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THE EFFECT OF FAMILY SUPPORT ON MENTAL HEALTH AND MEDICATION ADHERENCE IN TYPE 2 DIABETES MELLITUS PATIENTS

PENGARUH DUKUNGAN KELUARGA TERHADAP KESEHATAN MENTAL DAN KEPATUHAN PENGOBATAN PADA PASIEN DIABETES MELITUS TIPE 2

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Abstract

Type 2 diabetes mellitus (T2DM) requires long-term self-management, which places patients at risk of psychological distress and poor medication adherence. Family support is believed to be a key protective factor. This study aimed to analyze the influence of family support on mental health and medication adherence among T2DM patients. A quantitative cross-sectional study was conducted on 68 T2DM patients, examining individual characteristics (age, sex, occupation) and family support (categorized Good/Less Good) in relation to mental health (Good/Disturbed, based on the DASS-21 total score) and medication adherence (Adherent/Non-adherent). Bivariate analysis used the Chi-Square test, while multivariate analysis used binary logistic regression controlling for age and sex. Family support was significantly associated with both mental health ($p<0.001$; OR=26.05; 95%CI=3.19-213.07) and medication adherence ($p<0.001$; OR=20.45; 95%CI=2.51-166.65) in bivariate analysis. Multivariate analysis confirmed family support as the dominant factor for mental health (aOR=25.19; 95%CI=3.06-207.05; $p=0.003$) and medication adherence (aOR=19.57; 95%CI=2.38-160.69; $p=0.006$) after controlling for age and sex. Good family support is strongly associated with better mental health and higher medication adherence among T2DM patients. These findings, derived from simulated data for methodological training purposes, should be confirmed using primary field data.

Keywords : Family Support, Mental Health, Medication Adherence, Type 2 Diabetes Mellitus, Logistic Regression.

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Abstrak

Diabetes melitus tipe 2 (DMT2) memerlukan pengelolaan mandiri jangka panjang, yang menempatkan pasien pada risiko mengalami tekanan psikologis dan rendahnya kepatuhan pengobatan. Dukungan keluarga diyakini sebagai faktor pelindung utama. Studi ini bertujuan untuk menganalisis pengaruh dukungan keluarga terhadap kesehatan mental dan kepatuhan pengobatan pada pasien DMT2. Studi kuantitatif dengan desain potong lintang (cross-sectional) dilakukan terhadap 68 pasien DMT2, dengan menelaah karakteristik individu (usia, jenis kelamin, pekerjaan) serta dukungan keluarga (dikategorikan Baik/Kurang Baik) dalam kaitannya dengan kesehatan mental (Baik/Terganggu, berdasarkan skor total DASS-21) dan kepatuhan pengobatan (Patuh/Tidak Patuh). Analisis bivariat menggunakan uji Chi-Square, sementara analisis multivariat menggunakan regresi logistik biner dengan mengendalikan variabel usia dan jenis kelamin. Dalam analisis bivariat, dukungan keluarga terbukti berhubungan secara signifikan dengan kesehatan mental ($p<0,001$; OR=26,05; IK 95%=3,19–213,07) maupun kepatuhan pengobatan ($p<0,001$; OR=20,45; IK 95%=2,51–166,65). Analisis multivariat mengonfirmasi bahwa dukungan keluarga merupakan faktor dominan bagi kesehatan mental (aOR=25,19; IK 95%=3,06–207,05; p=0,003) dan kepatuhan pengobatan (aOR=19,57; IK 95%=2,38–160,69; p=0,006) setelah mengendalikan variabel usia dan jenis kelamin. Dukungan keluarga yang baik sangat berkaitan dengan kesehatan mental yang lebih baik serta tingkat kepatuhan pengobatan yang lebih tinggi pada pasien DMT2. Temuan ini, yang diperoleh dari data simulasi untuk tujuan pelatihan metodologis, perlu dikonfirmasi lebih lanjut menggunakan data primer dari lapangan.

Kata Kunci : Dukungan Keluarga, Kesehatan Mental, Kepatuhan Pengobatan, Diabetes Melitus Tipe 2, Regresi Logistik.

1. INTRODUCTION

Type 2 diabetes mellitus (T2DM) is one of the non-communicable diseases with a continuously increasing prevalence both in Indonesia and globally, requiring complex and sustained self-management from patients (International Diabetes Federation [IDF], 2021). Data from the Basic Health Research (Riskesdas) 2018 showed that the prevalence of diabetes in Indonesia based on physician diagnosis among the population aged ≥15 years increased from 1.5% in 2013 to 2.0% in 2018, with an estimated more than 10 million Indonesians suffering from diabetes (Ministry of Health of the Republic of Indonesia, 2019). The continuous demands of disease management, including medication adherence, dietary regulation, and routine blood glucose monitoring, place T2DM patients at high risk of experiencing mental health disorders such as depression, anxiety, and stress (Ma'rifah, Pratitis, & Sofiani, 2022). This disturbed psychological condition, in turn, can reduce patients' motivation and ability to adhere to treatment, thus creating a negative cycle between poor mental health and medication non-adherence.

Family support is regarded as one of the main protective factors in T2DM management, both for psychological conditions and medication adherence behavior of patients. Families that provide emotional, informational, instrumental, and appraisal support have been shown to help patients manage disease-related stress, maintain motivation, and improve adherence to treatment regimens (Rahmi, Malini, & Huriani, 2020). Previous studies have shown that family support is separately and significantly associated with mental health (Rahmi et al., 2020) and medication adherence (Fatimatussa'diah, Ngasu, & Sari, 2025); however, analyses examining the simultaneous effect of family support on both outcomes within a single model remain limited.

Although many studies have examined the relationship between family support and one outcome separately, either mental health or medication adherence, research analyzing the effect of family support on both variables simultaneously while controlling for confounding factors such as age and sex remains extremely rare. Therefore, this study aimed to analyze the effect of family support on mental health and medication adherence in T2DM patients while controlling for age and sex, in order

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to provide more comprehensive empirical evidence for the development of family-based interventions in T2DM management.

According to House (1981), family social support consists of four dimensions, namely emotional support (showing empathy, concern, and attention), appraisal support (providing positive feedback and affirmation), instrumental support (providing tangible assistance such as costs and transportation), and informational support (providing relevant advice and information). These four dimensions are integrated in the Hensarling Diabetes Family Support Scale (HDFSS) instrument, which has been psychometrically validated and widely used to measure DM patients' perceptions of support received from their families (Hensarling, 2009).

Theoretically, the mental health of patients with chronic diseases such as T2DM is influenced by the interaction between disease burden and available psychosocial resources, one of which is family support. T2DM patients face a dual burden: the physical burden from symptoms and complications, and the psychological burden in the form of concerns about the future, stigma, and fatigue in managing the disease. The Depression Anxiety Stress Scales (DASS-21) is an instrument commonly used to assess these three dimensions of emotional disturbance, which reflect overall mental health (Lovibond & Lovibond, 1995; Ma'rifah et al., 2022).

Based on the theoretical review and empirical evidence, this study posits that the better the family support received by T2DM patients, the better their mental health condition and the higher their level of medication adherence. This hypothesis was tested using bivariate and multivariate analyses while controlling for age and sex.

2. RESEARCH METHOD

This study was a quantitative analytical research with a cross-sectional approach, aimed at analyzing the effect of family support on mental health and medication adherence in T2DM patients. The cross-sectional approach was chosen because this study measured independent and dependent variables simultaneously at a single point in time, without intervention or follow-up (Notoatmodjo, 2018).

The population in this research scenario was T2DM patients within the working area of a healthcare facility, with a sample size of 68 patients obtained through random sampling technique.

The main independent variable was family support, measured using an adapted Hensarling Diabetes Family Support Scale (HDFSS) questionnaire consisting of 20 items across 4 dimensions (emotional, appraisal, instrumental, informational) with a 1-4 Likert scale and reliability of α=0.91. The first dependent variable was mental health, measured using the Indonesian version of the DASS-21 questionnaire (21 items, 3 subscales: depression, anxiety, stress; α=0.93; Ma'rifah et al., 2022). The second dependent variable was medication adherence, operationalized through records of routine control visits to healthcare facilities. Confounding variables controlled in the multivariate model included age and sex.

Data analysis was conducted in stages, including univariate analysis to describe the frequency distribution of each variable, bivariate analysis using the Chi-Square test to examine the relationship between family support and each dependent variable, and multivariate analysis using logistic regression to test the effect of family support on both outcomes after controlling for age and sex.

3. RESULT AND DISCUSSION

Respondent Characteristics

This study involved 68 T2DM patients. Table 1 shows that the majority of respondents were in the 35-45 age group (51.5%), female (57.4%), and worked as retired civil servants/military/police (32.4%).

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Table 1. Respondent Characteristics (n=68)

Variable	Category	n	%
Age	≤35 years	4	5,9
	35-45 years	35	51,5
	46-55 years	16	23,5
	>55 years	13	19,1
Sex	Male	29	42,6
	Female	39	57,4
Occupation	Unemployed	8	11,8
	Farmer	17	25,0
	Civil Servant/Military/Police	9	13,2
	Retired Civil Servant/Military/Police	22	32,4
	Self-employed	12	17,6

Source: Research simulation data (2026).

Overview of Family Support, Mental Health, and Medication Adherence

Table 2 shows that the majority of respondents were in the poor family support category (39.7%) and adequate category (36.8%), while only 23.5% were in the good family support category. On the DASS-21 subscales, the largest proportion of respondents experiencing disturbance (Mild-Extremely Severe) was found on the anxiety subscale (83.8%), followed by depression (79.4%) and stress (61.8%). Overall, half of the respondents (50.0%) had good mental health, and more than half (54.4%) were adherent to medication.

Table 2. Overview of Family Support, Mental Health, and Medication Adherence (n=68)

Variable	Category	n	%
Family Support	Good	16	23,5
	Adequate	25	36,8
	Poor	27	39,7
Depression Subscale (DASS-21)	Normal	14	20,6
	Mild-Extremely Severe	54	79,4
Anxiety Subscale (DASS-21)	Normal	11	16,2
	Mild-Extremely Severe	57	83,8
Stress Subscale (DASS-21)	Normal	26	38,2
	Mild-Extremely Severe	42	61,8
Mental Health (Total Score)	Good	34	50,0
	Disturbed	34	50,0
Medication Adherence	Adherent	37	54,4
	Non-Adherent	31	45,6

Source: Research simulation data (2026). DASS-21 subscale categories were merged (Mild-Extremely Severe) for descriptive purposes; complete categories per subscale can be found in the data file.

Bivariate Analysis

Table 3 shows that family support was highly significantly associated with mental health ($p<0.001$). Respondents with good family support had a proportion of good mental health of 93.8%, compared to 36.5% among respondents with poor family support (OR=26.05; 95%CI=3.19–213.07).

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Table 3a. Bivariate Analysis of Family Support and Mental Health

Family Support	Good Mental Health n (%)	Disturbed n (%)	p-value	OR (95%CI)
Good	15 (93,8)	1 (6,3)	**0,0001***	26,05 (3,19-213,07)
Poor	19 (36,5)	33 (63,5)		Ref.

*Note: * Significant at α=5% (Chi-Square test). Source: Research simulation data (2026).*

Table 3b shows a similar pattern for medication adherence (p<0.001). Respondents with good family support had a medication adherence proportion of 93.8%, compared to 42.3% among respondents with poor family support (OR=20.45; 95%CI=2.51–166.65).

Table 3b. Bivariate Analysis of Family Support and Medication Adherence

Family Support	Adherent n (%)	Non-Adherent n (%)	p-value	OR (95%CI)
Good	15 (93,8)	1 (6,3)	**0,0003***	20,45 (2,51-166,65)
Poor	22 (42,3)	30 (57,7)		Ref.

*Note: * Significant at α=5% (Chi-Square test). Source: Research simulation data (2026).*

Multivariate Analysis

Table 4a shows that after controlling for age and sex variables, family support remained the only variable with a significant effect on mental health (aOR=25.19; 95%CI=3.06–207.05; p=0.003). Age and sex did not show significant effects.

Table 4a. Multivariate Analysis (Logistic Regression) on Mental Health

Variable	B	aOR	95%CI	p-value
Good Family Support	3,226	25,19	3,06 - 207,05	**0,003***
Age above 45 years	-0,147	0,86	0,29 - 2,59	0,793
Female Sex	-0,265	0,77	0,25 - 2,31	0,638
Constant	-0,329	0,72	0,27 - 1,94	0,516

*Note: * Significant at α=5%. Dependent Variable: Mental Health (1=Good, 0=Disturbed). Source: Research simulation data (2026).*

Table 4b shows a consistent pattern for medication adherence, with family support as the only variable with a significant effect (aOR=19.57; 95%CI=2.38–160.69; p=0.006), after controlling for age and sex.

Table 4b. Multivariate Analysis (Logistic Regression) on Medication Adherence

Variable	B	aOR	95%CI	p-value
Good Family Support	2,974	19,57	2,38 - 160,69	**0,006***
Age above 45 years	-0,261	0,77	0,26 - 2,26	0,635
Female Sex	-0,496	0,61	0,21 - 1,80	0,371
Constant	0,101	1,11	0,41 - 2,95	0,840

*Note: * Significant at α=5%. Dependent Variable: Medication Adherence (1=Adherent, 0=Non-Adherent). Source: Research simulation data (2026).*

Discussion

The results of this study indicate that family support is the most dominant factor affecting both mental health and medication adherence in T2DM patients, even after controlling for age and sex. This finding is consistent across analyses (bivariate and multivariate) and supports the social support theoretical framework by House (1981), which emphasizes the multidimensional role of family support in managing chronic diseases.

Theoretically, emotional, appraisal, instrumental, and informational support from family (House, 1981) provides psychosocial resources that help T2DM patients manage disease-related stress. Emotional and appraisal support directly reduces the negative psychological impact of the disease, while instrumental and informational support facilitates medication adherence behavior. The findings of this study reinforce the results of Rahmi et al. (2020), who found that family support plays

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a significant role in reducing diabetes distress in T2DM patients, which is a primary manifestation of mental health disorders in this population.

Regarding medication adherence, the findings of this study reinforce the results of Fatimatussa'diah, Ngasu, and Sari (2025), who found a strong and significant relationship between family support and medication adherence in T2DM patients. Families that actively remind patients of medication schedules, accompany them to routine check-ups, and help prepare medications (instrumental dimension), as well as provide current information about the disease and treatment (informational dimension), directly contribute to adherence. Furthermore, positive affirmation and appreciation of patients' efforts (appraisal dimension) increase self-efficacy and motivation to continue adhering to treatment (Hensarling, 2009).

The non-significance of the effects of age and sex in this study suggests that family support likely has an independent influence on mental health and medication adherence that transcends the role of these demographic factors. This underscores the importance of interventions focused on strengthening the role of families, not only on individual patient characteristics, in managing T2DM.

Research Limitations

This study has important limitations that need attention in interpreting the results. First, the data analyzed in this article are simulation data compiled for manuscript preparation purposes, not direct empirical data from the field; therefore, the results cannot be generalized and are only intended to demonstrate the analytical framework. Second, the cross-sectional design does not allow causal conclusions to be drawn, as independent and dependent variables were measured simultaneously. Third, the DASS-21 and HDFSS instruments are self-report measures susceptible to social desirability bias. Lastly, the model controlled for only two confounders (age and sex), while other potential variables such as duration of DM, education level, and socioeconomic status were not controlled, which is a deliberate design limitation for simplicity of demonstration.

4. CONCLUSION

This study concludes that family support significantly affects mental health and medication adherence in T2DM patients, both in bivariate and multivariate analyses, after controlling for age and sex. Family support was the only statistically significant predictor for both outcomes, with a very large effect size (aOR>19 in both models). Age and sex did not show significant effects.

Based on these conclusions, it is recommended that efforts to improve mental health and medication adherence in T2DM patients focus on strengthening the role of families through family education on how to effectively provide emotional, appraisal, instrumental, and informational support. Family-based interventions need to be integrated into DM education and management programs at healthcare facilities. Future research is recommended to use longitudinal or experimental designs with empirical data to validate the causal relationships indicated by these findings, as well as to include additional relevant confounding variables.

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