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SOME FACTORS RELATED TO TREATMENT ADHERENCE AMONG OUTPATIENTS WITH TYPE 2 DIABETES AND DIABETIC NEPHROPATHY AT THANH NHAN HOSPITAL IN 2025

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ABSTRACT

Objective: To analyze some factors related to treatment adherence among outpatients with type 2 diabetes and diabetic nephropathy at Thanh Nhan Hospital in 2025.

Subjects and Methods: A cross-sectional descriptive study with analytical components was conducted on 104 outpatients diagnosed with type 2 diabetes and diabetic nephropathy.

Results: Patients aged 60 or younger, without health insurance, lacking support, having a disease duration of less than 5 years, and having insufficient disease knowledge were more likely to have poor treatment adherence.

Conclusion: There were statistically significant associations between treatment adherence and factors such as age, health insurance status, social support, disease duration, and disease-related knowledge.

Keywords: Treatment adherence, type 2 diabetes, outpatient care, diabetic nephropathy.

1. INTRODUCTION

Diabetes mellitus (DM) is a metabolic disorder caused by multiple factors. It is characterized by chronic hyperglycemia associated with disturbances in carbohydrate, lipid, and protein metabolism due to a deficiency in insulin secretion, insulin action, or both [1].

According to the International Diabetes Federation (IDF) in 2019, diabetes is a non-communicable disease and a global pandemic. Worldwide, the disease affects approximately 463 million adults aged 20 to 79 years [2]. In Vietnam, from 2002 to 2012, the prevalence of diabetes increased by approximately 2.7% [3]. Specifically, a 2020 study by Pham Thi Thuy Hoa et al. reported that 8.5% of participants had diabetes and 22.5% had prediabetes, with the highest prevalence (16.0%) observed among middle-aged individuals [4].

Although diabetes is a chronic condition, patients can monitor their blood glucose levels and prevent complications by adhering to recommended dietary regimens, lifestyle changes, and prescribed medications. However, many studies have shown that treatment adherence among diabetic patients remains suboptimal. A 2014 systematic review by Krass and colleagues found that, across 27 studies on treatment adherence in diabetic patients, adherence rates ranged from 38.5% to 93.1%. Only six studies reported adherence levels above 80% [5]. In patients with type 2 diabetes and diabetic nephropathy, our reference to a survey by Chairat Shayakul et al. indicated that only 50.9% of patients demonstrated good medication adherence, 24.1% had moderate adherence, and 25% had poor adherence [6].

In Vietnam, studies by both local and international researchers have shown that treatment adherence among diabetic patients in general remains limited [7]. These studies also highlight that, besides personal characteristics such as age, gender, education, comorbidities, and socioeconomic status, having diabetic nephropathy is a key factor influencing adherence [7]. For diabetic patients with kidney complications, treatment adherence plays an even more critical role in improving treatment outcomes.

As of 2020, Thanh Nhan Hospital has been providing outpatient care to approximately 2,000 patients with type 2 diabetes, many of whom suffer from chronic kid-

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ney disease. However, the current status of treatment adherence in this group remains unclear. Therefore, we conducted the study entitled: "Treatment adherence among outpatients with type 2 diabetes and diabetic nephropathy at Thanh Nhan Hospital in 2025".

2. SUBJECTS AND RESEARCH METHODS

2.1. Study Design

A cross-sectional descriptive study with analytical components.

2.2. Study Location and Duration

- Location: Outpatient Clinic – Thanh Nhan Hospital

- Duration: February 2025 – June 2025

2.3. Study Subjects

- Inclusion criteria:

+ Patients diagnosed with type 2 diabetes mellitus with kidney complications.

+ Patients with normal mental health can communicate and comprehend well.

+ Patients who agree to participate in the study.

- Exclusion criteria:

+ Patients with acute or chronic complications requiring inpatient treatment.

2.4. Sample Size and Sampling Method

- Sample size:

All patients who met the inclusion criteria and received outpatient treatment during one month were included. In practice, 104 patients meeting the inclusion criteria were recruited.

- Sampling method:

+ Convenience sampling was applied: All patients who met the inclusion and exclusion criteria during the study period were included.

2.5. Variables / Indicators / Research Content / Themes

The data collection tool was a structured questionnaire comprising five parts to measure relevant factors:

- Part 1: General characteristics of the participants: age, gender, occupation, education level, disease characteristics (duration, clinical symptoms, if any), and presence of chronic comorbidities.

- Part 2: Assessment of treatment adherence among diabetic patients.

- Part 3: Assessment of patients' knowledge of diabetes.

- Part 4: Assessment of patients' self-efficacy.

- Part 5: Evaluation of support from family and surrounding individuals.

2.6. Data Collection Methods and Procedures

Data were collected through face-to-face interviews using the pre-designed questionnaire.

- Data collection procedures:

+ Step 1: Develop the study protocol and the first version of the data collection tool.

+ Step 2: Revise the data collection tool based on feedback after protocol approval.

+ Step 3: Train data collectors on how to use the questionnaire.

+ Step 4: Conduct the interviews.

+ Step 5: Review collected data for completeness and consistency.

+ Step 6: Compile and enter data into the database.

2.7. Data Processing and Analysis

Data were processed using SPSS version 20.0. The following methods were applied:

- Descriptive statistics: Used to calculate percentages, frequencies, means, and standard deviations of quantitative variables such as demographic characteristics, adherence levels, knowledge, support, and self-efficacy.

- Analytical statistics: The chi-square test was used to examine the association between treatment adherence and related factors. Odds Ratios (OR) and 95% Confidence Intervals (CI) were calculated. A significance level of $\alpha = 0.05$; $p < 0.05$ was considered statistically significant.

2.8. Bias and Mitigation Measures

- Potential biases:

+ Recall bias: Respondents might not accurately remember meals, missed medication doses, home blood glucose monitoring, or clinic visits.

+ Random error: Unclear questions may lead to subjective interpretation and responses.

- Mitigation measures:

+ Review questionnaires after each interview to ensure completeness.

+ Reconfirm unclear responses by asking follow-up questions for accuracy.

2.9. Research Ethics

- The study was conducted after obtaining approval from instructors and Thang Long University as per Decision No.... and project assignment Decision No....

- Approval was granted by the Ethics Committee and management of Thanh Nhan Hospital, as well as the heads of relevant departments.

- All patients were clearly informed about the purpose and duration of the study and provided verbal consent before participation. They were allowed to withdraw from the study at any point without affecting their medical care.

- The data collected were used solely for research purposes, aiming to improve public health, with no other intent.

3. RESEARCH RESULTS

Table 1. Association between demographic characteristics and overall treatment adherence (n = 104)

Demographic characteristics	Treatment adherence		OR (95%CI)	p
	Non-adherent n (%)	Adherent n (%)		
Gender				
Male	36 (64,3)	20 (35,7)	1,29 (0,58 – 2,84)	0,534
Female	28 (58,3)	20 (41,7)		
Age				
≤ 60 years	29 (74,4)	10 (25,6)	2,49 (1,04 – 5,92)	0,037
> 60 years	35 (53,8)	30 (46,2)		
Education level				
≤ High school	53 (65,4)	28 (34,6)	2,06 (0,81 – 5,27)	0,126
> High school	11 (47,8)	12 (52,2)		

Note: Participants aged 60 years or younger were more likely to be non-adherent to treatment compared to those over 60 years old, with a statistically significant difference (p < 0.05; OR = 2.49; 95% CI: 1.04 – 5.92).

Table 2. Association between social characteristics and overall treatment adherence (n = 104)

Social characteristics	Treatment adherence		OR (95%CI)	p
	Non-adherent n (%)	Adherent n (%)		
Occupation				
Others	36 (64,3)	20 (35,7)	1,29 (0,58 – 2,84)	0,534
Homemaker/ Retired	28 (58,3)	20 (41,7)		
Living arrangement				
Living alone	3 (60,0)	2 (40,0)	0,93 (0,15 – 5,85)	0,942
Living with relatives	61 (61,6)	38 (38,4)		
Health insurance				
No	11 (91,7)	1 (8,3)	8,09 (1,01 – 65,34)	0,049
Yes	53 (57,6)	39 (42,4)		

Note: Participants without health insurance were more likely to be non-adherent than those with insurance, with a statistically significant difference (p < 0.05; OR = 8.09; 95% CI: 1.01 – 65.34).

Table 3. Association between disease characteristics and overall treatment adherence (n = 104)

Disease characteristic	Treatment adherence		OR (95%CI)	p
	Non-adherent n (%)	Adherent n (%)		
Duration of diabetes				
< 5 years	21 (84,0)	4 (16,0)	4,40 (1,38 – 13,98)	0,009
≥ 5 years	43 (54,4)	36 (45,6)		
Neuropathy				
Yes	8 (57,1)	6 (42,9)	0,81 (0,26 – 2,53)	0,716
No	56 (62,2)	34 (37,8)		
Retinopathy				
Yes	6 (66,7)	3 (33,3)	1,28 (0,30 – 5,42)	0,741
No	58 (61,1)	37 (38,9)		
Cardiovascular complications				
Yes	9 (64,3)	5 (35,7)	1,15 (0,36 – 3,70)	0,820
No	55 (61,1)	3 (38,9)		

Note: Participants with diabetes duration less than 5 years were more likely to be non-adherent than those with diabetes duration 5 years or more, with a statistically significant difference (p < 0.05; OR = 4.40; 95% CI: 1.38 – 13.98).

Table 4. Association between self-efficacy and support with overall treatment adherence (n = 104)

Variable	Treatment adherence		OR (95%CI)	p
	Non-adherent n (%)	Adherent n (%)		
Self-efficacy				
Not confident	57 (64,0)	32 (36,0)	2,04 (0,68 – 6,13)	0,201
Confident	7 (46,7)	8 (53,3)		
Support				
No support received	29 (74,4)	10 (25,6)	2,49 (1,04 – 5,93)	0,037
Adequate support	35 (53,8)	30 (46,2)		

Note: Participants who did not receive support were more likely to be non-adherent than those who received adequate support, with a statistically significant difference (p < 0.05; OR = 2.49; 95% CI: 1.04 – 5.93).

Table 5. Association between disease knowledge and overall treatment adherence (n = 104)

Disease knowledge	Treatment adherence		OR (95%CI)	p
	Non-adherent n (%)	Adherent n (%)		
Not achieved	13 (86,7)	2 (13,3)	4,84 (1,03 – 22,75)	0,031
Achieved	51 (57,3)	38 (42,7)		
Total	64 (61,5)	40 (38,5)		

Note: Participants with inadequate knowledge about the disease were more likely to be non-adherent than those with adequate knowledge, with a statistically significant difference (p < 0.05; OR = 4.84; 95% CI: 1.03 – 22.75).

4. DISCUSSION

4.1. Association between demographic characteristics and overall treatment adherence in patients with type 2 diabetes

Our study did not find a statistically significant association between gender, BMI, or education level and overall treatment adherence in diabetes patients. However, we found a statistically significant association between age and overall treatment adherence. Participants aged 60 years or younger were 2.49 times more likely to be non-adherent compared to those older than 60. This result is consistent with the study by Lê Thị Ánh Nguyệt [8], which also reported a significant association between age groups and treatment adherence, with those aged 60 and above having 2.01 times higher adherence compared to younger groups [8]. According to Shayrakul, patients aged 65 and above are more likely to adhere to treatment [6].

Our findings differ from those of Đỗ Quang Tuyển, who reported that patients aged 60 and above were 2.58 times more likely to be non-adherent to nutritional recommendations compared to younger patients [9]. The author explains that older adults face more challenges in changing dietary habits, have reduced self-care abilities, and lack family support in preparing appropriate foods for their condition. The discrepancies among studies may be due to different approaches. While our research evaluated overall treatment adherence, Đỗ Quang Tuyển focused specifically on dietary adherence, an area where elderly patients often face greater barriers. Additionally, differences in study populations and measurement methods may also contribute.

4.2. Association between social characteristics, self-confidence, support, and overall treatment adherence

Our study found a statistically significant association between health insurance status and overall treatment adherence. Participants without health insurance were 8.09 times more likely to be non-adherent compared to those with insurance, with a significant difference (p < 0.05). This may be explained by the high costs of medical treatment, especially for diabetes patients with kidney complications or those requiring long-term treatment. Without insurance, patients must bear these costs themselves, leading to financial difficulties and an inability to continue treatment.

The study also found a significant association between lack of support and non-adherence. Those without support were 2.49 times more likely to be non-adherent than those receiving adequate support (p < 0.05). Family and social support play an essential role in motivating patients. For patients with type 2 diabetes and kidney complications, especially the elderly and frail, managing treatment schedules, taking medication on time, and attending follow-ups can be very challenging. Without help, they may forget or be unable to self-care adequately, leading to incomplete treatment adherence.

4.3. Association between disease characteristics and overall treatment adherence

We found a statistically significant association between disease duration and treatment adherence. Patients with diabetes duration less than 5 years were 4.40 times more likely to be non-adherent compared to those with diabetes duration 5 years or longer (p < 0.05). This differs from the study by Trần Thị Phương Anh et al. (2024), which found that disease duration over 10 years was associated with higher medication adherence (5.2 vs 4.0, p = 0.002) [10].

4.4. Association between treatment adherence and patients' disease knowledge

Our study indicated that patients with inadequate knowledge about their disease were 4.84 times more likely to be non-adherent compared to those with adequate knowledge, with statistical significance (p < 0.05). This result aligns with the study by Đỗ Quang Tuyển [9], which found that patients with adequate knowledge had higher adherence to physical activity, medication use, home blood glucose monitoring, and regular follow-up than those with inadequate knowledge (p < 0.05) [9]. When patients understand their disease, know how to use medication properly, exercise reasonably, follow nutrition guidelines, and monitor blood glucose to detect and prevent complications promptly, they are more likely to adhere to treatment. Therefore, enhancing patient knowledge and health education is essential to improve adherence rates.

5. CONCLUSION

Patients aged 60 years or younger, without health insurance, lacking support, with disease duration under 5 years, and with inadequate knowledge about the disease are more likely to be non-adherent to treatment.

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