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Family Support, Associated Factors, and Quality of Life Outcomes in Type 2 Diabetes: A Correlational Study

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Abstrak

Enhancing the quality of life of patients with diabetes is essential for maintaining effective diabetes management and improving long-term health outcomes. Family support is considered an important factor in achieving this goal. This study aimed to examine the relationship between family support and quality of life among patients with type 2 diabetes, including other associated factors. A quantitative study was conducted in Kampar Regency, Riau Province, Indonesia, from November 25 to December 6, 2025. A total of 141 outpatients with type 2 diabetes from a government hospital were selected using purposive sampling. Family support and quality of life were measured using the Hensarling Diabetes Family Support Scale (HDFSS) and Diabetes Quality of Life (DQoL) questionnaires. Data were analyzed using multiple linear regression. The results showed that the model explained 31.3% of the variance in quality of life ($R^2 = 0.313$, $p < 0.001$). Family support was significantly associated with quality of life ($B = 0.447$, 95% CI: 0.279–0.614, $p < 0.001$). Patients' education level ($B = 8.970$, $p = 0.003$) and family education level ($B = 11.108$, $p = 0.026$) were also significant predictors. Other variables, including age, sex, occupation, income, marital status, duration of diabetes, complications, and family characteristics, were not significantly associated with quality of life ($p > 0.05$). These findings indicate that family support and educational background play important roles in improving the quality of life of individuals with type 2 diabetes. Therefore, interventions that strengthen family support and educational programs should be prioritized.

Kata kunci: *Diabetes Mellitus, Family Supports, Life Quality, Indonesia*

1. Introduction

Diabetes mellitus (DM) is a chronic metabolic disease with a globally increasing prevalence. In 2021, more than 537 million people aged 20–79 years were living with DM, and this number is projected to rise to 783 million by 2045 (IDF, 2021). This disease is often referred to as a "silent killer" because it can damage various organs in the body without clear symptoms in its early stages. Uncontrolled type 2 DM can lead to various serious complications, such as retinopathy, neuropathy, nephropathy, and cardiovascular disorders, which affect morbidity, mortality, and quality of life (Shahisavandi et al., 2023). Quality of life is defined as the way a person perceives their overall well-being, encompassing several domains, including physical, psychological, social, and environmental aspects (WHO, 2021). Among patients with type 2 DM, quality of life is influenced by various individual characteristics, including age, gender, occupation, education level, income, marital status, and living arrangements. In addition, clinical factors such as the duration of having type 2 DM, duration of DM control, and the presence of complications also play a role. Furthermore, family characteristics, including family relationships, family education level, family occupation, and family income, can also affect the quality of life of patients with type 2 DM. This is supported by a study conducted by Zan et al. (2024) in Jinzhou, China, which showed that the quality of life of patients with type 2 DM is influenced by age, education level, disease duration, complications, and the level of independence in daily activities. Additionally, caregiver characteristics, such as gender, relationship to the patient, caregiving duration, sense of coherence, and caregiver competence, contribute to the quality of life of patients with type 2 DM.

Patients with type 2 DM require support and management that involves the active participation of their families to improve their quality of life (Zovancha & Wijayanti, 2021). According to Friedman (2016), family support

consists of four types: emotional support, informational support, appraisal support, and instrumental support. The factors that influence family support include internal and external factors. Internal factors consist of developmental stage, education, and socioeconomic status, while external factors include the social environment, which consists of friends and the community (Amelia et al., 2021). Strong family support can have a positive impact on the health development and treatment of patients with DM (Mardiyanti et al., 2020). Families can provide support in the form of praise for following a healthy diet, encouragement to participate in physical activities, and the provision of information related to type 2 DM and routine blood glucose monitoring (Diriba et al., 2023). This support encourages self-care behaviors in patients with type 2 DM and can improve their quality of life. This is supported by research conducted by Mphasha et al. (2022) in South Africa, which found that family support helps increase patients' adherence to treatment and a healthy lifestyle, ultimately leading to a better quality of life. Similar research was conducted by Pesantes et al. (2020) in Peru, and the findings also showed that family support greatly assists patients in improving the quality of life of those living with type 2 DM.

In Indonesia and many other countries, type 2 DM remains a significant challenge in the health sector, particularly in efforts to improve the quality of life of patients (Kusumawati, 2024). One approach that has been increasingly recognized for its effectiveness is the active involvement of families in the care of patients with type 2 DM. Family support has been proven to help patients manage their disease more effectively (Suwanti et al., 2021). However, several previous studies have limitations, as they have not fully examined the relationship between family support and quality of life while taking into account various individual characteristics such as age, gender, occupation, education level, income, marital status, and living conditions, which may also influence the quality of life of patients. Additionally, clinical factors such as the duration of having type 2 DM, the length of disease control, and the presence of complications also contribute to the quality of life of patients. Moreover, family characteristics, including family relationships, education level, occupation, and family income, are also believed to play an important role in supporting or even influencing the overall quality of life of patients. This study is highly needed, especially in Kampar Regency, which is known for its strong familial values and religiosity, offering a unique socio-cultural context for understanding the dynamics of family roles in the care of chronic diseases such as type 2 DM (Agustiar, 2011). However, this assumption has not yet been tested, as there has been no specific research examining this relationship in Kampar Regency. Therefore, the researcher is interested in investigating the relationship between family support and patient and family characteristics with the quality of life of patients with type 2 DM at the Internal Medicine Outpatient Clinic of Bangkinang Regional General Hospital.

2. Methods

This research is a quantitative study using a cross-sectional design. Data collection was conducted from November 25 to December 6, 2025, at the Internal Medicine Outpatient Clinic of Bangkinang Regional General Hospital (RSUD Bangkinang), located in Kampar Regency, Riau Province, Indonesia. This hospital was selected because it is the only secondary referral health facility in Kampar Regency. Within Indonesia's tiered healthcare system, patients with more complex conditions are typically referred by primary healthcare facilities, such as community health centers and primary clinics, to secondary healthcare facilities, such as hospitals, to receive more comprehensive care (Ministry of Health of the Republic of Indonesia, 2012).

The study population consisted of patients with type 2 DM who attended DM control visits in 2024, totaling 307 individuals. The sampling technique used was simple random sampling, with the sample size calculated using GPower based on an effect size of 0.181 from a previous study (Yusra, 2011), an alpha error probability of 0.05, and a power of 0.95. The final sample size was 141 participants after adding 31% to the calculated minimum sample. The inclusion criteria for this study were patients who had attended routine control visits at RSUD Bangkinang for at least the past three months, lived with family members, and were willing to participate as respondents.

Data were collected using two instruments: the Hensarling Diabetes Family Support Scale (HDFSS), developed by Hensarling (2009) and modified by Yusra (2011). This questionnaire includes four dimensions of family support: informational support (3 items), emotional support (8 items), appraisal support (7 items), and instrumental support (7 items). The quality of life instrument used was the Diabetes Quality of Life questionnaire developed by Munoz & Thiagarajan (1998) and modified by Yusra (2011), which consists of 13 questions on satisfaction and 17 questions on the impact of the disease.

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Univariate analysis was conducted to analyze the frequency distribution of each independent variable in this study (age, gender, participants' last education, occupation, income, marital status, living arrangement, duration of having DM, duration of DM control, complications, family relationship, family's last education, family occupation, and family income), and the mean and standard deviation for family support scores and the quality of life scores of DM patients.

Bivariate analysis using the Mann-Whitney U and Kruskal-Wallis tests was conducted to examine the relationship between each independent variable and the quality of life of DM patients. These tests were used because the Kolmogorov-Smirnov normality test indicated that family support (0.000) and quality of life of DM patients (0.000) were not normally distributed. The results of the Mann-Whitney U and Kruskal-Wallis tests showed that the patients' last education (p = .001), family's last education (p = .006), and family income (p = .001) had significant relationships with the quality of life of DM patients. Furthermore, the Spearman Rank Correlation test was performed to examine the relationship between family support scores and the quality of life of DM patients, which showed a significant result (p-value = .000).

To examine the relationship between family support and the quality of life of DM patients while controlling for covariates, multivariate analysis using multiple linear regression was conducted after meeting several assumptions, including a linear relationship between family support and the quality of life of DM patients (r = 0.313), normally distributed residuals (p-value = 0.200), homoscedasticity (Glejser test p-value = 1.000), independence of residuals with no autocorrelation (DW = 1.555), and no multicollinearity (VIF values: family support = 1.054, patients' last education = 1.111, family's last education = 1.170, and family income = 1.027).

This research was conducted after obtaining approval from Universitas Pahlawan Tuanku Tambusai (Approval Number: 114/02.06 AKD.S1 Kep / FIK/IX/2024) and RSUD Bangkinang (Approval Number: 445/RSUD/1II2/2024/4187). Research participants, after receiving an explanation regarding the study and agreeing to participate, signed informed consent forms. This study has been approved by the Health Research Ethics Committee of Universitas Abdurrab, No: 905/KEP-UNIVRAB/X/2025.

3. Result and Discussion

a. Result

Of the 141 research subjects, 63 individuals (44.7%) were aged 46–55 years. The majority were female, totaling 81 individuals (57.4%), and most had a high level of education, with 81 individuals (57.4%) having completed higher education. A total of 73 participants (51.8%) were employed, while 68 individuals (48.2%) had no source of income. Regarding marital status, 112 individuals (79.4%) were married. Additionally, 112 individuals (79.4%) lived with their spouses. Concerning the duration of having DM, 74 individuals (52.5%) had been diagnosed for 1–5 years. For the duration of DM treatment control, 104 individuals (73.8%) had been under regular control for 1–48 months. Regarding complications, 80 individuals (56.7%) had developed complications related to DM. In terms of family relationships, 140 individuals (99.3%) had biological family members providing care. Regarding family education level, 126 individuals (89.4%) had family members with higher education. Concerning family employment, 114 individuals (80.9%) had family members who were employed. Regarding family income, 87 individuals (61.7%) had a family income of ≥ IDR 3,500,000.

Table 1. Characteristics of Patients with DM and Their Families

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Characteristics	N	(%)
Age		
26-35 years	6	4,3
36-45 years	21	14,9
46-55 years	63	44,7
56-65 years	51	36,2
Sex		
Female	81	57,4
Male	60	42,6
Education		
Low level of education	60	42,6
High level of education	81	57,4
Work		
Doesn't Work	68	48,2
Work	73	51,8
Income		
No Income	68	48,2
<Rp.3.500.000	22	15,6
≥Rp. 3.500.000	51	36,2
Married Status		
Not married	29	20,6
Married	112	79,4
Living Together		
Partner	112	79,4
Child	27	19,1
Parents	2	1,4
Long Suffering from DM		
1-5 years	74	52,5
6-10 years	67	47,5
Long Control DM		
1-48 months	104	73,8
49-96 months	37	26,2

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Complications		
No complication	61	43,3
Complication	80	56,7
Family Relationship		
Biologicalfamily	140	93,3
Adoptive Family	1	7
Family Education		
Low education	15	10,6
Higher education	126	89,4
Family Work		
Doesn’t work	27	19,1
Work	114	80,9
Family Income		
No income	27	19,1
<Rp.3.500.000	27	19,1
≥Rp. 3.500.000	87	61,7

Based on Table 2, the analysis results show that the education level of patients with DM has a significant relationship with quality of life (P = 0.001). Patients with higher education levels had a higher median quality of life (104.00; IQR 95.00–108.00) compared to those with lower education levels (94.00; IQR 60.25–107.25). In addition, DM complications also showed a significant relationship with quality of life (P = 0.026). Patients with DM who did not experience complications had a higher median quality of life (104.00; IQR 94.00–108.00) compared to those who had complications (98.50; IQR 62.00–106.00). The analysis results also indicated that the family’s last education level was significantly associated with the quality of life of patients with DM (P = 0.006). The median quality of life of patients with DM who had family members with higher education levels was higher (103.00; IQR 88.75–108.00) compared to those whose family members had lower education levels (60.00; IQR 59.00–103.00). Furthermore, family income also showed a significant relationship with the quality of life of patients with DM (P = 0.000). Patients with DM from families with an income of ≥ IDR 3,500,000 had a higher median quality of life (103.00; IQR 91.00–108.00) compared to those from families with an income of < IDR 3,500,000 (82.00; IQR 59.00–102.00).

Table 2. Characteristics of Type 2 Diabetes Mellitus Patients and Their Families Associated with Quality of Life

Characteristics	N	Quality of Life				
		Median	IQR(P25, P75)	Mean	U atau K	P value
Age					0.886	0.829
26-35 years	6	104.00	93.25-109.00	82.17		
36-45 years	21	103.00	83.00-108.00	71.71		
46-55 years	63	103.00	82.00-108.00	68.12		
56-65 years	51	101.00	89.00-108.00	72.95		

Sex					2163.5	0.226
Female	81	103.00	62.00-106.00	74.29		
Male	60	101.50	88.50-108.00	66.56		
Education					1636.5	0.001
Low level of education	60	94.00	60.25-107.25	57.78		
High level of education	81	104.00	95.00-108.00	80.80		
Employment					2480.0	0.993
Unemployed	68	102.50	86.50-108.00	71.03		
Employed	73	103.00	88.00-103.00	70.97		
Income					6.052	0.049
No Income	68	103.00	86.50-108.00	72.13		
<Rp.3.500.000	22	92.50	59.00-105.25	53.15		
≥Rp. 3.500.000	51	94.00	94.00-108.00	77.56		
Married Status					1366.5	0.189
Not married	29	98.00	81.00-106.50	62.12		
Married	112	103.00	88.00-108.00	73.30		
Living Together						
Partner	112	103.00	88.00-108.00	73.24	2.334	0.311
Child	27	95.00	85.00-106.00	60.63		
Parents	2	104.50	76.50-92.25	85.50		
Long Suffering from DM					2401.0	0.747
1-5 years	74	102.50	85.75-107.25	69.95		
6-10 years	67	103.00	88.00-108.00	72.16		
Long Control DM					1849.5	0.727
1-48 month	104	103.00	86.00-108.00	70.28		
49-96 month	37	102.00	92.00-108.00	73.01		
Complications					1906.5	0.026
No complication	61	104.00	94.00-108.00	79.75		
Complication	80	98.50	62.00-106.00	64.33		
Family Relationship					15.500	0.180
Biological family	140	103.00	88.00-108.00	71.39		
Adoptive family	1	.	.	16.50		
Family Education					532.0	0.006
Low education	15	60.00	59.00-103.00	43.47		
Higher education	126	103.00	88.75-108.00	74.28		

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Family Work					1309.5	0.229
Doesn’t work	27	105.00	88.00-108.00	79.50		
Work	114	101.50	88.00-108.00	68.99		
Family Income					15.231	0.000
No income	27	105.00	88.00-108.00	78.31		
<Rp.3.500.000	27	82.00	59.00-102.00	45.91		
≥Rp. 3.500.000	87	103.00	91.00-108.00	76.89		

Based on Table 3, the results of the Spearman Rank Correlation analysis show a positive relationship between family support and the quality of life of patients with diabetes mellitus, with rs = .345, indicating a moderate correlation strength. The p-value (0.000) shows that this relationship is statistically highly significant. The higher the family support, the better the quality of life of patients with diabetes mellitus.

Table 3. The Relationship Between Family Support and Quality of Life Among Diabetes Mellitus Patients at the Internal Medicine Outpatient Clinic, Bangkinang Regional Hospital

Quality of Life	**Correlation with Family Support**			
	Correlation Coefficient	**P value**	**Direction of Relationship**	**Strength of Relationship**
Family Support	.345	0.000	Positive	Moderate

Based on Table 4, the results of the Spearman Rank Correlation analysis between the four dimensions of family support and the quality of life of patients with diabetes mellitus are as follows. The emotional support dimension shows a weak correlation (rs = .256, p = 0.002), indicating that higher emotional support is associated with a better quality of life. The informational support dimension also shows a weak correlation (rs = .298, p = 0.000) with a significant relationship. The appraisal support dimension demonstrates a weak correlation (rs = .246, p = 0.003), meaning that higher appraisal support is associated with a better quality of life. Meanwhile, the instrumental support dimension shows a moderate correlation (rs = .324, p = 0.000), indicating a significant relationship between instrumental assistance and quality of life.

Tabel 4. The Relationship Between Four Dimensions of Family Support and Quality of Life Among Diabetes Mellitus Patients at the Internal Medicine Outpatient Clinic, Bangkinang Regional Hospital

Quality of Life	**Correlation with Family Support Dimensions**			
	Correlation Coefficient	**P value**	**Direction of Relationship**	**Strength of Relationship**
Informational Dimension and Quality of Life	.298	0.000	Positive	Weak
Emotional Dimension and Quality of Life	.256	0.002	Positive	Weak
Appreciation Dimension and Quality of Life	.246	0.003	Positive	Weak
Instrumental Dimension and Quality of Life	.324	0.000	Positive	Moderate

Based on Table 5, the results of the multiple linear regression analysis show that there is an association between family support and the quality of life among patients with diabetes mellitus, with β = .447, 95% CI: 0.279–0.614,

and a p-value of .001. In addition, the patient's last education level is a confounding factor in the relationship between family support and quality of life, with β = 8.970, 95% CI: 3.054–14.886, and a p-value of .003. The family's last education level also serves as a confounding factor in the relationship between family support and quality of life, with β = 11.108, 95% CI: 1.370–20.846, and a p-value of .026. Meanwhile, family income is not a confounding factor in the relationship between family support and quality of life, with β = 1.469, 95% CI: -2.083–5.021, and a p-value of .415.

Table 5. Multiple Linear Regression Test of Independent and Confounding Variables with Quality of Life Among Diabetes Mellitus Patients at the Internal Medicine Outpatient Clinic, Bangkinang Regional Hospital

Variabel	**(β)**	**95%CI**		**P value**
Family Support	.447	0.279	0.614	.001
Respondent's Last Education	8.970	3.054	14.886	.003
Family's Last Education	11.108	1.370	20.846	.026
Family Income	1.469	-2.083	5.021	.415

Based on Table 6, the results of the multiple linear regression analysis indicate that the appraisal support dimension has a strong influence on the quality of life of patients with diabetes mellitus, with β = 1.225, 95% CI: -0.069–2.518; however, this result is not statistically significant (p = .063). Additionally, the instrumental support dimension shows β = 0.552, 95% CI: -0.593–1.697 (p = .342). Meanwhile, the informational support dimension shows β = 0.550, 95% CI: -1.629–2.730 (p = .618), and the emotional support dimension shows β = -0.258, 95% CI: -1.482–0.965 (p = .677).

Tabel 6. Multiple Linear Regression of Four Dimensions of Family Support and Quality of Life Among Diabetes Mellitus Patients at the Internal Medicine Outpatient Clinic, Bangkinang Regional Hospital

Variabel	**(β)**	**95%CI**		**P value**
Informational Dimension and Quality of Life	.550	-1.629	2.730	.618
Emotional Dimension and Quality of Life	-.258	-1.482	.965	.677
Appreciation Dimension and Quality of Life	1.225	-.069	2.518	.063
Instrumental Dimension and Quality of Life	.552	-.593	1.697	.342

b. Discussion

This cross-sectional study examined the relationship between family support and characteristics with the quality of life among patients with type 2 diabetes mellitus (DM) at the Internal Medicine Outpatient Clinic of RSUD Bangkinang. Statistical analysis using the Spearman Rank Correlation test showed a p-value of .000. This finding is consistent with the study conducted by Aryanto et al. (2024) in Malang, which also reported a p-value of .000. The results are further supported by research conducted by Mphasha et al. (2022) in South Africa.

Among the 141 patients with type 2 DM, it was found that the average family support score received by patients was 3.28. This is in line with the findings of Yusra (2011), whose study reported an average family support score

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of 3.1, indicating that families frequently provide support to patients with type 2 DM. This study is also supported by Suardana et al. (2020), which showed that family support for patients with type 2 DM was at a high level, reaching 95%.

Among the 141 patients with type 2 DM in this study, the average quality of life score was 3.12, indicating that most respondents were satisfied with their quality of life. This finding is consistent with the study conducted by Yusra (2011), which reported an average quality of life score of 2.9, indicating that patients with type 2 DM were satisfied with their quality of life. The results are also supported by Suardana et al. (2021), which showed that the quality of life among patients with type 2 DM was at a high level, reaching 75%.

Family support is an important aspect in improving the quality of life of patients with type 2 diabetes mellitus (DM). Bivariate analysis using the Spearman Rank correlation test on the four dimensions of family support showed that emotional support ($p = 0.002$), informational support ($p = 0.000$), appraisal support ($p = 0.003$), and instrumental support ($p = 0.000$) were significantly associated with the quality of life of patients with type 2 DM. This finding is consistent with the study conducted by Putri (2021), which reported a significant relationship between emotional, informational, and appraisal support and the quality of life of patients with type 2 DM.

To identify the dominant factors among the dimensions of family support affecting quality of life, a multiple linear regression analysis was conducted. The results showed that the appraisal (appreciation) dimension had the strongest influence on the quality of life of patients with type 2 diabetes mellitus (DM) ($\beta = 1.225$; 95% CI = -0.069 to 2.518; $p = 0.063$), although it was not statistically significant. Meanwhile, the instrumental dimension ($\beta = 0.552$; 95% CI = -0.593 to 1.697; $p = 0.342$), informational dimension ($\beta = 0.550$; 95% CI = -1.629 to 2.730; $p = 0.618$), and emotional dimension ($\beta = -0.258$; 95% CI = -1.482 to 0.965; $p = 0.677$) did not show a significant influence on the quality of life of patients with type 2 DM. These findings suggest that although the appraisal dimension tends to have a stronger effect compared to other dimensions, none of the dimensions of family support were statistically significant predictors of quality of life in this study. This result can serve as a basis for future research to further explore which dimensions of family support may have a greater impact on the quality of life of patients with type 2 DM.

In addition to family support, this study also analyzed the characteristics of 141 patients with type 2 diabetes mellitus (DM) that may influence their quality of life. The results showed that age was not significantly associated with quality of life ($p = 0.829$). This finding is consistent with Putri (2021), but not with Abedini et al. (2020) in Birjand, who reported a significant relationship ($p = 0.005$).

Based on gender, there was no significant difference in the mean quality of life scores between male and female patients ($p = 0.226$). This finding is in line with Raharja et al. (2024), but not supported by Lenz et al. (2023), who reported a significant association ($p = 0.001$).

The patients' last education level showed a significant difference in quality of life between those with higher and lower education levels ($p = 0.001$). This result is consistent with Wang et al. (2024), but not with Setiyorini and Wulandari (2020), who found no significant effect ($p = 0.545$).

Employment status was not significantly associated with quality of life ($p = 0.993$). This finding is consistent with Isnaini and Ratnasari (2018), but contradicts Rumaiza and Kharani (2020), who suggested that employment contributes to improved quality of life.

Income also showed no significant association with quality of life among patients with type 2 DM ($p = 0.049$). This finding is in line with Rahmadhani (2024), but not with Choi and Chang (2023), who reported a significant relationship ($p = 0.003$).

Marital status was not significantly associated with quality of life ($p = 0.189$), consistent with Driba et al. (2023). Similarly, living arrangements showed no significant association ($p = 0.311$), although living with family may provide supportive benefits.

The duration of having type 2 DM showed no significant difference in quality of life ($p = 0.747$), which is consistent with Pranata et al. (2022), but not with R. Paris et al. (2023), who reported a significant association.

The duration of treatment control also showed no significant association with quality of life ($p = 0.727$). This finding aligns with Sumakul et al. (2019), although their study reported an odds ratio (OR) of 2.8, indicating a higher risk of uncontrolled HbA1c among patients with shorter treatment duration.

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Complication status showed a significant difference in quality of life between patients with and without complications (p = 0.026). This finding is consistent with Collin et al. (2009) and Yusra (2011), but not with Putri (2021).

Family relationship status was not significantly associated with quality of life (p = 0.180), although harmonious relationships remain important for patient well-being.

Family education level showed a significant association with quality of life (p = 0.006), indicating that higher family education may enhance disease management. Meanwhile, family employment status was not significantly associated with quality of life (p = 0.229).

Family income showed a significant association with quality of life (p = 0.000), which is consistent with Amin et al. (2022), suggesting that higher income supports better access to healthcare and overall well-being.

To determine the dominant factors while controlling for confounding variables, a multiple linear regression analysis was performed. The results indicated that family support was significantly associated with quality of life among patients with type 2 DM (β = 0.447; 95% CI: 0.279–0.614; p = 0.001). Furthermore, the patient's last education level was identified as a confounding factor (β = 8.970; 95% CI: 3.054–14.886; p = 0.003), as well as the family's last education level (β = 11.108; 95% CI: 1.370–20.846; p = 0.026). Meanwhile, family income was not identified as a confounding factor in this relationship (β = 1.469; 95% CI: -2.083–5.021; p = 0.415).

4. Conclusion

This study demonstrates that family support is associated with the quality of life among patients with type 2 diabetes mellitus, with the appreciation dimension showing the greatest influence, although not statistically significant. Additionally, the educational levels of both respondents and their families were found to affect quality of life after controlling for confounding factors. These findings support the development of family support–based interventions tailored to the characteristics of patients and their families to improve quality of life through more optimal and sustainable care.

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