Original Article

The Relationship Between Depression And Anxiety With Caregiver Burden Of Cancer Patients Receiving Chemotherapy

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Abstract

Introduction: *Cancer causes a significant physical and emotional burden, not only for patients, but also for caregivers. Caregiver's burden is associated with caring for a chronically ill family member, which would increase if role tensions and concerns related to cancer are high and/or if they are in poor physical and emotional health, such as depression or anxiety. This study aims to determine the relationship between depression and anxiety with the burden of caregivers of cancer patients receiving chemotherapy.*
Method*: A cross-sectional study with consecutive sampling involving caregiver of cancer patients who met the inclusion and exclusion criteria. The sample filled out the DASS-21 and ZBI questionnaires to determine the degree of depression, anxiety, and caregiving burden. The relationship between variables was obtained using the Spearman test.*
Results*: From 30 caregivers of cancer patients who received chemotherapy, 3 experienced mild depression, 1 experienced moderate depression, 7 experienced severe depression, and 2 experienced very severe depression. While 5 experienced mild anxiety, 3 experienced moderate anxiety, 4 experienced severe anxiety, and 5 experienced very severe anxiety. ZBI showed 18 with little or no burden, 3 with mild to moderate burden, 4 with moderate to severe burden, and 5 with severe burden. There is a significant correlation between the degree of depression and anxiety with the burden of caring for cancer patients who receive chemotherapy ($p<0,001$).*
Conclusion*: Depression and anxiety are associated with the burden of caring for cancer patients who receive chemotherapy due to the tension and worry related to cancer with various symptoms and chemotherapy side effects.*

Keywords: *Depression, Anxiety, Burden, Caregiver, Cancer, Chemotherapy.*

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Hubungan Antara Derajat Depresi Dan Kecemasan Dengan Beban Pengasuh Penderita Kanker Yang Mendapatkan Kemoterapi

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Abstrak

Pendahuluan: *Kanker merupakan salah satu penyakit yang menimbulkan beban fisik dan emosional yang sangat besar, tidak hanya bagi pasien, tetapi juga bagi pengasuh. Beban pengasuh yang berkaitan dengan perawatan anggota keluarga yang sakit kronis, akan mengalami peningkatan jika ketegangan peran dan kekhawatiran terkait kanker tinggi atau jika mereka memiliki kesehatan fisik dan emosional yang buruk, seperti depresi atau kecemasan. Penelitian ini bertujuan untuk mengetahui hubungan antara depresi dan kecemasan dengan beban pengasuh pasien kanker yang menerima kemoterapi.*
Metode*: Penelitian cross-sectional dengan sequential sampling melibatkan pengasuh penderita kanker yang memenuhi kriteria inklusi dan eksklusi. Sampel mengisi kuesioner DASS-21 dan ZBI untuk mengetahui derajat depresi, kecemasan, dan beban pengasuhan. Hubungan antar variabel diperoleh dengan menggunakan uji Spearman.*
Hasil*: Dari 30 orang pengasuh pasien kanker yang menerima kemoterapi, 3 orang mengalami depresi ringan, 1 orang mengalami depresi sedang, 7 orang mengalami depresi berat, dan 2 orang mengalami depresi sangat berat. Pada hasil kecemasan, 5 orang mengalami kecemasan ringan, 3 orang mengalami kecemasan sedang, 4 orang mengalami kecemasan berat, dan 5 orang mengalami kecemasan sangat berat. Pada hasil ZBI, 18 orang masuk dalam kategori beban ringan atau tidak ada, 3 orang dengan beban ringan-sedang, 4 orang dengan beban sedang-berat, dan 5 orang dengan beban berat. Terdapat korelasi yang signifikan antara derajat depresi dan kecemasan dengan beban merawat pasien kanker yang menerima kemoterapi ($p<0,001$).*
Kesimpulan*: Depresi dan kecemasan memiliki hubungan yang signifikan dengan beban perawatan pasien kanker yang menjalani kemoterapi karena adanya ketegangan dan kekhawatiran terkait kanker dengan berbagai gejala dan efek samping akibat kemoterapi yang dijalani pasien.*

Kata Kunci*: Depresi, Kecemasan, Beban, Pengasuh, Kanker, Kemoterapi.*

Introduction

Cancer remains one of the leading contributors to global morbidity and mortality.[1] In Indonesia, the prevalence of cancer increased from 1.4% to 1.8%, with 234,511 deaths reported in 2020.[2,3] The disease imposes substantial physical and emotional strain on patients and indirectly affects their closest companions, who often serve as primary caregivers.[4] Caregivers are typically unpaid individuals—spouses, family members, or close friends—who provide continuous assistance to cancer patients.[5] Those caring for patients with severe symptoms, either from the disease or from chemotherapy side effects, tend to deliver longer and more intensive care, making them more susceptible to psychological, physical, social, and financial challenges, especially if they face health limitations or lack sufficient resources.[6]

Prolonged caregiving stress can trigger neurohormonal and inflammatory changes, potentially elevating the caregiver's risk of morbidity and mortality.[7] Caregiver burden is strongly correlated with both depression and anxiety. A systematic review reported depression and anxiety prevalence among cancer

caregivers at 42.3% and 46.6%, respectively.[8] Longitudinal data from the Health and Retirement Study (HRS) showed that caregivers of patients in poor health experienced significantly worse outcomes.[9] Approximately 17.4% of informal caregivers reported feelings of sadness or distress, while 15% exhibited clinically relevant depression scores, especially during the first year after diagnosis. Educational attainment, chronic illness, and bereavement status were identified as risk factors for developing depression. The mean CES-D score among informal caregivers was 2.8, with 32% scoring ≥4, showing a strong correlation between patient and caregiver depression levels ($r=0.53$; $p<0.001$).[10]

A systematic review by Chong et al. also revealed a significant association between patient and caregiver anxiety ($p=0.027$). Clinical anxiety levels, based on HADS scores, were present in 39% of caregivers, and 12.2% reported feelings of fear or anxiety. Spouses of pancreatic cancer patients exhibited significantly higher rates of anxiolytic use compared to controls. Seeking professional psychological support was significantly associated with subclinical or clinical anxiety levels and with poorer patient quality of life.[11] In recent years, clinical practice has increasingly emphasized family function–based interventions to improve patient and family well-being. Such approaches promote communication, problem-solving, role engagement, and affective interaction, thereby reducing psychological distress among family members. However, the evolving interplay between caregiver burden and mental health over time remains underexplored.[12] Thus, this study aims to examine the relationship between depression, anxiety, and caregiver burden among individuals caring for cancer patients undergoing chemotherapy.

Methods

Design and Subject

This research received ethical approval from the Health Research Ethics Committee, Faculty of Medicine, Diponegoro University (approval number: 587/EC/KEPK/FK-UNDIP/X/2024). A cross-sectional study design was employed, utilizing questionnaire-based data collected at Dr. Kariadi General Hospital between September and October 2024. Participants were recruited through consecutive sampling, consisting of caregivers who were first-degree relatives of cancer patients undergoing chemotherapy. Caregivers who declined participation were excluded from the study. A total of 30 respondents met the inclusion criteria and were included in the final analysis. Each participant completed a demographic information form along with the Depression, Anxiety, and Stress Scale (DASS-21) and the Zarit Burden Interview (ZBI) to evaluate the levels of depression, anxiety, and caregiving burden. The questionnaire responses were scored and categorized according to standardized classification systems for each instrument.

Statistical Analysis

All collected data were reviewed for accuracy and completeness prior to statistical processing. The data were coded, tabulated, and entered into a computerized database for analysis. Statistical evaluation was performed using the non-parametric Spearman's rank correlation test to determine associations between variables. A p-value ≤ 0.05 was considered statistically significant, with a 95% confidence interval applied for all analyses.

Results

A total of 30 caregivers participated in this study, consisting of 15 males (50%) and 15 females (50%). The mean age of respondents was 46 years, ranging from 23 to 70 years, and the majority were married (86.7%). The demographic distribution of participants based on the univariate analysis is presented in Table 1.

The highest level of education of respondents was senior high school/vocational high school with 11 people (36.7%) and most respondents were already working (63.3%). Of the 30 respondents, only 3 people (10%) had a history of NAPZA, that is a history of alcohol consumption. Only 1 respondent had been treated by a psychiatrist for 3-6 months with a diagnosis of generalized anxiety disorder. There were 7 people who had other physical illnesses, including hypertension, diabetes, heart disease, tumors, and weakness of the limbs. The longest respondents had been caregivers was in the range of 1-5 years, namely 16 people (53.3%), and the most relationships with patients were as husband/wife, namely 17 people (56.7%).

The characterics of depression, anxiety, and caregiver burden, in which 13 people (43.3%) experienced depression with varying degrees from mild to very severe and 17 people (56.7%) experienced anxiety with varying degrees from mild to very severe as decribed in table 2. The burden of caregiving was mea-

Table 1. Respondent Demographic Characteristics

Variable	n	%	Mean ± SD	Median (min-max)
Gender				
Male	15	50,0		
Female	15	50,0		
Age			45,60 ± 12,59	47,50 (23 – 70)
Marital Status				
Married	26	86,7		
Unmarried	4	13,3		
Level of Education				
Elementary school	4	13,3		
Junior high school	8	26,7		
Senior high school	11	36,7		
Bachelor's degree	6	20,0		
Master's degree	1	3,3		
Job				
Working	19	63,3		
Not working	11	36,7		
History of Drugs				
Yes	3	10,0		
No	27	90,0		
Psychiatric History				
Yes	1	3,3		
No	29	96,7		
Physical Illness				
Yes	7	23,3		
No	23	76,7		
Length of Time as Caregiver				
<6 months	1	3,3		
6 months – 1 year	12	40		
1 – 5 years	16	53,3		
5 – 10 years	1	3,3		
Relationship with patient				
Husband/wife	17	56,7		
Children	9	30,0		
Parents	4	13,3		

sured using the ZBI and the results obtained were 16 people (53.3%) in the little or no burden category, 7 people (23.3%) in the mild to moderate burden category, 3 people (10.0%) in the moderate to severe burden category, and 4 people (13.3%) in the severe burden category. From a total of 30 respondents who filled out the DASS-21 and ZBI questionnaires, the average and median values for each questionnaire were obtained, which can be seen in table 3 below.

To determine the correlation between variables, a bivariate analysis was conducted using the Spearman nonparametric test because the variables analyzed were not normally distributed ($p < 0.05$) after a normality test was conducted with the Shapiro-Wilk test (because the data was less than 50). The results of the correlation analysis are shown in table 4. Based on the results of the correlation analysis, the burden of caregivers of cancer patients receiving chemotherapy has a strong positive correlation with depression ($r = 0.861$; $p < 0.001$) and anxiety ($r = 0,913$; $p < 0,001$).

Table 2. Characteristics of Depression, Anxiety, and Caregiver Burden

Questionnaire	Measurable Variables	Degree	n	%
Depression Anxiety Stress Scale (DASS-21)	Depression	Normal	17	56,7
		Mild	3	10
		Moderate	1	3,3
		Severe	7	23,3
		Extremely severe	2	6,7
	Anxiety	Normal	13	43,3
		Mild	5	16,7
		Moderate	3	10
		Severe	4	13,3
		Extremely severe	5	16,7
Zarit Burden Interview (ZBI)	Caregiver Burden	Little or no burden	16	53,3
		Mild to moderate burden	7	23,3
		Moderate to severe burden	3	10,0
		Severe burden	4	13,3

Table 3. Descriptive Data on Degree of Depression, Anxiety, and Caregiver Burden

Variables	Mean ± SD	Median (Min – Max)
Depression	11,27 ± 8,65	8,50 (0-32)
Anxiety	11,27 ± 8,65	8,50 (0-32)
Caregiver Burden	25,83 ± 20,68	17,00 (4-71)

Tabel 4. Analysis of the Relationship Between the Degree of Depression and Anxiety with Caregiver Burden

Variables	r	p
Depression	0,861	<0,001*
Anxiety	0,913	<0,001*

*Description: r, correlation coefficient; *, significant (p<0,05)*

Discussion

This study assessed the correlation between the degree of depression and anxiety with the burden of caregiving where a significant relationship was found between the variables. The average degree of depression in caregivers as measured by the DASS-21 was mild (11.3), but 33.3% of caregivers had moderate to very severe depression. Meanwhile, the average degree of anxiety in caregivers which was also measured by the DASS-21 was moderate (11.3), with 30% of caregivers having severe to very severe anxiety. This is in accordance with the research of Chong et al. which stated that there is a significant relationship between the level of depression and anxiety with the burden of caregivers (p <0.001).

Cancer patients often experience a wide range of disease-related symptoms that demand intense caregiving efforts and place substantial emotional strain on their caregivers.[13] Feelings of sadness and helplessness may arise when caregivers are unable to alleviate the patient's distress—such as persistent digestive problems or side effects from treatment. When symptoms continue despite their efforts, caregivers may experience frustration and a sense of inadequacy. In some cases, guilt can emerge, particularly when caregivers must insist on adherence to dietary or therapeutic regimens, or when they believe their encouragement of treatment contributed to adverse effects. These self-blaming emotions frequently exacerbate psychological distress among caregivers.[14] The inability to communicate effectively about cancer can impose additional emotional strain. Caregivers often face the difficult responsibility of disclosing the diagnosis to others, requiring sensitive judgment about what to say, when to say it, and how to convey the information appropriately.[15] Such communication-related stress contributes substantially to the overall caregiving burden observed among caregivers of chemotherapy patients in this study.

A study by Galvan et al identified that high levels of anxiety, depression, and burnout were also associated with caregiver burden in cancer patients, with 48% of caregivers reporting anxiety as a clinical problem.[16]

Likewise, qualitative research by Sklenarova et al. revealed that caregivers' major sources of distress included witnessing their loved one's progressive deterioration and confronting the imminence of death. Psychological distress often persists from the initial diagnosis through the terminal phase of illness. It is noteworthy that the degree of emotional burden and unmet needs among patients and caregivers may vary across cultural contexts. Evidence suggests that Asian patients tend to experience higher levels of emotional distress compared to those in Western populations, which may negatively influence caregivers' psychological well-being and quality of life.[17]

In this study, a larger proportion of caregivers experienced little or no symptoms of depression or anxiety, or only mild levels. A plausible explanation lies in the cultural context of Indonesia, where strong familial bonds and collectivist values provide emotional and practical support to caregivers. This social cohesion may buffer against the development of severe psychological distress and mitigate depressive or anxious symptoms. In terms of caregiving burden, 16 caregivers (53.3%) reported little or no burden, while the remaining 14 caregivers (46.7%) reported varying degrees of mild, moderate, or severe burden. These findings are consistent with Zubaidi et al., who observed that approximately half of caregivers in palliative care units experienced burden, predominantly within the mild to moderate range. Factors such as the presence of depression and anxiety symptoms, male gender, higher educational attainment, caring for cancer patients, and prolonged caregiving hours were significant predictors of higher caregiver burden. Caregivers with depressive or anxious symptoms were found to be three times more likely to experience burden, whereas caring for non-cancer patients was associated with lower levels of strain. These findings highlight the unique and demanding challenges faced by caregivers of cancer patients compared to those caring for individuals with other chronic conditions.[18]

In contrast to the aforementioned studies, a review showed that female gender and low education level were significant risk factors for caregiver burden, which is consistent with the findings of this study. Long duration of caregiver, depression, social isolation, financial stress, and lack of options have also been proposed as other significant predictors of caregiver burden. From the authors' perspective, the significant effect of education level on caregiver burden can be explained in two ways. On the one hand, caregivers with higher education level may be well-informed about the disease prognosis and challenges their patients will face through the cancer trajectory, which may result in emotional burden on caregivers. On the other hand, caregivers with lower education level, especially those who are illiterate or have only primary school education, may find it difficult for caregivers to actively engage in the cancer diagnosis and treatment process and maintain effective communication with health care providers.[19,20]

This study has limitations, namely that the researcher did not explore further other factors that could possibly cause depression and anxiety in respondents which could influence the burden felt by respondents as caregivers and did not explore further several questions in the DASS-21 and ZBI questionnaires with high scores which could possibly influence the results of this study.

Conclusion

Out study showed there is a significant relationship between the degree of depression and anxiety with the burden of caregivers of cancer patients receiving chemotherapy. Caregivers who experience depression and anxiety are more likely to be married women with an average age of 46 years, high school/vocational high school education, already working, have been caregivers for 1-5 years, and have a husband/wife relationship with a cancer patient receiving chemotherapy. From 30 respondents, the average score for depression was 11.27 which is included in the mild category. However, there were 13 people who had mild to very severe depression symptoms, with the largest number in the severe degree, namely 7 people (23.3%). While the average ZBI score was 25.83 which is included in the mild to moderate burden category. However, there were 14 people who were included in the mild burden to severe burden category.

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