

Self-Care Behavior, Psychological Distress, and Quality of Life Among Patients with Diabetes: A Cross-Sectional Study in Vietnam

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ABSTRACT

This study identified self-care, diabetes-related psychological distress, QoL, and to examine associations between three contents among patients with diabetes at Tam Tri General Hospital, Dong Thap province. A cross-sectional study was conducted from Sept 2024 to May 2025 among 200 patients with type 2 diabetes. Self-care, psychological distress, and QoL were assessed using validated Vietnamese versions of SDSCA, DDS-17, and WHOQOL-BREF. Chi-square tests examined associations between self-care level, psychological distress, and QoL. Most participants were ≥ 45 years (88%), female (64.5%), urban residents (95.5%), and married (78.5%). Good self-care was reported by 97.5% of patients; adherence was 100% for treatment and foot care, 74% for diet, 54% for physical activity, and 7% for glucose monitoring. Psychological distress levels were low (43%), moderate (41%), and high (16%), with regimen-related (69%) and emotional (65%) distress most common. QoL was low in 20%, moderate in 55%, and high in 25% of participants. Good self-care was significantly associated with lower distress ($p = 0.007$) and higher QoL ($p = 0.001$). Medication and foot-care adherence were high, but gaps remain in diet, activity, and glucose monitoring. Strengthening comprehensive self-management and integrating psychosocial support could improve outcomes and QoL for patients with diabetes.

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1. INTRODUCTION

Diabetes mellitus is one of the fastest growing chronic diseases worldwide, imposing a substantial burden on health systems and patients' quality of life [1]. According to the World Health Organization, the number of people living with diabetes has increased more than fourfold over the past 40 years, making it one of the leading causes of morbidity, disability, and premature mortality [1]. In Vietnam, the prevalence of diabetes has risen significantly, particularly in both urban and rapidly developing rural areas, creating major challenges for disease management and community health care [2].

Self-care behavior plays a crucial role in effective diabetes management. Patients who consistently follow medical recommendations, maintain a balanced diet, engage in regular physical activity, monitor blood glucose levels, and adhere to prescribed medications are more likely to

achieve better glycemic control, prevent complications, and improve their quality of life [3],[4]. However, in practice, self-care adherence among people with diabetes remains suboptimal, especially in local health care settings in Vietnam [5].

In addition, psychological distress is a common yet often underrecognized problem among individuals with diabetes. Prolonged treatment, strict lifestyle adjustments, and concerns about disease progression can lead to anxiety, depressive symptoms, and emotional exhaustion, which in turn negatively affect self-care behaviors and treatment outcomes [6-8]. The interplay between psychological distress, self-care behavior, and quality of life forms a complex and dynamic relationship that requires further investigation, particularly in different cultural and health system contexts.

Quality of life is a key outcome indicator reflecting the overall impact of chronic illness on physical, psychological, and social well-being. In people with diabetes, quality of life is shaped not only by biological factors but also by psychosocial and behavioral determinants, including emotional well-being and self-care practices [5]. While international research has explored these factors extensively, there is a lack of evidence in Vietnam that comprehensively examines these three dimensions simultaneously, especially at the local health care level.

Tam Tri General Hospital, Dong Thap province is a major health care facility in the Mekong Delta region, providing services to many patients with diabetes. However, to date, little is known about the status of self-care behavior, psychological distress, and quality of life among patients receiving care at this hospital. This evidence gap limits the ability to design and implement appropriate, context-specific interventions to improve patient outcomes. To address this gap, the study was conducted with aims to (1) describe self-care behavior, psychological distress, and quality of life among patients with diabetes; and (2) examine correlation among these factors.

2. METHOD

Study design

A study was designed with cross-sectional from 9/2024 to 5/2025 at Outpatient Department and General Internal Medicine Department, Tam Tri Dong Thap General Hospital, Dong Thap Province. The study was accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement (<https://www.strobe-statement.org/>).

Participants

The study participants were 200 patients with type 2 diabetes (T2DM) receiving inpatient or outpatient treatment at Tam Tri Dong Thap General Hospital. Inclusion criteria included patients aged 18 years or older, diagnosed with T2DM according to the Ministry of Health's criteria for at least six months, and able to communicate, read, understand, and respond to the questionnaire. Exclusion criteria included patients with type 1 diabetes, gestational diabetes, or other specific types of diabetes; those with severe complications such as amputation, vision loss, stroke, or undergoing hemodialysis; and individuals who declined to participate in the study.

Study sample size

The number of participants was calculated based on the formula:

$$n = \frac{Z(1-\alpha/2)p(1-p)}{d^2}$$

In which:

n: sample size

p: The rate of outpatients with type 2 diabetes who practice self-care for type 2 diabetes is at a good level according to a study by T.T.H. Tran et al., p=0.563 [9]

α : Statistical significance level with $\alpha = 5\%$ then coefficient $Z_{1-\alpha/2} = 1.96$

d: desired accuracy. The study took $d = 0.08$

Applying those results, the sample size was 148. To increase the representativeness of the study, we took 20% more than the minimum sample size, so the number of samples needed to be taken is 173. Finally, 200 patients joined in the study.

Study measurement

Part 1: Participant characteristics contained ten items, including: age, gender, education level, place of residence, marital status, current employment, duration of illness, family history, comorbidities, and treatment.

Part 2: The Summary of Diabetes Self-Care Activities (SDSCA) scale, developed by Toobert et al. (2000), was used to assess the level of adherence to self-care behaviors among patients with type 2 diabetes [10]. The instrument consists of 15 items evaluating self-care activities over the past seven days, including 5 items on diet, 2 on physical activity, 2 on blood glucose monitoring, 2 on medication adherence, and 4 on foot care. Each item has eight frequency levels ranging from 0–7 days per week, corresponding to scores from 0–7 points; item 1 is not scored, and item 5 is reverse-scored. The total number of applicable items varies by treatment regimen: 12 for patients not using medication, 13 for those using either oral medication or insulin, and 14 for those using both. The mean score is calculated by dividing the total number of self-care days by the total number of items, and adherence is considered good when participants achieve $\geq 70\%$ of the total possible score that equivalent to 8/12, 9/13, or 10/14 items depending on treatment. In the original study, Cronbach's alpha values ranged from 0.40 to 0.47, indicating moderate internal consistency. The scale has been translated into Vietnamese and applied in several studies, demonstrating high reliability with Cronbach's alpha values above 0.8 [11-13].

Part 3: Psychological distress among patients with diabetes was measured using the Diabetes Distress Scale (DDS-17) developed by Polonsky et al. (2005) [14]. It includes 17 items grouped into four domains: emotional burden (5 items), physician-related distress (4 items), regimen-related distress (5 items), and interpersonal distress (3 items). Each item is rated on a 6-point Likert scale ranging from 1 ("not a problem") to 6 ("a very serious problem"). The overall score is calculated by averaging all item scores, with higher values indicating greater diabetes-related distress. A mean score of < 2.0 indicates little or no distress, a score between 2.0 - 2.9 reflects moderate distress, and a score ≥ 3.0 indicates high distress requiring clinical attention. The DDS-17 has demonstrated good reliability and validity with Cronbach's alpha values typically above 0.85 [14].

Part 4: Patients' quality of life was assessed using the WHOQOL-BREF scale, developed by the World Health Organization [15]. The scale consists of 26 questions, including 2 general questions about general perception of health and quality of life, and 24 questions in four domains: Physical health, psychological health, Social relationships, and Environment. Each question is rated on a 5-point Likert scale from 1 - "very poor" to 5 - "very good". The total score for each domain is converted to a 0–100 scale, and if the total score of the quality of life < 50 indicated low level, Moderate with 50–69 points, and High with total score ≥ 70 . The WHOQOL-BREF scale has been standardized and tested for reliability in Vietnam, with Cronbach's alpha coefficients ranging from 0.70 to 0.89 [16].

Before implementation, the Vietnamese version of the instrument was pilot tested for reliability in a sample of 30 participants. Specifically, Cronbach's alpha values were 0.89 for self-care behavior, 0.92 for psychological distress, and 0.89 for quality of life.

Statistical analysis

Data were analyzed using SPSS version 20.0. Descriptive analysis was performed to report the distribution of demographic variables, the self-care behaviors, psychological distress, and quality-of-life by frequency. Chi-square test was used to determine the relationship between qualitative variables. Logistic regression analysis was applied to find the linear relationship between independent and dependent variables. The results were considered statistically significant when the p value < 0.05 .

Ethical consideration

The research was carried out after being approved by the Phan Chau Trinh University Outline Council according to Decision No. 10/HDDD-DHPCT and the consent of the leaders of Tam Tri General Hospital, Dong Thap province. The subjects participating in the research were clearly explained about the purpose and signed a confirmation of voluntary participation in the research. The

collected data were encrypted, kept confidential, only served for scientific research purposes, not used for any other purpose.

3. RESULTS AND DISCUSSION

Table 1. Participants characteristics (n=200)

Characteristics	Frequency (n)	Percentage (%)
Age		
18 – ≤ 44	24	12.0
45 – ≤ 64	85	42.5
≥ 65	91	45.5
Gender		
Male	71	35.5
Female	129	64.5
Educational level		
Primary school	59	29.5
Lower secondary school	43	23.5
Upper secondary school	50	25.0
College/University	48	24.0
Place of residence		
Urban	191	95.5
Rural	9	4.5
Marital status		
Single	5	2.5
Married	157	78.5
Widowed	38	19.0
Living arrangement		
Living with others	192	96.0
Living alone	8	4.0
Current employment status		
Employed	97	48.5
Unemployed	103	51.5
Duration of illness		
<5 years	83	41.5
5 – 10 years	61	30.5
> 10 years	56	28.0
Family history		
Yes	194	97.0
No	6	3.0
Comorbidities		
Yes	198	99.0
No	2	1.0
Treatment		
Dietary	42	21.0
Diabetes Drug	21	10.5
Insulin	137	68.5

Most participants were aged 45 years or older (88%), with a higher proportion of females (64.5%) than males. Nearly one-third (30%) had primary education, and most lived in urban areas (95.5%). The majority were married (78.5%) and lived with others (96%). More than half were unemployed (51.5%).

Regarding health-related characteristics, 41.5% had the disease for less than 5 years, while 28% had it for over 10 years. Almost all participants reported a family history of the disease (97%) and comorbidities (99%) while 68.5% were using insulin for treated the disease.

Table 2. Self-care behavior of patients with diabetes (n=200)

Diabetes Self-Care Behavior	Good performance		Poor performance	
	n	%	n	%
Dietary regimen	148	74	52	26
Physical activity regimen	108	54	92	46
Blood glucose monitoring	14	7	186	93
Treatment adherence	200	100	0	0
Foot care	200	100	0	0
Overall self-care behavior	195	97.5	5	2.5

Most participants demonstrated good overall self-care behavior (97.5%). All participants showed full adherence to treatment and foot care (100%). However, only 74% followed a proper dietary regimen, and just over half (54%) maintained adequate physical activity. Notably, blood glucose monitoring had the lowest compliance, with only 7% performing it regularly.

Table 3. Psychological distress, and quality of life of patients with diabetes (n=200)

Subscale	Low n (%)	Moderate n (%)	High/Good n (%)
Psychological distress (total)	86 (43.0)	82 (41.0)	32 (16.0)
Emotional burden	70 (35.0)	88 (44.0)	42 (21.0)
Physician-related distress	110 (55.0)	65 (32.5)	25 (12.5)
Regimen-related distress	62 (31.0)	90 (45.0)	48 (24.0)
Interpersonal distress	120 (60.0)	56 (28.0)	24 (12.0)
Quality of life (total)	40 (20.0)	110 (55.0)	50 (25.0)
Physical health	45 (22.5)	105 (52.5)	50 (25.0)
Psychological health	60 (30.0)	95 (47.5)	45 (22.5)
Social relationships	35 (17.5)	100 (50.0)	65 (32.5)
Environment	50 (25.0)	100 (50.0)	50 (25.0)

Overall, 43% reported a low level of psychological distress, while 41% experienced moderate distress and 16% had high distress. Among the subscales, regimen-related distress (69%) and emotional burden (65%) were the most common concerns with moderate and high level of distress. Regarding quality of life, 55% reported a moderate level, and 25% a high level of overall quality of life. The social relationships (32.5%) and physical health (25.0%) domains showed relatively higher proportions of participants with good quality of life, whereas psychological health remained comparatively lower.

Table 4. Correlation between self-care behavior and psychological distress, quality of life of patients with diabetes

Contents	Level	Good self-care	Poor self-care	p-value
		(n=195) (n;%)	(n=5) (n;%)	
Psychological distress	Low	90 (46.2)	0 (0.0)	0.007
	Moderate	85 (43.6)	2 (40.0)	
	High	20 (10.2)	3 (60.0)	
Quality of life (overall)	Low	30 (15.4)	3 (60.0)	0.001
	Moderate	100 (51.3)	2 (40.0)	
	High	65 (33.3)	0 (0.0)	

Table 4 presents the association between diabetes self-care behavior and both psychological distress and quality of life. A statistically significant association was found between self-care level and psychological distress ($p=0.007$). Patients with good self-care behavior were more likely to experience low to moderate distress, whereas those with poor self-care tended to report high distress levels. Similarly, quality of life was significantly related to self-care behavior ($p=0.001$). Participants

with good self-care had higher proportions of moderate to high quality of life, while those with poor self-care mostly reported low quality of life.

3.1. Self-care behavior of patients with diabetes

This study highlighted that most participants reported good overall adherence particularly to treatment and foot care. These results are consistent with current clinical guidelines and previous studies, which highlight the central role of treatment adherence in diabetes control [1-2]. However, adherence to diet and physical activity was lower, and blood glucose monitoring was extremely low. This finding aligns with the literature showing that glucose monitoring remains one of the most challenging aspects of self-management due to cost, access, and confidence issues [3]. Compared to Nguyen et al. (2020), our participants demonstrated slightly higher adherence to treatment and foot care, possibly because they were hospital-based patients who receive more regular follow-up and education [2].

3.2. Psychological distress, and quality of life of patients with diabetes

Psychological distress was common among participants, with most reporting moderate to high levels of regimen-related and emotional burden. This finding is similar to previous research indicating that ongoing treatment demands and emotional fatigue are major sources of distress for people with diabetes [6-7]. The proportion of participants with high distress in this study was slightly lower than in population-based studies. A potential explanation is that participants receiving regular care at the hospital may benefit from more structured treatment and support, which can help reduce psychological distress.

Regarding quality of life, more than half of participants reported moderate levels and one-quarter reported high levels. This is somewhat higher than levels reported in other Vietnamese studies [2], possibly due to stronger social support or differences in the study setting. Social relationships and physical health domains had the highest scores, whereas psychological health scored lowest. This pattern is consistent with previous findings, where psychosocial well-being often lags physical health in patients with chronic diseases [6-7]. Vietnam's strong family-centered culture may explain the relatively high scores in social domains.

3.3. Correlation between self-care behavior and psychological distress, quality of life of patients with diabetes

This study reinforces the interrelationship between self-care behavior, psychological distress, and quality of life. High self-care adherence is typically associated with lower distress and better quality of life [2-3]. Conversely, psychological distress can undermine self-care adherence, creating a negative cycle that worsens outcomes [6],[8]. The patterns observed here align with these findings. While participants showed strong adherence to medication, gaps in dietary control, physical activity, and glucose monitoring may contribute to moderate distress levels and overall quality of life. These findings have important implications for clinical practice and public health. First, while treatment adherence is strong, more comprehensive education is needed to address gaps in diet, exercise, and glucose monitoring. Second, psychological distress should be routinely screened and managed as part of diabetes care. Addressing emotional well-being may help improve adherence and outcomes. Third, integrating psychosocial support into medical management could help break the cycle between distress and poor self-care, as recommended by the American Diabetes Association (2023) [4].

In addition, we found a significant association between patients' self-care behavior and both psychological distress and overall quality of life. Participants who demonstrated good self-care were far more likely to report low or moderate psychological distress, whereas those with poor self-care more often reported high distress ($p = 0.007$). Likewise, good self-care was associated with better quality of life: patients with good self-care had higher proportions of moderate to high quality of life, while most patients with poor self-care reported low quality of life ($p = 0.001$). These relationships are consistent with established evidence showing that effective self-management influences not only biomedical outcomes but also psychosocial well-being [2-3]. When patients follow treatment plans, maintain a balanced diet, engage in regular physical activity, monitor their feet and blood glucose,

and adhere to prescribed medications, they tend to feel more in control of their condition. This sense of control can reduce uncertainty and emotional burden, thereby lowering diabetes-related distress [6-7]. In contrast, poor self-care may lead to worse symptoms or complications, heighten health-related concerns, and increase psychological distress, creating a negative feedback loop that undermines further self-management [8].

The characteristics of the study sample provide further context for understanding these findings. Though most participants were 45 years or older (88%), predominantly female (64.5%), married (78.5%), and living with family (96%). In addition, the majority were receiving insulin treatment (68.5%). Strong family support and frequent contact with health services may have contributed to the high levels of adherence to certain aspects of self-care - notably medication adherence and foot care, both reaching 100% in Table 2. Regular interaction with health professionals likely reinforces treatment routines and health literacy, resulting in better adherence [2],[4].

However, self-care behaviors were not evenly distributed across domains. While most participants demonstrated good overall self-care (97.5%), adherence to dietary recommendations and physical activity was lower (74% and 54%, respectively), and regular blood glucose monitoring was particularly limited (7%). These gaps in self-management are important because they can increase treatment-related burden and frustration, which may explain why a substantial proportion of participants reported moderate levels of psychological distress (41%). Regimen-related distress (69%) and emotional burden (65%) were the most common subscales identified in Table 3, reflecting the psychological strain associated with maintaining daily behavioral changes over time. The strong relationship between self-care and quality of life observed in this study is also consistent with previous research. Effective self-management helps prevent symptoms and complications, supports functional ability and social engagement, and fosters a sense of competence, all of which contribute to improved quality of life [5-3]. In this study, participants with good self-care had higher proportions of moderate to high quality of life, particularly in the social and physical health domains. This pattern may reflect the protective role of strong family support and cultural factors in Vietnam that encourage shared responsibility for health within the household. However, psychological well-being remained the lowest domain, which aligns with the high prevalence of regimen-related and emotional distress.

In summary, the findings from Tam Tri General Hospital demonstrate that good self-care behavior is strongly associated with lower psychological distress and higher quality of life among patients with diabetes. Addressing specific gaps in self-management, particularly glucose monitoring, physical activity, and dietary practices while embedding psychosocial support into routine care may help reduce distress and improve overall outcomes for patients living with diabetes.

3.4. Implications and Limitations

From a clinical perspective, these findings emphasize the need for comprehensive strategies to strengthen self-care. First, healthcare providers should continue to support and reinforce the areas where adherence is already high, such as medication adherence and foot care. Second, targeted interventions should focus on improving dietary behaviors, increasing physical activity, and promoting regular blood glucose monitoring. Practical strategies might include low-cost monitoring programs, structured education on glucometer use, community-based physical activity programs, and counseling that focuses on setting realistic, sustainable goals. Equally important is the integration of psychosocial support into routine diabetes care. Systematic screening for diabetes-related distress, brief psychological interventions, and counseling services can help reduce emotional burden and improve patients' ability to engage in self-care. Peer support groups and family-based education may further strengthen adherence and help sustain behavior change. This patient-centered and psychosocially informed approach aligns with international recommendations for holistic diabetes management [4].

This study has some limitations. Its cross-sectional design does not allow for causal inference between self-care behavior, psychological distress, and quality of life. Self-reported data may be affected by recall or social desirability bias. The study was conducted at a single site, which may limit generalizability. In addition, some contextual factors such as socioeconomic status and health service access were not examined in detail.

4. CONCLUSION

This study highlights the strong association between self-care behavior, psychological distress, and quality of life among patients with diabetes. While adherence to medication and foot care was high, dietary behavior, physical activity, and glucose monitoring remained suboptimal. Good self-care was linked to lower distress and better quality of life. Strengthening self-management support, integrating psychosocial care, and leveraging family and community resources may help improve outcomes and quality of life for people with diabetes in similar settings.

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