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Correlation between coping mechanisms and the burden experienced by caregivers of cancer patients

Korelasi Mekanisme Koping dengan Pengalaman Beban Caregiver Pasien Kanker

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ABSTRACT

Background: Caregivers of breast cancer patients are at risk of experiencing a high caregiver burden due to prolonged physical, emotional, and social demands. Coping responses play an important role in determining how caregivers manage these challenges.
Objective: The study aimed to analyze the relationship and caregiver burden in caring for breast cancer patients.
Methods: This study employed a quantitative cross-sectional design involving 200 caregivers of breast cancer patients. Inclusion criteria were age ≥18 years, good health status, active involvement in caregiving, and the ability to read Indonesian. Data were collected from August to December 2024 using a demographic questionnaire, the Coping Orientation to Problems Experienced (COPE), and the Indonesian version of the Zarit Burden Interview (ZBI). Data were analyzed using the chi-square test. Most caregivers with maladaptive coping experienced a high caregiver burden (79.8%), while only 20.2% of caregivers with adaptive coping reported a high burden.
Results: Statistical analysis showed a significant association between coping responses and caregiver burden (p = 0.001).
Conclusion: Caregivers who used maladaptive coping strategies had a significantly higher likelihood of experiencing a high caregiver burden compared with those who used adaptive coping strategies**.** Coping responses are significantly associated with caregiver burden among caregivers of breast cancer patients. Strengthening adaptive coping strategies through caregiver-focused interventions is essential to reducing caregiver burden and supporting optimal patient care.

Keywords: breast cancer, caregiver burden, coping response

ABSTRAK

Latar Belakang: *Caregiver* pasien kanker payudara berisiko mengalami beban perawatan yang tinggi akibat tuntutan fisik, emosional, dan sosial yang berlangsung dalam jangka panjang. Respon koping berperan penting dalam menentukan kemampuan *caregiver* dalam menghadapi tantangan tersebut.
Tujuan: Penelitian ini bertujuan untuk menganalisis hubungan antara respon koping dan beban *caregiver* dalam merawat pasien kanker payudara.
Metode: Penelitian ini menggunakan desain kuantitatif dengan pendekatan (cross-sectional) yang melibatkan 200 *caregiver* pasien kanker payudara. Kriteria inklusi meliputi usia ≥18 tahun, kondisi kesehatan yang baik, aktif dalam memberikan perawatan, serta mampu membaca dan memahami Bahasa Indonesia. Pengumpulan data dilakukan pada bulan Agustus hingga Desember 2024 menggunakan kuesioner

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karakteristik responden, *Coping Orientation to Problems Experienced* (COPE), dan *Zarit Burden Interview* (ZBI) versi Bahasa Indonesia. Analisis data dilakukan menggunakan uji chi-square. Hasil penelitian menunjukkan bahwa sebagian besar *caregiver* dengan respon koping maladaptif mengalami beban *caregiver* berat (79,8%), sedangkan hanya 20,2% *caregiver* dengan koping adaptif yang mengalami beban berat.

Hasil: Analisis statistik menunjukkan adanya hubungan yang signifikan antara respon koping dan beban *caregiver* (p = 0,001).

Kesimpulan: Penelitian ini menyimpulkan bahwa respon koping berhubungan secara signifikan dengan beban *caregiver* pada pasien kanker payudara. Penguatan strategi koping adaptif melalui intervensi yang berfokus pada *caregiver* diperlukan untuk menurunkan beban perawatan dan mendukung kualitas perawatan pasien secara optimal.

Kata kunci: beban *caregiver*, kanker payudara, respon koping

INTRODUCTION

Breast cancer is one of the types of cancer with the highest incidence rate in women worldwide and is a major cause of morbidity and mortality[1]. The increase in breast cancer cases has an impact on the increasing need for treatment[2]. JA long list of tasks typically performed by family members acting as caregivers. This situation not only demands physical involvement but also creates psychological, social, and economic pressures that can increase the caregiver's burden. A literature study conducted by Widianti (2021) found that social support from caregivers has a positive effect on reducing despair and anxiety in cancer patients. Patients have a place to express their feelings, emotions, concerns, and experiences and receive encouragement and attention from others, thereby increasing life expectancy and preventing despair[3].

Although caregiver support has a significant positive impact on cancer patients, intense and continuous involvement in the care process also brings its own consequences for caregivers, especially in the form of increased physical, emotional, and psychological burdens. Nurlelasari (2023) stated in her research that the average caregiving time spent by caregivers is 32.9 hours per week, of which 72% is medical tasks such as treating wounds, administering medications, measuring blood pressure, body temperature, and so on. A heavy caregiving burden causes caregivers to experience emotional distress, overwhelm, loss of control, helplessness, anxiety, and stress. A heavy caregiving burden can lead to severe anxiety levels of 33.1%. Furthermore, caregivers experience unpreparedness in providing care to cancer patients (50.4%) due to feeling unsure about caring for cancer patients due to a lack of knowledge about cancer patient care. Unpreparedness in providing care to cancer patients will impact the caregiver's physical and mental well-being. Therefore, the caregiver's burden and unpreparedness in caring for cancer patients will increase the caregiver's level of depression and anxiety[4].

Caregivers' coping strategies vary depending on their coping styles. Coping can be either adaptive or maladaptive. Adaptive responses can enhance integrity and assist in achieving adaptive goals such as survival, growth, reproduction, mastery, and experiencing changes that lead to health. Conversely, maladaptive responses fail to achieve goals or are unable to manage the environment, leading to impaired integrity. [5]. According to research conducted by Akpan-Idiok et al. (2020), 46.19% of caregivers caring for cancer patients in Africa experienced severe burden, 36.2% experienced moderate burden, and 17.61% experienced light burden. Caregivers use coping responses to alleviate the level of burden experienced, namely acceptance, appreciation, family support, positive self-perception, and empathy. However, difficult and long-term situations can affect these coping responses. Caregivers may have

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adaptive or maladaptive responses that will influence how they care for cancer patients.[6]. Therefore, it is necessary to identify coping responses to improve caregivers' perspectives on the situation they are experiencing and to increase their ability to overcome difficult situations.

Although various international studies have examined the relationship between coping strategies and caregiver burden in cancer patients, most of these findings come from studies conducted in developed countries with relatively well-established healthcare systems. Research shows that cancer caregivers face a multidimensional burden encompassing physical, psychological, and emotional aspects, which can lead to a decreased quality of life and an increased risk of stress, anxiety, and depression[7], [8], [9]. Coping strategies, both problem- and emotion-focused, play an important role in determining how caregivers manage the demands of long-term care[10], [11]. However, empirical evidence from developing country contexts, including Indonesia, remains limited, even though cultural differences, family structures, and gender role dynamics have the potential to significantly influence caregiver experiences. Previous studies have emphasized that limited resources, access to healthcare, and psychosocial support can exacerbate caregiver burden and influence the effectiveness of coping strategies[12], [13]. Furthermore, in the Asian cultural context, gender roles within the family have the potential to shape the involvement patterns of caregivers—both men and women—in dealing with the demands of breast cancer patient care, which has not been widely explored empirically in previous research. This study aimed to analyze the relationship between coping responses and caregiver burden in caring for breast cancer patients.

METHODS

Study Design

This study employed a quantitative approach with a cross-sectional design to analyze the relationship between coping responses and caregiver burden in caring for breast cancer patients. This design allows simultaneous measurement of independent and dependent variables at a single point in time without intervention. The study was conducted in Medan City from August to December 2024.

Data Source and Sampling Procedure

The study population consisted of family caregivers of breast cancer patients. A total of 200 respondents were recruited using consecutive sampling, where eligible caregivers were included sequentially until the required sample size was reached. Inclusion criteria were caregivers aged ≥18 years, physically and mentally healthy, actively caring for breast cancer patients, and able to read and understand Indonesian. Exclusion criteria included caregivers with health conditions that could affect questionnaire completion and those unwilling to participate.

Variables of the Study

The main independent variable was caregiver coping response, while the dependent variable was caregiver burden. Supporting variables included resilience, psychological condition (depression, anxiety, and stress), and perceived social support.

Data Collection

Data collection was conducted after respondents received an explanation of the study objectives, procedures, and benefits, and provided written informed consent. Data were collected using self-administered questionnaires under the supervision of the research team to ensure completeness and accuracy.

Measurement and Instruments

Data were collected using several validated instruments: the respondent characteristics questionnaire, Coping Orientation to Problems Experienced (COPE), and

Zarit Burden Interview (ZBI), Indonesian version. The COPE instrument demonstrated good reliability (Cronbach's α = 0.82), and the ZBI showed high internal consistency (Cronbach's α = 0.837). Additional variables were measured using the Connor–Davidson Resilience Scale (CD-RISC-25; α = 0.92), Depression Anxiety Stress Scale (DASS-21; α = 0.92), and Multidimensional Scale of Perceived Social Support (MSPSS; α = 0.99). Coping responses were categorized as adaptive or maladaptive based on the difference between adaptive and maladaptive coping scores using a mean cut-off point of 21. Caregiver burden was classified as low (≤15) or high (>15) based on the mean score.

Ethical Considerations

This study received ethical approval from the Research Ethics Committee (No. KET-193/UN2.F12.D1.2.1/PPM.00.02./2024). All respondents provided written informed consent prior to participation, and the confidentiality of participant data was strictly maintained throughout the study.

Data Analysis

Data were analyzed using univariate and bivariate approaches. Univariate analysis was used to describe respondent characteristics, coping responses, and caregiver burden. Bivariate analysis was conducted using the chi-square test to examine the relationship between coping responses and caregiver burden, as both variables were categorical. Additionally, independent t-tests were used for continuous variables (age, income, duration of caregiving), while chi-square tests were applied for categorical variables (sex, education, marital status, and caregiver relationship). A significance level of $p < 0.05$ was applied.

RESULTS

Table 1. Characteristics of Age, Income, and Duration of care (n=200)

Demographics	n (%)	Mean	Elementary School	Min-Max
Age of caregiver		42.03	15.54	17-75
Income		3.56	3.00	0.00-10.00
Duration of care		3.04	2.16	0.5-13
Sex				
Male	112 (56%)			
Female	88 (44%)			
Education Level				
Elementary- Senior High School	121 (60.5%)			
College	79 (39.5%)			
Marital status				
Unmarried	55 (27.5%)			
Married	145 (72.5%)			
Relationship to patients				
Nuclear family	176 (88%)			
Extended family	24 (12%)			
Coping Response				
Maladaptive	107 (53.5%)			
Adaptive	93 (46.5%)			
Caregiver burden				
Mild	91 (45.5%)			
Severe	109 (54.5%)			

The results of this study describe the characteristics of 200 respondents, their coping strategies, and their association with caregiver burden in caring for breast cancer patients. Univariate analysis was conducted to summarize the characteristics of each variable, including caregiver characteristics (age, sex, education level, marital status, income, relationship to the patient, and duration of care), the independent variable (coping strategies), and the dependent variable (caregiver burden). Table 1 shows that the mean age of caregivers was 42 years, with an average income of IDR 3,560,000. The average duration of caregiving was 3 years. Most caregivers were male (n = 112, 56%). The majority had primary to secondary education (n = 121, 60.5%) and were married (n = 145, 72.5%). Most patients received care from members of the nuclear family (n = 176, 88%), such as parents, spouses, or children. Regarding psychological factors, 107 caregivers (53.5%) exhibited maladaptive coping strategies, and most caregivers experienced a high burden (n = 109, 54.5%).

Table 2. T-test results on the relationship between caregiver characteristics and caregiver burden (n=200)

Variables	Mean Caregiver Burden		t	SD		Df	p	95%CI
	Mild	Severe		Mild	Severe			
Caregiver Age	41.99	42.06	0.30	15.51	15.64	198	0.97	-4.29; 4.43
Income	1.68	1.57	-1.50	0.46	0.49	198	0.13	-0.07; 0.09
Duration of treatment	1.09	1.11	0.25	0.30	0.31	198	0.79	-0.23; 0.03

Normality tests were not performed due to the large sample size (n = 200), assuming normal distribution based on the Central Limit Theorem. The analysis used a chi-square test for categorical data. Table 2 showed no significant relationship between caregiver age, income, and length of care with caregiver burden ($p > 0.05$). In Table 3, only gender was significantly associated with caregiver burden ($p = 0.01$). Additionally, 79.8% of caregivers with maladaptive coping experienced a severe burden, compared to 20.2% with adaptive coping. The chi-square test indicated a significant relationship ($p = 0.001$), with maladaptive coping increasing the likelihood of severe burden by 14 times.

Table 3. Chi Square Test Results of the Relationship Between Caregiver Characteristics and Coping Responses with Caregiver Burden (n=200)

Variables	Caregiver Burden		Total N (%)	X2	OR (95% CI)	p-value
	Light N (%)	Heavy N (%)				
Sex						
Male	42 (46.2%)	70 (64.2%)	112 (56%)	6.57	2.45 (0.76;7.87)	0.010*
Female	49 (53.8%)	39 (35.8%)	88 (44%)			
Education						
Elementary- Senior High School)	53 (58.2%)	68 (62.4%)	121(60.5%)	0.36	1.05 (0.36;3.05)	0.55
College	38 (41.8%)	41 (37.6%)	79 (39.5%)			
Marital status						
Unmarried	24 (26.4%)	31 (28.4%)	55 (27.5%)	0.11	0.20 (0.05; 0.76)	0.74
Married	67 (73.6%)	78 (71.6%)	145 (72.5%)			
Relationship to patients						
Nuclear family	80 (87.9%)	96 (88.1%)	176 (88%)	0.00	2.74 (0.62; 12.1)	0.18
Extended family	11 (12.1%)	13 (11.9%)	24 (12%)			
Coping Response						
Adaptive	71 (78%)	22 (20.2%)	93 (46.5%)	64.39	1	
Maladaptive	20 (22%)	87 (79.8%)	107 (53.5%)		14.04 7.09; 27.76)	0.001

Multivariate analysis was conducted using binary logistic regression to control for confounding variables including caregiver age, gender, education, income, and duration of care. The analysis results showed that coping responses remained significantly associated with caregiver burden after controlling for these confounding variables.

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Caregivers with maladaptive coping responses were 14.17 times more likely to experience severe caregiver burden than caregivers with adaptive coping responses (AOR = 14.177; 95% CI: 7.012–28.661; p < 0.001). Meanwhile, the variables of gender, education, income, caregiver age, and Duration of care did not show a significant association with caregiver burden in the multivariate logistic regression model (Table 4).

Table 4. Multivariate Logistic Regression Analysis of Factors Associated with Caregiver Burden (n = 200)

Variables	B	AOR (Exp(B))	95% CI	p
Coping responses (maladaptive)	2,652	14,177	7,012 – 28,661	<0.001
Sex	-0.529	0.589	0.266 – 1.303	0.191
Education	-0.497	0.609	0.297 – 1.247	0.175
Income	-0.094	0.910	0.403 – 2.053	0.820
Age of caregiver	0.004	1,004	0.972 – 1.037	0.796
Duration of care	0.216	1,241	0.526 – 2.932	0.622

DISCUSSION

Based on demographic characteristics, the majority of caregivers in this study were male (56%). This finding is interesting because most previous literature reports that women more often act as primary caregivers[18]. In the context of breast cancer, the involvement of male caregivers, such as husbands or sons, tends to increase because long-term and complex care requires physical, financial, and emotional support.

Bivariate analysis results showed that gender was significantly associated with caregiver burden in caring for breast cancer patients ($\chi^2 = 6.57$; p = 0.010). The majority of male caregivers (64.2%) experienced a heavy burden, while most female caregivers (53.8%) tended to experience a light burden. The Odds Ratio (OR = 2.45; 95% CI: 0.76–7.87) indicated that male caregivers were more likely to experience a heavy burden than female caregivers, although the confidence interval reflects variation in estimates. This finding is consistent with previous research reporting that male caregivers often experience a heavy burden due to gender role demands and social pressure to maintain a masculine identity in certain cultural contexts[19]. High emotional involvement when a partner experiences physical or psychological distress also adds to the burden. Several studies also show that female caregivers are more susceptible to anxiety, depression, and stress, potentially impacting caregiver well-being and caregiving dynamics[20], [21]. These differences indicate that the experience of caregiver burden is influenced by gender role constructions and different psychological responses between men and women.

The results of this study indicate a very strong relationship between coping responses and caregiver burden. The majority of caregivers with maladaptive coping (79.8%) experienced a heavy caregiving burden, while only 20.2% of caregivers with adaptive coping reported a similar burden. A chi-square test showed a significant relationship between coping responses and caregiver burden (p = 0.001), with an OR of 14.04. This finding indicates that caregivers with maladaptive coping are approximately 14 times more likely to experience a heavy burden than caregivers with adaptive coping. Mechanistically, the use of maladaptive coping such as avoidance, denial, and self-blame can hinder the caregiver's adaptation process to the demands of long-term caregiving, resulting in stressors being ineffectively managed and accumulating into a heavier caregiving burden[11], [22]. This finding is consistent with various studies that suggest that coping strategies play a significant role in determining caregivers' psychological well-being. Caregivers who use maladaptive coping mechanisms, such as denial, avoidance, and self-blame, are more susceptible to stress, anxiety, and depression. The use of adaptive coping, such as problem-focused coping, seeking social

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support, and assigning positive meaning to the caregiving experience, has been shown to improve caregivers' emotional well-being[17], [23], [24]. Psychologically, coping strategies act as an internal mechanism that bridges the demands of caregiving with the caregiver's emotional responses. Findings by Yang et al. (2021) and Nardella et al. (2025) indicate that intrapersonal factors such as self-esteem and resilience influence how caregivers appraise caregiving stressors and determine which coping strategies to use. When these psychological resources are limited, caregivers tend to use maladaptive coping, which ultimately increases the perceived burden of caregiving. Furthermore, multivariate analysis in this study showed that coping responses remained significantly associated with caregiver burden after controlling for confounding variables such as caregiver age, gender, education, income, and length of caregiving. Caregivers with maladaptive coping were more likely to experience severe caregiver burden than caregivers with adaptive coping. These findings reinforce the role of coping strategies as a significant factor influencing caregivers' experiences of burden in caring for cancer patients. These findings align with research by Rha et al. (2015), which demonstrated that caregiving burden is a factor that significantly influences the condition and quality of life of caregivers of cancer patients[9].

Conceptually, these findings support the Stress and Coping theory proposed by Lazarus and Folkman (1984), which emphasizes that an individual's perception of stressors and the coping strategies they use influence the level of stress experienced, thus explaining the high burden experienced by caregivers with maladaptive coping in this study. Within this theoretical framework, caregivers first conduct a primary appraisal of the disease condition as a threat or challenge, then conduct a secondary appraisal of their abilities and resources to cope with the demands of care.[11]The appraisal process influences the choice of coping strategies, both problem-focused coping and emotion-focused coping[22]. When caregivers use maladaptive coping, the inability to manage the physical and emotional demands of care can increase caregivers' perceived burden, as demonstrated in this study. In the context of caring for breast cancer patients, the application of adaptive coping strategies and a high level of resilience enable caregivers to manage caregiving demands more constructively. Nursing interventions focused on stress management training, improving problem-solving skills, and strengthening social support are important components in reducing caregiver burden.

This study shows that caregivers tend to use active coping strategies and planning when dealing with caregiving situations. Caregivers strive to find alternative solutions, develop care plans, and coordinate patient needs with healthcare providers. These strategies reflect a strong sense of responsibility and concern for patients[26], [27]. Carver, Scheier, and Weintraub (1989) stated that problem-focused coping allows individuals to face physical and emotional demands in a more focused manner through the search for practical solutions[28].

In the Indonesian cultural context, the family's role as an interdependent system influences caregivers' coping strategies. When one family member maintains maladaptive coping, this can impact other family members and increase the collective burden[29]. Strong family values strengthen the commitment to care, but limited formal support and psychosocial services can potentially increase the hidden burden experienced by caregivers. This study has several limitations. The cross-sectional design did not allow for assessment of changes in caregiver burden and coping strategies over time. Data collection through self-report questionnaires is also potentially influenced by respondents' emotional state at the time of completion. Nevertheless, this study involved a large number of respondents and used a tested instrument, thus providing a comprehensive picture of the experiences of caregivers of breast cancer patients.

The findings of this study have important implications for nursing practice, particularly in the implementation of routine screening for caregiver burden and coping strategies. Developing nursing interventions that focus on enhancing adaptive coping through education, counseling, and psychosocial support is expected to reduce caregiver burden and improve the quality of care for breast cancer patients.

CONCLUSION

This study demonstrates that coping is a key factor associated with caregiver burden in breast cancer care. Caregivers with maladaptive coping are at higher risk of experiencing severe burden than caregivers with adaptive coping. These findings contribute to scientific research by confirming the role of coping as a crucial psychosocial determinant in the context of breast cancer caregiving in Indonesia.The results of this study have practical implications for oncology nursing, particularly the need to integrate burden screening and caregiver coping strategies into routine care. Healthcare professionals need to develop interventions that focus on strengthening adaptive coping, stress management, and psychosocial support to enable caregivers to carry out their caregiving role sustainably and effectively.

Further research is recommended to use a longitudinal design to evaluate changes in caregiver burden and coping strategies over time, as well as an experimental intervention design to test the effectiveness of caregiver coping and resilience enhancement programs in reducing care burden.

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