were categorized into low stress (0–13), moderate stress (14–26), and high stress (27–40) (Innab & Kerari, 2024).

Family support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS), which contains 12 items measuring perceived support from family, friends, and significant others, with a focus on family support in this study. Each item is rated on a 7-point Likert scale (1 = very strongly disagree to 7 = very strongly agree). The total score is calculated as the mean of all items, with higher scores indicating greater perceived support. The results were categorized into low (1.0–2.9), moderate (3.0–5.0), and high (5.1–7.0) levels of family support (L. Wang et al., 2024).

Healthcare communication was measured using a structured questionnaire consisting of 10 items adapted from previous studies assessing patient–provider communication. The instrument evaluates aspects such as clarity of information, empathy, responsiveness, and patient involvement in decision-making. Each item is rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The total score ranges from 10 to 50, with higher scores indicating more effective communication. The scores were categorized into poor (10–23), moderate (24–37), and good (38–50) communication levels (Köse et al., 2024).

In addition, sociodemographic and clinical characteristics, including age, gender, education level, duration of diabetes, and body mass index (BMI), were collected using a structured form. All instruments used in this study have demonstrated acceptable validity and reliability in previous studies, with Cronbach’s alpha values exceeding 0.70, indicating good internal consistency (AlJohani et al., 2024; Innab & Kerari, 2024).

Data collection was conducted at RSUD Jombang over a specified study period involving a total of 50 patients with Type 2 Diabetes Mellitus (T2DM) who met the inclusion criteria. The data were collected using a structured, self-administered questionnaire consisting of validated instruments measuring diabetes self-management, self-efficacy, psychological stress, family support, and healthcare communication.

Participants were recruited during their routine outpatient visits to the internal medicine or diabetes clinic. Eligible patients were approached directly by the researcher or trained research assistants and were provided with a clear explanation of the study objectives, procedures, and their rights as participants. Written informed consent was obtained before participation.

The questionnaires were distributed and completed on-site. For participants who had difficulty reading or understanding the questionnaire, assistance was provided through interviewer-guided administration to ensure accurate responses while minimizing bias. The average time required to complete the questionnaire was approximately 20–30 minutes.

Before the main data collection, the instruments were reviewed and, if necessary, translated into the Indonesian language using forward–backward translation procedures to ensure clarity and cultural appropriateness. A pilot test was conducted on a small group of respondents with similar characteristics to assess the clarity and reliability of the questionnaire. The results showed acceptable internal consistency, with Cronbach’s alpha values exceeding 0.70, indicating good reliability.

To maintain data quality, each completed questionnaire was checked for completeness and consistency immediately after collection. Incomplete responses were clarified directly with participants when possible. All collected data were kept confidential and used solely for research purposes. Ethical approval for the study was obtained from the relevant institutional ethics committee before data collection, ensuring that the study adhered to ethical standards for research involving human participants (Innab & Kerari, 2024).

Potential sources of bias in this study include selection bias due to the use of convenience sampling and response bias arising from self-reported questionnaires. To minimize these biases, participants were recruited consecutively during routine visits, and standardized, validated instruments were used. In addition, assistance was provided to ensure accurate understanding of questionnaire items.

Data Analysis

Data were analysed using statistical software such as SPSS version 21. Before analysis, data were checked for completeness, accuracy, and normality. Descriptive statistics were used to summarize participants' characteristics and study variables, including means, standard deviations, frequencies, and percentages.

Bivariate analysis was performed to examine the relationships between independent variables (self-efficacy, psychological stress, family support, and healthcare communication) and the dependent variable (diabetes self-management). Depending on the distribution of the data, Pearson's correlation test was used for normally distributed variables, while Spearman's rank correlation test was applied for non-normally distributed data (AlJohani et al., 2024).

To identify the most influential factors affecting diabetes self-management, multiple linear regression analysis was conducted. All independent variables were entered simultaneously into the regression model to determine their relative contribution while controlling for potential confounders such as age, gender, education level, and duration of diabetes. The assumptions of regression analysis, including multicollinearity, normality, linearity, and homoscedasticity, were assessed before model interpretation.

The level of statistical significance was set at $p < 0.05$, with a 95% confidence interval (CI). The strength and direction of associations were interpreted based on correlation coefficients and standardized beta values. This analytical approach is consistent with previous studies examining psychosocial determinants of diabetes self-management (Innab & Kerari, 2024; L. Wang et al., 2024).

Ethical Consideration

Data were analysed using statistical software such as SPSS version 21. Before analysis, data were checked for completeness, accuracy, and normality. Descriptive statistics were used to summarize participants' characteristics and study variables, including means, standard deviations, frequencies, and percentages.

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RESULTS

Characteristics of Respondents

Based on Table 1, the majority of respondents were aged ≥ 40 years (76.0%), while only 24.0% were under 40 years old. In terms of gender, female respondents slightly outnumbered males, accounting for 56.0% and 44.0%, respectively. Regarding educational level, half of the participants had secondary education (50.0%), followed by higher education (30.0%) and primary education (20.0%).

In relation to the duration of diabetes mellitus, most respondents had been diagnosed for ≥ 5 years (64.0%), whereas 36.0% had a duration of less than 5 years. These findings indicate that the study population was predominantly middle-aged, female, moderately educated, and had long-term experience living with diabetes.

Table 1. Demographic and Clinical Characteristics of Respondents by Age, Gender, Education Level, and Duration of Diabetes Mellitus at RSUD Jombang, January–March 2025 (n = 50).

Variables	Category	Frequency	Percentage
		(f)	(%)
Age	< 40 years	12	24.0
	≥ 40 years	38	76.0
Gender	Male	22	44.0
	Female	28	56.0
Education	Primary	10	20.0
	Secondary	25	50.0
	Higher	15	30.0
Duration of Diabetes Mellitus	< 5 years	18	36.0
	≥ 5 years	32	64.0

Sources: Primary Data of Questionnaire, 2025.

Distribution of Diabetes Self-Management Across Psychosocial and Interpersonal Factors

As shown in Table 2, respondents with high self-efficacy were more likely to demonstrate good diabetes self-management (18.0%) compared to those with moderate (10.0%) and low self-efficacy

(2.0%). Conversely, poor self-management was predominantly observed among respondents with low self-efficacy (16.0%).

Statistical analysis revealed a moderate positive correlation between self-efficacy and diabetes self-management ($r = 0.521$; $p = 0.001$), indicating that higher levels of self-efficacy are significantly associated with better self-management behaviors.

Table 2. Crosstabulation Between Self-Efficacy and Diabetes Self-Management at RSUD Jombang, January–March 2025 ($n = 50$).

Self-Efficacy	Self-Management						Total	
	Poor		Moderate		Good			
	f	%	f	%	f	%	f	%
Low	8	16.0	4	8.0	1	2.0	13	26.0
Moderate	5	10.0	12	24.0	5	10.0	22	44.0
High	1	2.0	5	10.0	9	18.0	15	30.0
Total	14	28.0	21	42.0	15	30.0	50	100.0
r = 0.521; <i>p</i> -value = 0.001								

Sources: Primary Data of Questionnaire, 2025.

Table 3. Crosstabulation Between Psychological Stress and Diabetes Self-Management at RSUD Jombang, January–March 2025 ($n = 50$).

Psychological Stress	Self-Management						Total	
	Poor		Moderate		Good			
	f	%	f	%	f	%	f	%
Low	2	4.0	4	8.0	6	12.0	12	24.0
Moderate	7	14.0	14	28.0	5	10.0	26	52.0
High	5	10.0	3	6.0	4	8.0	12	24.0
Total	14	28.0	21	42.0	15	30.0	50	100.0
r = -0.463; <i>p</i> -value = 0.002								

Sources: Primary Data of Questionnaire, 2025.

Table 3 shows that respondents with low psychological stress had the highest proportion of good self-management (12.0%), whereas those with high stress levels were more likely to exhibit poor self-management (10.0%).

The correlation analysis demonstrated a moderate negative relationship between psychological stress and diabetes self-management ($r = -0.463$; $p = 0.002$). This suggests that increased psychological stress is significantly associated with poorer self-management outcomes.

Table 4. Crosstabulation Between Family Support and Diabetes Self-Management at RSUD Jombang, January–March 2025 (n = 50).

Family Support	Self-Management						Total	
	Poor		Moderate		Good			
	f	%	f	%	f	%	f	%
Low	7	14.0	3	6.0	1	2.0	11	22.0
Moderate	5	10.0	13	26.0	6	12.0	24	48.0
High	2	4.0	5	10.0	8	16.0	15	30.0
Total	14	28.0	21	42.0	15	30.0	50	100.0
r = 0.487; p-value = 0.001								

Sources: Primary Data of Questionnaire, 2025.

Based on Table 4, respondents who reported high family support tended to have better diabetes self-management, with 16.0% categorized as having good self-management. In contrast, those with low family support were more likely to have poor self-management (14.0%).

The results indicated a moderate positive correlation between family support and diabetes self-management ($r = 0.487; p = 0.001$), highlighting the important role of family involvement in supporting effective self-care behaviors among patients with diabetes.

Table 5. Crosstabulation Between Healthcare Communication and Diabetes Self-Management at RSUD Jombang, January–March 2025 (n = 50).

Healthcare Communication	Self-Management						Total	
	Poor		Moderate		Good			
	f	%	f	%	f	%	f	%
Poor	6	12.0	3	6.0	1	2.0	10	20.0
Moderate	6	12.0	13	26.0	6	12.0	25	50.0
High	2	4.0	5	10.0	8	16.0	15	30.0
Total	14	28.0	21	42.0	15	30.0	50	100.0
r = 0.455; <i>p</i> -value = 0.003								

Sources: Primary Data of Questionnaire, 2025.

As presented in Table 5, respondents who experienced good healthcare communication were more likely to have good self-management (16.0%), whereas poor communication was associated with poor self-management (12.0%).

The analysis showed a moderate positive correlation between healthcare communication and diabetes self-management ($r = 0.455$; $p = 0.003$), indicating that effective communication between patients and healthcare providers significantly contributes to improved self-management practices.

Multiple Linear Regression Analysis of Factors Influencing Diabetes Self-Management

Table 6. Multiple Linear Regression Analysis of Factors Influencing Diabetes Self-Management at RSUD Jombang, January–March 2025 ($n = 50$).

Variables	B	SE	Beta	<i>p</i>-value
Constant	12.45	3.21	-	0.001
Self-Efficacy	0.35	0.12	0.41	0.002
Psychological Stress	-0.28	0.11	-0.32	0.005
Family Support	0.30	0.13	0.29	0.010
Healthcare Communication	0.25	0.12	0.26	0.015
<i>Model Summary:</i>				
$R = 0.712$; $R^2 = 0.507$; Adjusted $R^2 = 0.468$; p -value < 0.001				

Sources: Primary Data of Questionnaire, 2025.

Table 6 presents the results of the multiple linear regression analysis. The findings indicate that all independent variables significantly influence diabetes self-management.

Self-efficacy was identified as the strongest predictor ($\beta = 0.41$; $p = 0.002$), indicating that higher self-efficacy significantly improves self-management behaviors. Psychological stress showed a significant negative effect ($\beta = -0.32$; $p = 0.005$), suggesting that increased stress reduces the ability of patients to manage their condition effectively.

Family support ($\beta = 0.29$; $p = 0.010$) and healthcare communication ($\beta = 0.26$; $p = 0.015$) were also found to have significant positive effects on diabetes self-management.

The overall model was statistically significant ($p < 0.001$) with an R^2 value of 0.507, indicating that approximately 50.7% of the variance in diabetes self-management can be explained by the combined effects of self-efficacy, psychological stress, family support, and healthcare communication.

DISCUSSION

This study examined the influence of psychosocial and interpersonal factors—self-efficacy, psychological stress, family support, and healthcare communication—on diabetes self-management among patients with Type 2 Diabetes Mellitus (T2DM). The findings demonstrate that all variables significantly contribute to diabetes self-management, with self-efficacy emerging as the strongest predictor. These results highlight the multidimensional nature of diabetes management, emphasizing that behavioral outcomes are shaped not only by individual capabilities but also by emotional and social contexts.

Self-Efficacy and Diabetes Self-Management

The results showed a significant positive relationship between self-efficacy and diabetes self-management ($r = 0.521$; $p = 0.001$), with self-efficacy identified as the strongest predictor in the regression model ($\beta = 0.41$; $p = 0.002$). This finding indicates that patients with higher confidence in their ability to manage diabetes are more likely to engage in effective self-care behaviors.

This result is consistent with Bandura's Social Cognitive Theory, which posits that self-efficacy plays a central role in influencing health behaviors through motivation, goal-setting, and persistence (Bandura, 1997). Recent studies have reinforced that self-efficacy significantly predicts adherence to diet, medication, and glucose monitoring among individuals with T2DM (Ataya et al., 2024; Zaini et al., 2025). Moreover, self-efficacy has been shown to mediate the relationship between knowledge and behavior, suggesting that knowledge alone is insufficient without confidence in implementation (Mrayan, Abujilban, AbuKaraki, & Nashwan, 2024).

From a clinical perspective, patients with high self-efficacy are better able to overcome barriers, maintain long-term behavioral changes, and adapt to the demands of chronic disease management (Abshire Saylor et al., 2023). Therefore, enhancing self-efficacy through structured education, motivational interviewing, and behavioral interventions should be prioritized in diabetes care programs.

This finding can be explained by the mechanism in which self-efficacy enhances individuals' cognitive and behavioral regulation, enabling patients to translate knowledge into consistent self-care practices.

Psychological Stress and Diabetes Self-Management

The study found a significant negative correlation between psychological stress and diabetes self-management ($r = -0.463$; $p = 0.002$), with stress also showing a significant negative effect in the regression model ($\beta = -0.32$; $p = 0.005$). These findings indicate that higher levels of stress are associated with poorer self-management behaviors.

Psychological stress has been widely recognized as a barrier to effective diabetes management. Stress can impair cognitive functioning, reduce motivation, and negatively affect decision-making processes, leading to poor adherence to treatment regimens (Fisher, Hessler, Polonsky, & Mullan, 2020; Obura et al., 2021). Additionally, diabetes-related distress has been linked to higher HbA1c levels and increased risk of complications (Hill-Briggs et al., 2020).

Recent evidence suggests that stress not only directly affects self-management but also indirectly influences it by reducing self-efficacy (Abshire Saylor et al., 2023). This interaction underscores the importance of addressing psychological well-being in diabetes care. Interventions such as stress management training, mindfulness-based therapy, and counseling have been shown to improve both psychological outcomes and self-management behaviors (Ismail, Winkley, & Rabe-Hesketh, 2022; van Son, Nyklíček, Pop, & Pouwer, 2020).

In the context of this study, the findings suggest that psychosocial support should be integrated into routine diabetes care to mitigate the negative impact of stress on patient outcomes. Psychological stress may impair executive functioning and reduce adherence through emotional exhaustion and decreased motivation.

Family Support and Diabetes Self-Management

Family support was found to have a significant positive relationship with diabetes self-management ($r = 0.487$; $p = 0.001$) and remained a significant predictor in the regression analysis ($\beta = 0.29$; $p = 0.010$). Patients who reported higher levels of family support demonstrated better adherence to self-care behaviors.

This finding aligns with previous studies indicating that social and family support play a crucial role in chronic disease management (Mayberry & Osborn, 2021; L. Wang et al., 2024). Family members can provide emotional encouragement, assist with daily care activities, and reinforce positive health behaviors, thereby enhancing adherence and improving outcomes.

The Family Systems Theory suggests that health behaviors are influenced by family dynamics and interactions, highlighting the importance of involving family members in care planning (Rosland, Heisler, & Piette, 2020; Rosland, Kieffer, et al., 2020). In many cultural contexts, including Indonesia, family plays a central role in health decision-making, making family-based interventions particularly relevant.

Moreover, studies have shown that family support can buffer the negative effects of stress and enhance self-efficacy, creating a synergistic effect on self-management (Pamungkas, Chamroonsawasdi, & Vatanasomboon, 2021). Therefore, incorporating family-centered approaches in diabetes education and intervention programs is essential.

Healthcare Communication and Diabetes Self-Management

The study also demonstrated a significant positive relationship between healthcare communication and diabetes self-management ($r = 0.455$; $p = 0.003$), with communication emerging as a significant predictor ($\beta = 0.26$; $p = 0.015$). Patients who experienced better communication with healthcare providers were more likely to engage in effective self-management behaviors.

Effective patient-provider communication is a cornerstone of patient-centered care. It enhances patients' understanding of their condition, improves adherence to treatment recommendations, and fosters trust and collaboration (Shen et al., 2020). Clear and empathetic communication has been associated with better glycemic control and improved health outcomes (Köse et al., 2024).

Recent studies emphasize that communication is not only about information delivery but also about engaging patients in shared decision-making and empowering them to take an active role in their care (Ha & Longnecker, 2021). Poor communication, on the other hand, can lead to misunderstanding, reduced adherence, and dissatisfaction with care.

In this study, the findings suggest that improving communication skills among healthcare providers—such as active listening, empathy, and patient engagement—can significantly enhance diabetes self-management.

Integrated Influence of Psychosocial and Interpersonal Factors

The multiple regression analysis revealed that the combined variables explained 50.7% of the variance in diabetes self-management ($R^2 = 0.507$), indicating a substantial explanatory power. This finding supports the biopsychosocial model, which posits that health behaviors are influenced by the interaction of biological, psychological, and social factors (Engel, 1977).

The results highlight that diabetes self-management is a complex behavior influenced by interconnected factors. Self-efficacy acts as a central driver, while psychological stress, family support, and healthcare communication function as reinforcing or inhibiting factors. These findings are consistent with integrative models of chronic disease management that emphasize the importance of addressing multiple determinants simultaneously (Powers et al., 2020; Rozbroj, Lyons, & Lucke, 2019).

Practically, these findings suggest that diabetes management programs should integrate psychosocial screening, structured self-efficacy enhancement interventions, and family-based education. Healthcare providers should also receive communication skills training to support patient-centered care.

IMPLICATION AND LIMITATION

The findings of this study have important implications for nursing practice, healthcare services, and future research in diabetes management. The identification of self-efficacy as the strongest predictor of diabetes self-management highlights the need for healthcare providers, particularly nurses, to prioritize interventions that enhance patients' confidence in managing their condition. Structured diabetes education programs should be designed not only to improve knowledge but also to strengthen behavioural skills and self-efficacy through approaches such as motivational interviewing, goal-setting, and continuous feedback. In addition, the significant influence of psychological stress suggests that routine psychological assessment should be integrated into diabetes care, with appropriate interventions such as stress management programs, counselling, and psychosocial support. The role of family support further emphasizes the importance of adopting a family-centered care approach, where family members are actively involved in education and self-management planning. Moreover, the positive impact of healthcare communication indicates that improving patient-provider communication skills—such as empathy, active listening, and shared decision-making—should be a key component of professional training for healthcare providers. Collectively, these findings support the implementation of a holistic and patient-centered care model that integrates psychological, social, and interpersonal dimensions to improve diabetes outcomes.

Despite its contributions, this study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits the ability to establish causal relationships between psychosocial and interpersonal factors and diabetes self-management. Future longitudinal or experimental studies are recommended to better understand causal pathways. Second, the use of a relatively small sample size ($n = 50$) from a single healthcare setting (RSUD Jombang) may limit the generalizability of the findings to broader populations. Third, the use of self-reported questionnaires may introduce response bias, including social desirability and recall bias, which could affect the accuracy of the data. Additionally, this study did not include clinical outcome measures such as HbA1c levels, which could provide a more comprehensive understanding of the relationship between psychosocial factors and clinical diabetes control. Finally, other potential influencing factors—such as socioeconomic status, cultural beliefs, health literacy, and access to healthcare services—were not explored and may contribute to unexplained variance in diabetes self-management. Therefore, future research should incorporate larger, more diverse samples and include both psychosocial and clinical indicators to provide a more comprehensive understanding of diabetes self-management.

A key strength of this study is the integration of multiple psychosocial and interpersonal variables within a single analytical framework. However, limitations include the cross-sectional design, small sample size, and reliance on self-reported measures.

CONCLUSION

This study demonstrates that diabetes self-management is significantly influenced by both psychosocial and interpersonal factors, including self-efficacy, psychological stress, family support, and healthcare communication. Among these, self-efficacy emerged as the most influential predictor, indicating that patients' confidence in their ability to manage their condition plays a central role in determining self-care behaviors. Conversely, psychological stress was found to negatively affect self-management, highlighting the importance of addressing emotional well-being in diabetes care. In addition, strong family support and effective healthcare communication were shown to enhance patients' adherence to recommended self-care practices.

These findings underscore the need for a holistic and patient-centered approach in diabetes management that goes beyond clinical treatment alone. Interventions should focus on strengthening self-efficacy, reducing psychological stress, involving family members, and improving the quality of patient-provider communication. By integrating these elements into routine care, healthcare providers can promote more sustainable self-management behaviors and ultimately improve health outcomes among patients with Type 2 Diabetes Mellitus.

Future interventions should include structured self-efficacy training programs, stress management interventions, and family-based support strategies. Additionally, healthcare institutions should prioritize improving communication skills among providers through continuous professional development programs.

AUTHOR CONTRIBUTION

Eliza Zihni Zatihulwani : Conceptualization, methodology, data curation, formal analysis, writing – original draft.

Kusuma Wijaya Ridi Putra : Conceptualization, methodology, writing – review & editing, and supervision.

Karisma Dwi Ana : Data curation, formal analysis, writing – original draft.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest related to this study, including financial, personal, or institutional relationships that could influence the work reported in this paper.

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Table Captions

- Table 1. Demographic and Clinical Characteristics of Respondents by Age, Gender, Education Level, and Duration of Diabetes Mellitus at RSUD Jombang, January–March 2025 (n = 50).
- Table 2. Crosstabulation Between Self-Efficacy and Diabetes Self-Management at RSUD Jombang, January–March 2025 (n = 50).
- Table 3. Crosstabulation Between Psychological Stress and Diabetes Self-Management at RSUD Jombang, January–March 2025 (n = 50).
- Table 4. Crosstabulation Between Family Support and Diabetes Self-Management at RSUD Jombang, January–March 2025 (n = 50).
- Table 5. Crosstabulation Between Healthcare Communication and Diabetes Self-Management at RSUD Jombang, January–March 2025 (n = 50).
- Table 6. Multiple Linear Regression Analysis of Factors Influencing Diabetes Self-Management at RSUD Jombang, January–March 2025 (n = 50).