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Original Research

Factors Related to the Utilization of Chronic Disease Management Programs in Patients with Type 2 Diabetes Mellitus

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ABSTRACT

Background: The Chronic Disease Management Program is an integrated proactive health service involving patients, health facilities, and BPJS Kesehatan to improve care for individuals with chronic diseases, including type 2 diabetes mellitus (T2DM). This study aimed to analyze factors influencing the utilization of Prolanis among T2DM patients in West Pesisir Regency. **Methods:** This quantitative study employed a cross-sectional design with 149 respondents selected through stratified random sampling. Data were collected between February and March 2025 and analyzed using Chi-square tests and multivariate logistic regression. **Results:** Family support (p = 0.000), illness perception (p = 0.000), perceived needs (p = 0.014), cross-sector support (p = 0.017), and health facility availability (p = 0.004) were significantly associated with Prolanis utilization. Among these, family support was the most dominant factor (OR = 10.26), indicating that patients with low family support were over 10 times more likely to show low program utilization compared to those with strong family support. **Conclusion:** Family support is the key determinant of Prolanis utilization among T2DM patients. Strengthening family involvement may enhance participation in chronic disease management programs.

Keywords: Family support; perception; chronic disease; disease management; program

1. INTRODUCTION

Non-communicable diseases (NCDs) account for 43 million deaths annually worldwide, with hypertension and type 2 diabetes mellitus (T2DM) as leading contributors.(1) In Indonesia, the prevalence of both conditions has continued to rise. According to Indonesian health data, hypertension increased from 25.8% in 2013 to 34.1% in 2018, while T2DM rose from 6.9% to 8.5% in the same period. By 2021, diabetes prevalence reached 19.5 million cases, positioning Indonesia as the fifth-highest country globally for diabetes burden.(2)

At the provincial level, Lampung has also reported significant challenges. In West Pesisir Regency, 10,624 individuals aged ≥15 years (2.46%) were recorded as having diabetes in 2019.(3) Local health office data show fluctuating prevalence in recent years: 459 patients in 2022, 492 in 2023, and 468 in 2024. Sub-district data highlight Ngambur with the highest number of patients (237), followed by Bangkunat (65), while Pesisir Tengah and South Krui reported none.

The Chronic Disease Management Program (Prolanis), introduced by BPJS Kesehatan, is designed to improve

quality of life for chronic disease patients through a proactive and integrated service model.[4] However, challenges persist in its implementation. Systemic problems include inadequate patient-centered treatment, poor healthcare integration, a lack of resources for the health system, and barriers to patient engagement make managing chronic diabetes difficult. These issues, which impede the successful application of best practices and result in less than ideal health outcomes, show up as fragmented treatment, a lack of patient education and support, budgetary limitations for patients, and inadequate coordination among healthcare providers.[5-8] Non-participating patients reported uncontrolled blood sugar fluctuations, while those complying with Prolanis activities—such as physical exercise, regular medication, and clinic visits—achieved better control.[9] Nonetheless, even compliant patients sometimes faced poor glycemic control due to dietary factors.[10]

This study is crucial as Prolanis utilization among T2DM patients in West Pesisir Regency remains suboptimal. Low participation is influenced by family support, illness perception, perceived needs, cross-sector collaboration, and availability of health facilities. Therefore, this study aims to analyze factors associated with Prolanis utilization and to identify the most dominant determinant. The novelty lies in the use of 2025 local data and the integration of five key factors into one analytical model. Findings are expected to enrich the literature on Prolanis and provide practical insights for policymakers and health workers to strengthen program implementation.

2. METHODS

2.1 Study Design

This research employed a quantitative analytical survey with a cross-sectional design, which allows for measurements or observations to be conducted at one point in time. The study aimed to analyze factors associated with the utilization of the Chronic Disease Management Program (Prolanis) among patients with type 2 diabetes mellitus in Pesisir Barat Regency in 2025. The study was conducted in the working area of the Pesisir Barat Regency Health Office during February–March 2025.

2.2 Population and Sample

The study population comprised 575 patients with type 2 diabetes mellitus enrolled in the Prolanis program. Using stratified random sampling to represent each health center work area, a total of 260 respondents were selected. Inclusion criteria were patients registered in Prolanis, willing to participate, and able to complete the questionnaire or interview. Exclusion criteria were patients in critical condition or with cognitive impairments preventing effective participation.

2.3 Data Collection

Data were collected through structured interviews using a questionnaire developed based on the study variables: family support, illness perception, perceived needs, cross-sector support, availability of health facilities, and Prolanis utilization.

2.4 Research Instrument

The questionnaire underwent validity and reliability testing before field use to ensure accuracy and consistency of measurements.

2.5 Data Analysis

Data analysis was conducted in three stages: a) Univariate analysis to describe the distribution of respondent characteristics and study variables; b) Bivariate analysis using the chi-square test to assess relationships between independent variables and Prolanis utilization; and c) Multivariate analysis using multiple logistic regression to identify the most dominant factors influencing utilization.

2.6 Ethical Considerations

This study received ethical approval from the Health Research Ethics Committee of Mitra Indonesia University (Approval no. S.25/031/FKES10/2025). Respondents were provided with detailed information regarding study objectives and procedures. Written informed consent was obtained prior to participation. Participant confidentiality and privacy were strictly maintained, and all data were used solely for academic and research purposes.

3. RESULTS

3.1 Distribution of study variables among patients with type 2 diabetes mellitus

Table 1 presents the distribution of variables related to the utilization of the Chronic Disease Management Program (Prolanis) among patients with type 2 diabetes mellitus in West Pesisir Regency in 2025.

More than half of the respondents reported low family support (51%), while 49% experienced high support. Similarly, perceptions of illness were predominantly low (53.7%), with only 46.3% reporting a good perception.

The perception of needs also tended to be unfavorable, with 59.7% of respondents reporting low perception compared to 40.3% with good perception. Cross-sector support was limited, as 63.8% of respondents stated they did not receive such support, while only 36.2% reported otherwise. Availability of health facilities was also relatively low, with 65.8% perceiving facilities as unavailable and 34.2% acknowledging their availability.

Regarding program utilization, more than half of the respondents (56.4%) demonstrated low utilization of Prolanis, while 43.6% showed high utilization. These findings suggest that low family support, unfavorable perceptions of illness and needs, inadequate cross-sector support, and limited health facilities may contribute to the suboptimal use of Prolanis in this population.

Table 1. Distribution of study variables among patients with type 2 diabetes mellitus in West Pesisir Regency, 2025

Variable		Frequency (n)	Percentage (%)
Family support			
	Low	76	51.0
	High	73	49.0
Perception of pain			
	Less	80	53.7
	Good	69	46.3
Perception of needs			
	Less	89	59.7
	Good	60	40.3
Cross-sector support			
	No	95	63.8
	Yes	54	36.2
Availability of health facilities			
	Not Available	98	65.8
	Available	51	34.2
Prolanis utilization			
	Low utilization	84	56.4
	High utilization	65	43.6
Total		149	100

3.2 Bivariate Analysis

Bivariate analysis was performed to examine the relationship between independent variables and the utilization of the Chronic Disease Management Program (Prolanis) among patients with type 2 diabetes mellitus (T2DM) (Table 2). Family support showed a strong and significant association with Prolanis utilization. Among respondents with low family support, 81.6% demonstrated low utilization, compared to only 30.1% among those with high support. Conversely, 69.9% of respondents with high family support reported high program utilization. The Chi-square test yielded a p-value of <0.001, and the odds ratio (OR) was 22.07, indicating that patients with low family support were over 22 times more likely to report low utilization compared to those with strong family support.

Illness perception was also significantly related to program utilization ($p < 0.001$). Respondents with poor illness perception were more likely to have low utilization (71.3%) compared to those with good perception (39.1%). The OR of 3.85 suggests that inadequate illness perception increases the likelihood of low utilization nearly fourfold. Perception of needs influenced Prolanis participation, with 65.2% of respondents who perceived low needs demonstrating low utilization, compared to 43.3% among those with good perception. The relationship was statistically significant ($p = 0.014$), with an OR of 2.44.

Cross-sector support also contributed to program utilization. Patients without such support were more likely to exhibit low utilization (64.2%) compared to those who received cross-sector support (42.6%). The association was significant ($p = 0.017$), with an OR of 2.41.

Similarly, the availability of health facilities played an important role. Among respondents who perceived no available facilities, 65.3% reported low utilization, while this proportion decreased to 39.2% among those who acknowledged available facilities. The association was significant (p = 0.004), with an OR of 2.91, showing that lack of access nearly tripled the risk of low utilization. Overall, these findings indicate that family support, illness perception, perceived needs, cross-sector support, and health facility availability are significantly related to the utilization of Prolanis, with family support emerging as the strongest predictor.

Table 2. Bivariate analysis of factors associated with the utilization of chronic disease management programs (Prolanis) among patients with type 2 diabetes mellitus in West Pesisir Regency, 2025

Variable	Utilization of *Prolanis*				Total		*p* value	*OR*
	Low utilization		High utilization					
	n	%	n	%	n	%		
Family support							0.000	22.07
Low	62	81.6	14	18.4	76	100		
High	22	30.1	51	69.9	73	100		
Perception of pain							0.000	3.85
Low	57	71.3	23	28.8	80	100		
Good	27	39.1	42	60.9	69	100		
Perception of needs							0.014	2.44
Low	58	65.2	31	34.8	89	100		
Good	26	43.3	34	56.7	60	100		
Cross-sector support							0.017	2.41
No	61	64.2	34	35.8	95	100		
Yes	23	42.6	31	57.4	54	100		
Availability of health facilities							0.004	2.91
Not available	64	65.3	34	34.7	98	100		
Available	20	39.2	31	60.8	51	100		

3.3 Multivariate Analysis

Multivariate logistic regression was conducted to identify the most influential factors associated with the utilization of the chronic disease management program (Prolanis) among patients with type 2 diabetes mellitus. Variables that showed statistical significance in the bivariate analysis with a p-value < 0.25 were included in the initial multivariate model. These variables were family support (p = 0.000), perception of pain (p = 0.000), perception of needs (p = 0.009), availability of health facilities (p = 0.003), and cross-sector support (p = 0.011) (Table 3).

Table 3. Candidate variables for multivariate logistic regression on *Prolanis* utilization among patients with type 2 diabetes mellitus

Variable	*p*-value	Eligible for multivariate model
Family support	0.000	Yes
Perception of pain	0.000	Yes
Perception of needs	0.009	Yes
Availability of health facilities	0.003	Yes
Cross-sector support	0.011	Yes

The stepwise regression procedure was then applied to exclude variables sequentially based on their significance levels. In the second stage, family support remained significant (p = 0.000, OR = 10.06; 95% CI: 3.75–26.98), whereas perception of pain (p = 0.931), perception of needs (p = 0.950), availability of health facilities (p = 0.482), and cross-sector support (p = 0.481) were not statistically significant and were gradually removed from the model (Table 4). Subsequent stages confirmed that family support consistently remained the only variable with a significant influence on Prolanis utilization. The final model demonstrated that patients with high family

support were over ten times more likely to utilize Prolanis compared to those with low family support (OR = 10.26; 95% CI: 4.77–22.08, p < 0.001). These findings indicate that, among all the independent variables tested, family support was the dominant predictor of Prolanis utilization in type 2 diabetes mellitus patients in West Pesisir Regency. The strong effect size highlights the crucial role of family involvement in motivating patients to engage with chronic disease management programs.

Table 4. Logistic regression model of factors associated with *Prolanis* utilization among patients with type 2 diabetes mellitus

Sub variable	B	Wald	Sig	OR	CI 95%
Second stage of multivariate					
Family support	2.308	21.001	0.000	10.055	3.747 - 26.982
Perception of pain	0.042	0.007	0.931	1.043	0.399 - 2.724
Perception of needs	0.045	0.004	0.950	1.046	0.245 - 4.310
Availability of health facilities	-0.499	0.495	0.482	0.607	0.151 - 2.437
Cross-sector support	0.497	0.497	0.481	1.645	0.412 - 6.561
Third stage multivariate					
Family support	2.329	35.537	0.000	10.2666	4.774 - 22.077
Fourth stage multivariate					
Family support	2.329	35.537	0.000	10.2666	4.774 - 22.077

4. DISCUSSION

This study found that family support was the most influential factor associated with the utilization of the Chronic Disease Management Program (Prolanis) among patients with type 2 diabetes mellitus in West Pesisir Regency. Respondents with low family support were more likely to demonstrate poor Prolanis utilization, with an odds ratio of 10.26, indicating that adequate family involvement substantially increases program adherence. These findings align with previous studies showing that emotional, informational, and instrumental support from family members can motivate patients to engage in long-term care and improve treatment outcomes.[11-13]

The strong influence of family support is understandable, as type 2 diabetes requires consistent lifestyle modifications, medication adherence, and routine medical follow-up. Families play a critical role in reminding, encouraging, and accompanying patients during Prolanis activities.[14] When families lack understanding of the disease or fail to recognize their role in disease management, patient participation tends to decrease. This pattern has also been described in Butler's (2022) study, which emphasizes the protective role of family support in both physical and psychological health outcomes.[15]

Other factors—such as illness perception, perceived needs, cross-sector support, and availability of health facilities—were initially associated with Prolanis utilization in the bivariate analysis but lost statistical significance in the multivariate model. This suggests that while these factors may influence patient behavior, their impact is mediated or outweighed by the role of family support. Inadequate illness perception or unmet needs may limit patients' motivation to seek care, but without strong family involvement, these factors alone are insufficient to ensure program adherence.[16,17]

The overall level of Prolanis utilization in this study was still suboptimal, consistent with previous reports from Indonesia indicating that program implementation has not yet achieved its intended effectiveness.[18,19] Barriers include limited patient awareness, uneven distribution of health facilities, and weak coordination across sectors.[20,21] However, the present findings highlight that strengthening family involvement could be a practical and effective entry point to improve Prolanis outcomes.

Policy implications include the need for local health authorities to design structured family education and mentoring programs. Workshops, counseling sessions, and joint activities that integrate patients and families into Prolanis may enhance adherence. Training for health workers should also emphasize strategies to engage families in patient care, focusing on communication and support techniques. By positioning families as active partners in chronic disease management, the sustainability and impact of Prolanis can be significantly improved.

This study has several limitations. First, its cross-sectional design restricts the ability to establish causal relationships between the identified factors and Prolanis utilization. Second, the data relied on self-reported responses, which may introduce recall bias or social desirability bias, particularly regarding family support and perceptions of illness. Third, the study was conducted in a single regency (West Pesisir Regency), which may limit the generalizability of the findings to other regions with different health system resources or sociocultural characteristics. Finally, the study did not explore qualitative dimensions of patient or family experiences, which could provide deeper insights into the barriers and facilitators of Prolanis utilization. Future research should consider longitudinal or mixed-method designs to capture both the causal pathways and the contextual nuances of family involvement and other determinants in chronic disease management.

5. CONCLUSION

This study analyzed factors influencing the utilization of the Chronic Disease Management Program (Prolanis) among patients with type 2 diabetes mellitus in Pesisir Barat Regency. The findings indicate that family support, perception of illness, perception of needs, cross-sector support, and availability of health facilities are significantly associated with Prolanis utilization. These results confirm the study hypothesis and highlight that optimal participation in Prolanis is shaped by the interaction between individual factors, family support, and the health service system.

Policy implications include the need for the Pesisir Barat Regency Health Office to enhance family education to strengthen ongoing support, broaden access to health information through media and health workers, and improve the availability of health facilities. Strengthening cross-sector collaboration in Prolanis socialization and implementation is also crucial to build a comprehensive support system. Future research should employ longitudinal designs to capture changes in Prolanis utilization over time and provide a deeper understanding of patient and family engagement in chronic disease management.

Ethical Approval

This study received ethical approval from the Health Research Ethics Committee of Mitra Indonesia University (Approval no. S.25/031/FKES10/2025).

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Competing Interests

All the authors declare that there are no conflicts of interest.

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Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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