

Relationship Between Family Coping Strategies and Caregiver Burden Among Family Caregivers of Patients with Diabetes Mellitus

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ABSTRACT

Introduction: Diabetes mellitus is a chronic disease requiring long-term care, making family members primary caregivers. Continuous caregiving demands may contribute to caregiver burden, particularly when coping strategies are inadequate. Evidence regarding the relationship between family coping strategies and caregiver burden among family caregivers in primary healthcare remains limited. This study aimed to analyze the relationship between family coping strategies and caregiver burden among family caregivers of patients with diabetes mellitus.

Method: This quantitative study employed a descriptive correlational design with a cross-sectional approach. A total of 70 respondents were selected using cluster random sampling. Family coping strategies were measured using the Family Crisis Oriented Personal Evaluation Scales (F-COPES), while caregiver burden was assessed using the Zarit Burden Interview (ZBI). Data were analyzed using the Spearman Rank correlation test with $\alpha = 0.05$.

Result: Most respondents demonstrated high family coping strategies (64.3%), whereas severe caregiver burden was experienced by 45.7%. Statistical analysis revealed a significant strong negative correlation between family coping strategies and caregiver burden ($p < 0.001$; $r = -0.717$). Higher family coping strategies were associated with lower caregiver burden among family caregivers of patients with diabetes mellitus.

Conclusion: Effective family coping strategies may help reduce caregiver burden among families caring for patients with diabetes mellitus. Strengthening adaptive coping through family nursing interventions and primary healthcare programs may support families in managing caregiving challenges.

Keywords: Caregiver Burden; Coping Strategies; Diabetes Mellitus; Family Caregivers

Introduction

Diabetes mellitus (DM) is a chronic disease that requires long-term management and active family involvement in supporting patients' daily care. The impact of chronic illness extends beyond patients themselves and may also place a considerable burden on family members who serve as caregivers, affecting them physically, psychologically, socially, and financially (Suratmini & Togatorop, 2023). Family responsibilities, including managing dietary intake, monitoring blood glucose levels, ensuring medication adherence, and assisting patients with daily activities, may contribute to substantial caregiver burden. When such demands are not balanced by adaptive coping strategies, caregivers may experience emotional exhaustion, stress, and a decline in overall family quality of life (Kristaningrum et al., 2021).

According to the International Diabetes Federation (2023), more than 537 million adults worldwide were living with DM, and this number is projected to increase to 643 million by 2030. In Indonesia, data from the East Java Provincial Health Office (2023) recorded 842,004 people with DM, with East Java being among the five provinces with the highest number of cases (Ministry of Health of the Republic of Indonesia, 2023). The most recent available data indicate that the prevalence of DM in Jember Regency was 1.4% in 2024, while one of the highest prevalences was reported in the working area of Kalisat Primary Health Center, reaching 2.3% during 2023–2024 (Data Primer Puskesmas Kalisat, 2024).

According to the non-communicable disease (NCD) program report of Kalisat Primary Health Center, Jember Regency, DM is among the ten most frequently reported chronic diseases, with the number of patient visits increasing from year to year (International Diabetes Federation, 2023). Recapitulation data from Kalisat Primary Health Center for 2024–2025 showed a substantial number of patients with DM, reaching 899 cases in 2024, with the largest distribution reported in the areas of Kalisat Utara, Ajung, and Kalisat Kota. The number increased in 2025, with 1,007 DM patient visits recorded from January to September 2025. These figures indicate that DM is one of the diseases associated with a high volume of visits at Kalisat Primary Health Center.

The high number of visits indicates that many patients with DM in the working area of Kalisat Primary Health Center require long-term care at home, with family

members serving as their primary caregivers. Preliminary interviews with patients' families revealed that many family members experienced physical and psychological exhaustion during the caregiving process. The multidimensional challenges they faced included difficulties in managing patients' daily needs, particularly dietary regulation, blood glucose monitoring, and adherence to medication regimens.

From the perspective of family nursing, the ability of families to implement effective coping strategies is an important factor in maintaining emotional balance and preventing psychosocial problems associated with caring for patients with chronic illnesses, including DM (Febrianto et al., 2022). However, many families may lack adequate knowledge and coping skills, potentially increasing caregiver burden and disrupting overall family functioning.

The increasing number of patients with DM has direct implications for the number of families required to provide long-term caregiving. Pratama (2021) reported that more than 60% of family members caring for patients with DM experienced moderate to severe caregiver burden. Another study reported that family coping strategies tended to be maladaptive, including denial, avoidance, and placing full responsibility for care on healthcare professionals (Pratama, 2021). These conditions indicate a gap in families' ability to manage caregiving-related stress and caregiver burden in a healthy and adaptive manner.

The care of patients with DM is continuous and complex. Initially, family members may primarily assist with dietary management and daily activities. As the disease progresses and complications such as neuropathy, nephropathy, or diabetic foot ulcers develop, family responsibilities may increase substantially, including wound care, medication supervision, and management of patients' emotional stress (Sari & Ardianto, 2022).

In response to these pressures and caregiving demands, family members use coping strategies as mechanisms for adapting to stress and caregiving burdens. Coping strategies refer to the ways individuals think and act to manage stressful situations (Pratama, 2021). Coping strategies are generally categorized into problem-focused coping, which emphasizes problem-solving, and emotion-focused coping, which emphasizes emotional regulation. Appropriate coping strategies may help caregivers

reduce psychological distress, increase acceptance of patients' conditions, and maintain emotional balance while providing care for patients with DM. However, not all caregivers are able to implement adaptive coping strategies. Some caregivers may rely on maladaptive strategies, such as denial, avoidance, or passive acceptance without taking action, which may ultimately increase caregiver burden. Jannah, Puspitadewi, and Wahyurianto (2024) reported that caregivers who used adaptive coping strategies had lower levels of caregiver burden than those who relied on maladaptive coping strategies (Jannah et al., 2024). This finding is supported by research showing that caregivers of patients with chronic diseases who relied on emotion-focused coping strategies, such as avoidance and denial, experienced higher levels of stress and emotional exhaustion than those who used problem-focused coping strategies (Hidayatun et al., 2025).

Further evidence was reported by Mawar et al. (2025), who found that repeated use of maladaptive coping strategies was significantly associated with increased psychological distress and reduced caregiver capacity to provide long-term care (Mawar et al., 2025). Similar findings were reported by Saanin (2024), who indicated that caregivers using adaptive coping strategies, including seeking social support and engaging in problem management, experienced a reduction in caregiver burden of up to 35% compared with caregivers who relied on passive coping strategies (Saanin, 2024). Other findings suggest that adaptive coping strategies serve as protective factors that enhance caregiver resilience, particularly among families caring for patients with chronic conditions (Putu et al., 2024). According to Goto et al. (2025), caregivers who use maladaptive coping strategies tend to experience burnout more rapidly and report higher levels of depressive symptoms (Goto et al., 2025).

Although previous studies have consistently demonstrated that coping strategies play an important role in enhancing caregiver resilience and reducing the risk of psychological distress, burnout, and depression, most of these studies have focused on general populations or broad groups of caregivers of patients with chronic diseases. These studies have also indicated that adaptive coping contributes significantly to reductions in caregiver burden, with some studies reporting reductions of up to 35%. However, previous research has not specifically examined caregivers of patients with

DM, who require long-term care with distinct complexities, including complication management, adherence to therapeutic regimens, and technical skills such as blood glucose monitoring and insulin administration.

To date, limited evidence is available regarding the relationship between coping strategies and caregiver burden within local cultural contexts and primary healthcare settings, particularly in the working area of Kalisat Primary Health Center. This area has distinct socioeconomic characteristics, levels of health literacy, and patterns of family support compared with urban populations and hospital-based settings. This situation creates a research gap concerning how family coping strategies are associated with caregiver burden among families caring for patients with DM within a family- and community-based primary healthcare setting.

A preliminary study involving the administration of the Zarit Burden Interview (ZBI) to five caregivers revealed varying levels of caregiver burden, ranging from moderate to severe. These findings provide an initial indication that caregiver burden occurs among family members caring for patients with DM in the area. Most caregivers were women with secondary-level education and had not received specific education or training in DM care. Their coping strategies were generally simple, such as praying, sharing concerns with family members, or independently seeking health information, but these strategies were not yet structured or adequately supported by healthcare professionals.

Interviews with staff responsible for the NCD program at Kalisat Primary Health Center revealed that family support and education have primarily focused on patients' medical needs and have not sufficiently addressed caregivers' psychosocial well-being. This condition indicates variations in the coping strategies used by family members when dealing with caregiving demands. Based on these findings, further research is needed to analyze the relationship between family coping strategies and caregiver burden among families caring for patients with DM in the working area of Kalisat Primary Health Center.

Method

This study used a descriptive correlational design with a cross-sectional approach and was conducted in the working area of Kalisat Primary Health Center, Jember Regency, Indonesia, in June 2026. The study included 70 family caregivers of patients with diabetes mellitus selected using cluster random sampling from two randomly selected villages. Participants were family members aged ≥ 18 years who had provided care for at least three months and were willing to participate. Data were collected through door-to-door visits from June 18–25, 2026, using the Family Crisis Oriented Personal Evaluation Scales (F-COPES) to assess family coping strategies and the Zarit Burden Interview (ZBI) to assess caregiver burden. Data were analyzed using the Spearman Rank correlation test with a significance level of $\alpha = 0.05$. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Health Sciences, Universitas Muhammadiyah Jember (No. 0191/KEPK/FIKES/VI/2026), and written informed consent was obtained from all participants.

Results

A. General Characteristics of Respondents

The caregiver characteristics included age, sex, educational level, relationship to the patient, and duration of caregiving.

Table 1. Characteristics of Respondents in the Working Area of Kalisat Primary Health Center, June 2026 (n = 70)

Karakteristik	Kategori	n	%
Age (years)	20–29	17	24,3
	30–39	13	18,6
	40–49	19	27,1
	≥ 50	21	30,0
Gender	Male	24	34,3
	Female	46	65,7
Educational level	No formal education	7	10,0
	Elementary school/equivalent	17	24,3
	Junior high school/equivalent	31	44,3
	Senior high school/equivalent	4	5,7
	Higher education	11	15,7
Relationship to patient	Spouse	7	10,0
	Child	30	42,9
	Parent	18	25,7
	Sibling	15	21,4
Duration of	<6 months	4	5,7

Karakteristik	Kategori	n	%
caregiving	6–12 months	5	7,1
	>1 year	61	87,1

Source: Primary Data, (2026)

Table 1 shows that the majority of caregivers were aged ≥ 50 years (30.0%), female (65.7%), had completed junior high school or equivalent education (44.3%), were the patients' children (42.9%), and had provided care for more than one year (87.1%). These characteristics indicate that caregiving responsibilities were predominantly undertaken by women and immediate family members, particularly the patients' children, with relatively long caregiving experience. This prolonged involvement in diabetes care may influence the coping strategies used by caregivers and the level of caregiver burden experienced.

B. Specific Findings

The specific findings present the distribution of family coping strategies, caregiver burden, and the relationship between the two study variables.

1. Family Coping Strategies

Table 2. Family Coping Strategies Among Family Members Caring for Patients with Diabetes Mellitus in the Working Area of Kalisat Primary Health Center, June 2026 (n = 70)

Category	Frequency	Percentage (%)
Moderate	25	35.7
High	45	64.3
Total	70	100

Source: Primary Data, (2026)

Table 2 shows that most respondents had high family coping strategies, with 45 respondents (64.3%) classified in the high category.

2. Caregiver Burden

Table 3. Caregiver Burden Among Family Members Caring for Patients with Diabetes Mellitus in the Working Area of Kalisat Primary Health Center, June 2026 (n = 70)

Category	Frequency	Percentage (%)
Moderate	10	14.3
Moderate-to-severe	28	40.0
Severe	32	45.7
Total	70	100

Table 3 shows that the largest proportion of respondents experienced severe caregiver burden, comprising 32 respondents (45.7%).

3. Relationship Between Family Coping Strategies and Caregiver Burden

Table 4. Spearman Rank Correlation Analysis in the Working Area of Kalisat Primary Health Center, June 2026 (n = 70)

Variables	<i>r</i>	<i>p</i> -value
Family coping strategies and caregiver burden	-0.717	<0.000

Source: Primary Data, (2026)

Table 4 shows a statistically significant relationship between family coping strategies and caregiver burden among caregivers of patients with diabetes mellitus ($p < 0.05$). The Spearman's rho correlation coefficient ($r = -0.717$) indicates a strong negative correlation. This finding indicates that higher levels of family coping strategies are associated with lower levels of caregiver burden. Conversely, lower levels of family coping strategies are associated with higher caregiver burden.

Discussion

This study showed that most caregivers of patients with diabetes mellitus had adaptive coping strategies; however, caregiver burden was predominantly classified as severe. A strong negative relationship was also identified between family coping strategies and caregiver burden, indicating that better family coping strategies were associated with lower perceived caregiving burden. These findings suggest that coping strategies are an important resource that helps families adapt to the demands of long-term care for patients with diabetes mellitus.

The ability of families to implement adaptive coping strategies reflects their capacity to utilize internal and external resources to manage various pressures during the caregiving process (Pitaloka et al., 2024). Although caring for patients with diabetes mellitus is a long-term responsibility requiring physical, psychological, social, and economic involvement, most caregivers in this study were able to maintain positive adaptive mechanisms (Nina Dwi Lestari, 2026). This condition may be influenced by their relatively long caregiving experience, which enables caregivers to recognize patients' needs, anticipate changes in health conditions, and develop more effective

ways of dealing with problems throughout the caregiving process (Biney et al., 2024). Such experience may strengthen caregivers' confidence and problem-solving abilities compared with those who are newly assuming the caregiving role.

The findings also indicated that spiritual support was the most dominant coping strategy used by caregivers. Spirituality may provide positive meaning to the experience of caring for a family member with a chronic illness, thereby helping caregivers accept the patient's condition, reduce emotional distress, and maintain motivation to provide care. For families, spiritual activities may function not only as a mechanism for reducing stress but also as a source of hope and resilience when facing various challenges throughout the caregiving process. This finding suggests that spirituality is an important coping resource that should be considered and maintained in family nursing care.

These findings are consistent with Kristaningrum et al. (2021), who reported that family coping strategies were associated with families' ability to maintain the quality of life of patients with type 2 diabetes mellitus (Kristaningrum et al., 2021). Families with adaptive coping strategies were better able to adjust to changes in patients' conditions and provide optimal support throughout the care process. Similarly, Patricia et al. (2024) reported that effective coping strategies contributed to lower caregiver stress through the ability to manage emotional pressures and utilize social support effectively (Patricia et al., 2024). Pitaloka et al. (2024) further demonstrated that family empowerment through education could improve families' ability to independently provide diabetes care at home. Together, these findings reinforce the importance of adaptive coping strategies in strengthening families' capacity to manage the demands of chronic disease care.

The present findings also demonstrate that high levels of coping strategies do not necessarily eliminate caregiver burden. This suggests that coping strategies are one of several factors that facilitate family adaptation but may not fully address the physical, psychological, social, and economic consequences arising during the caregiving process. Therefore, coping strategies need to be supported by comprehensive nursing interventions, including continuous education, strengthening social support,

psychosocial assistance, and family empowerment, to maintain and enhance caregivers' adaptive capacity.

Although caregivers in this study demonstrated relatively high coping strategies, severe caregiver burden remained prevalent. This finding indicates that caring for a family member with diabetes mellitus is a complex and long-term process that generates physical, emotional, social, and economic demands that cannot be addressed solely through individual adaptive capacity. Diabetes management requires adherence to treatment, blood glucose monitoring, dietary regulation, physical activity, and prevention of complications, all of which require sustained family involvement. Consequently, caregivers may remain at risk of fatigue and psychological distress despite having relatively good coping strategies.

The substantial burden experienced by caregivers also indicates that family adaptation is influenced by factors beyond coping ability. Caregiving responsibilities often need to be performed alongside other family or occupational roles, potentially resulting in role conflict and limited time for personal needs. The accumulation of these demands may increase physical fatigue, emotional stress, and psychological distress among caregivers. Therefore, caregiver burden is influenced not only by individual characteristics but also by the duration of caregiving, the complexity of the patient's condition, and the availability of support from family members and healthcare professionals.

These findings are consistent with Kristaningrum et al. (2021), who reported that caregiver burden is associated with the effectiveness of diabetes management. A high caregiving burden may reduce families' ability to provide optimal care, potentially affecting the quality of disease management. Similarly, Madran and Jassim (2022) found that increased caregiver burden was associated with a higher risk of depression and psychological problems among caregivers (Madran & Jassim, 2022). These findings indicate that pressures experienced during caregiving may affect not only physical health but also the emotional well-being of family members providing care.

Siregar (2025) also reported that caregiver burden, depression, and low social support were associated with poorer quality of life among family caregivers of patients with type 2 diabetes mellitus (Siregar, 2025). The consistency of these findings

reinforces that caregiver burden is a multidimensional issue requiring attention within healthcare services because it may affect not only caregivers' well-being but also the continuity and quality of patient care. The findings of this study suggest that a high caregiver burden does not necessarily indicate that families are unable to perform their caregiving roles. Rather, it may reflect the substantial demands that families face when caring for patients with diabetes mellitus.

Therefore, healthcare services should not focus exclusively on patients but should also address caregivers' needs as key partners in chronic disease management. Routine assessment of caregiver burden, continuous education, psychosocial support, and strengthening of family support networks are important components of family nursing interventions to maintain caregiver well-being and support effective diabetes management.

The main finding of this study was a strong negative relationship between family coping strategies and caregiver burden among family members caring for patients with diabetes mellitus. This relationship indicates that more adaptive family coping strategies were associated with lower caregiver burden. Conversely, families with less effective coping strategies tended to experience higher levels of caregiver burden. These findings highlight that coping strategies function not only as responses to stress but also as protective resources that help families maintain adaptive capacity when facing the demands of chronic disease care.

This relationship may be explained by families' ability to manage the various pressures arising throughout the caregiving process. Caregivers with adaptive coping strategies tend to be better able to utilize social support, engage in constructive problem-solving, regulate emotional responses, and find positive meaning in challenging circumstances. These abilities may enable families to maintain psychological balance despite long-term caregiving demands. Conversely, limited coping strategies may make caregiving-related stress more difficult to manage, increasing the risk of physical fatigue, emotional stress, role conflict, and reduced quality of life. Therefore, coping strategies represent an important resource in mitigating the negative effects of caregiving among families caring for patients with diabetes mellitus.

These findings are consistent with Setyoadi et al. (2023), who reported that family coping strategies contributed to families' ability to maintain the quality of life of patients with type 2 diabetes mellitus (Setyoadi et al., 2023). Families with adaptive coping strategies were better able to adjust to changes in patients' conditions and provide continuous support throughout the caregiving process. The findings are also supported by Suratmini and Togatorop (2023), who reported that family coping ability is an important factor in strengthening family resilience when facing chronic illness (Suratmini & Togatorop, 2023). Together, these studies reinforce the role of coping strategies as an internal family resource that supports successful adaptation to the caregiving role.

Patricia et al. (2024) demonstrated that effective coping strategies need to be supported by adequate social support to optimally reduce caregiver stress (Patricia et al., 2024). This finding indicates that coping does not operate independently but is influenced by a social environment that provides emotional, informational, and instrumental support to families. This is consistent with the present findings, in which severe caregiver burden remained prevalent despite most respondents demonstrating high coping strategies. This condition suggests that coping strategies alone may not be sufficient to eliminate the entire caregiving burden without adequate support from family members, healthcare professionals, and the wider social environment.

The findings have important implications for family and community nursing practice. Diabetes care has traditionally focused primarily on controlling patients' clinical conditions, while caregivers' psychosocial well-being has received comparatively less attention. However, successful diabetes management is strongly influenced by the family's ability to sustain caregiving responsibilities. Therefore, nurses should integrate assessments of family coping strategies and caregiver burden into the nursing assessment process so that families at risk of high caregiver burden can be identified early and receive appropriate interventions.

Potential nursing interventions include education on adaptive coping strategies, development of family support groups, family counseling, strengthening of social support, and spiritual support according to family needs. These approaches may improve family adaptive capacity, reduce caregiver burden, and maintain caregiver

quality of life throughout the caregiving process. Strengthening family coping strategies may therefore benefit not only caregivers but also contribute to sustainable diabetes management through a family-centered care approach.

Conclusion

Family coping strategies were significantly associated with caregiver burden among family members caring for patients with diabetes mellitus. More adaptive coping strategies were associated with lower levels of caregiver burden. Therefore, strengthening family coping strategies through family nursing interventions should be optimized to help reduce caregiver burden and support the quality of diabetes care within the family setting.

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