



Duration Treatment Hours and Cancer Patient's Level Dependence on Caregiver's Stress Level: Cross-Sectional Study

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Abstrak

Kanker merupakan penyakit kronis yang memiliki efek samping kompleks yang dapat mengganggu fungsi tubuh dan berdampak terhadap meningkatnya ketergantungan pasien terhadap caregivers. Penelitian ini bertujuan untuk membuktikan lamanya jam perawatan dan tingkat ketergantungan pasien kanker terhadap tingkat stres caregivers. Penelitian ini menggunakan cross-sectional design. Populasi 50 caregivers yang tinggal di Yayasan Kanker Indonesia Cabang Jawa Timur Surabaya Indonesia, dan hanya 30 sampel yang dipilih berdasarkan kriteria inklusi. Instrumen menggunakan duration of treatment hours questionnaire, indeks KATZ dan caregiver stress self-assessment. Semua instrumen telah diuji validitas dan reliabilitasnya. Prosedur etis dilakukan sebelum penelitian dimulai. Setelah data terkumpul, dianalisis menggunakan uji regresi logistik multinomial dengan $p < 0,05$. Sebagian besar pasien kanker yang dirawat oleh caregivers berjenis kelamin perempuan (80%), telah mengalami kanker stadium III (43.4%) dan telah menjalani chemo-radiotherapy (53.4%) serta mayoritas mengalami tingkat ketergantungan moderate terhadap caregiver (50%). Caregivers telah merawat pasien kanker selama > 3 tahun (46.7%) dan sebagian besar dari mereka telah mengundurkan diri dari pekerjaannya dan memilih merawat pasien kanker (66.6%). Mayoritas caregiver merawat pasien kanker selama 4 - 6 jam/ hari (56,7%), dan sebagian besar caregivers mengalami stres pada tingkat moderate (56,7%). Berdasarkan hasil uji statistik didapatkan adanya pengaruh yang signifikan antara durasi jam perawatan dan tingkat ketergantungan pasien kanker terhadap tingkat stres caregivers. Durasi jam perawatan mempengaruhi 34,3% terhadap tingkat stres caregivers ($p = 0,03$) dan tingkat ketergantungan pasien mempengaruhi 41,9% ($p = 0,01$) terhadap tingkat stres caregiver. Semakin lama jam perawatan menyebabkan lebih sedikitnya waktu luang caregivers untuk kebutuhan pribadi mereka, sehingga hampir sepanjang waktu digunakan untuk perawatan pasien. Demikian juga semakin tinggi tingkat ketergantungan pasien terhadap caregivers maka semakin banyak pula waktu yang diberikan untuk perawatan dan lebih lanjut dapat memicu stres pada caregivers.

Kata kunci : ketergantungan, stres, caregivers

Abstract

Cancer is a chronic disease with complex side effects that can interfere with body functions and increasing patient dependence on caregivers. This study aimed to prove duration treatment hours and cancer patient's level dependence on caregiver's stress levels. This was a cross-sectional design. Populations were 50 caregivers living at the Indonesian Cancer Foundation, East Java Branch, Surabaya Indonesia, and 30 samples were selected based on inclusions criteria. The instruments used duration treatment hours questionnaire, KATZ index, and caregiver stress self-assessment. All instruments have been tested for validity and reliability. Ethical procedures were carried out before research begins. After the data collected, it was analyzed using a multinomial logistic regression test with p

<0.05. Most cancer patients treated by caregivers were female (80%), had third cancer stage (43.4%) and had undergone chemo-radiotherapy (53.4%), the majority experienced moderate levels dependence on caregivers (50%). Caregivers have treated cancer patients for > 3 years (46.7%), most of them have resigned from their jobs and chosen to treat cancer patients (66.6%). The majority of caregivers treated cancer patients for 4-6 hours/day (56.7%), most caregivers experienced stress at moderate levels (56.7%). Based on statistical tests found a significant effect between duration treatment hours and cancer patient's level dependence on caregiver's stress levels. Duration treatment hours affected 34.3% on the caregiver's stress level ($p = 0.03$) and the level dependence affected 41.9% ($p = 0.01$) on the caregiver's stress level. The longer duration treatment hours have led to less caregivers' free time for their personal needs so that most of time was used for patient care. Likewise, the higher level of patient dependence on caregivers, the more time was given for caring and can further trigger stress on caregivers.

Keywords: dependence, stress, caregivers

Article info:

Article submitted on December 31, 2019

Articles revised on February 13, 2020

Articles received on February 26, 2020

DOI: [http://dx.doi.org/10.21927/jnki.2020.8\(1\).65-73](http://dx.doi.org/10.21927/jnki.2020.8(1).65-73)

INTRODUCTION

Cancer diagnoses not only cause problems for patients but also caregivers, it occurs due to the modalities of cancer therapy have various side effects. Long-term side effect of cancer therapy consist of vomiting, nausea, constipation, diarrhea, peripheral neuropathy (1), tingling of feet, fatigue, muscular pain, numbness, dry oral mucosa (2). These side effects affect the difficulty of patients to fulfill the daily needs independently and need a caregiver. Cancer also interferes the psychological function of patients such as changes in concentration, depression, mood disorders (2), because of these condition caregivers have to be involved in providing psychological assistance to patients. A qualitative study found that cancer patients who experienced psychological disorders can cause caregivers to experience psychological burdens as well. (3). Another study reported that the prevalence of anxiety and depression in caregivers of cancer patients affects the quality of life of caregivers (4).

In 2015 there were around 43.5 million caregivers who provide care without charge to

adults or children in the last 12 months, 34.2 million provided care for adults aged 50 years or more. The majority of caregivers (82%) care for one other adult, while 15% care for two adults, and 3% for three or more adults (5). The prevalence of cancer in Indonesia reaches 4.9 per mile in 2018, with the largest number of women being 2.9 per million. The majority of cancer in Indonesia is treated by surgery 61.8%, chemotherapy 24.9%, radiation 17.3% and other therapies 24.1% (6).

Provide caring for patients with chronic illness can cause caregivers to experience stress, anxiety, and depression. A study of cancer caregivers in 3 countries reported that caregivers who cared cancer patients for at least 6 months would be depression and had poor quality of life (7). Another study reported that caregivers of cancer patients felt fearful, uncertain about future, panic, shock, denial, which caused life imbalances (8). A similar study of 232 family caregiver reported various problems during the process of caring for cancer patients including sadness (90%), anxiety (78%), fatigue (77%) and

sleep disorders (73%) (9). Distress symptoms of a family caregiver who cared for cancer patients triggers the onset of anxiety at moderate to severe level and also depression (10). Physical disorders in caregivers such as increased blood pressure, changed in the immune system, decreased healthy living behavior can arise as a result of the caring process in cancer patients (11).

Caring duration for cancer patients often causes various problems for caregivers. A study stated that family caregivers spent higher work time, it resulting in a large decrease in work production, this further leads to depression and insomnia (12). Cancer patients who need longer care are patients who receive two cancer treatment such as radiation therapy and chemotherapy in older age, this is because of many of their basic needs needing caregiver assistance in their care (13). Family caregivers provide assistance to cancer patients including fulfilling daily life such as eating, transportation, walking, bathing, toileting, doing wound care, managing drugs, and providing social support to patients (14). Various types of caregiving performed by caregivers over a long period can have an impact on the emotional and physical health of the caregiver (15). A study explained that almost all of the family caregivers experienced a severe burden caused by the inability of family caregivers to adapt to new situations in treating cancer patients (16). The purpose of this study was to prove duration treatment hours and cancer patient's level dependence on caregiver's stress level.

MATERIAL AND METHODS

This was a cross-sectional study. Populations were all caregivers who living at the Indonesian Cancer Foundation East Java Branch Surabaya Indonesia, amounted 50 people, samples were chosen 30 caregivers taken by purposive sampling technique with three inclusions criteria consist of

caregivers who have a relationship with patients as a nuclear family, caregivers who have been caring cancer patients for at least 6 months, and caregivers who have been taking care cancer patients underwent the cancer treatment. In this study, the variable duration treatment hours used a questionnaire which was asked directly to the participants, while instrument for level dependence used KATZ Index and for caregiver's stress level used caregiver stress self-assessment. Both of instruments have been tested for validity and reliability.

The validity test of KATZ Index was R 0.572 – 0.923 and reliability test with Cronbach's alpha was 0.923. The validity test of caregiver stress self-assessment was R 0.648 – 0.944 and reliability test with Cronbach's alpha was 0.928. All instruments were valid and reliable to use. Research ethical procedures were done through an explanation about research purposes, advantages, procedures, and risk, then the participants signed an informed consent if they agreed as a participant. All participants completed the instruments after informed consent. The assessment of the questionnaire was done by calculating the scores and be categorized. After the data collected, it was analyzed used a multinomial logistic regression test with $p < 0.05$. This test used to find the effect of two independents variables on one dependent variable by ordinal data scale.

RESULT AND DISCUSSION

Based on table 1 showed that the majority of participants in the range of age 56 – 65 years old or better known as elderly people. Female participants dominated, most of them leaving work, and have been taking care of patients > 3 years. The majority of participants taking care of the patient with third stage of cancer and undergoing chemo-radiotherapy.

Based on table 2 showed that on the majority of participants taking care of cancer

Table 1. Demographic Data of Participants

Characteristic	n	%
Age (years old)		
36 – 45	6	20
46 – 55	8	26.6
56 – 65	12	40
>65	4	13.4
Total	30	100
Sex		
Male	6	20
Female	24	80
Total	30	100
Job-status		
Leaving work	20	66.6
Still working	10	33.4
Total	30	100
Duration of patient care		
6 months - 1 year	5	16.6
1 – 3 year	11	36.7
>3 year	14	46.7
Total	30	100
Cancer stage of patient		
Stage II	8	26.6
Stage III	13	43.4
Stage IV	9	30
Total	30	100
Cancer therapy of patient		
Chemotherapy	10	33.3
Chemo-radiotherapy	16	53.4
Radiation therapy	4	13.3
Total	30	100

Table 2. Descriptive among variables

Characteristic	N	%
Duration of treatment hours		
< 4 hours/ day	5	16.6
4 – 6 hours/ day	17	56.7
>6 hours/ day	8	26.7
Total	30	100
Level of patient's dependence		
Independence	7	23.3
Moderate dependence	15	50
Total dependence	8	26.7
Total	30	100
Stress level		
Mild stress	8	26.7
Moderate stress	17	56.7
Severe stress	5	16.6
Total	30	100

Table 3. Cross tabulation duration treatment hours and stress level

Stress level	Duration Treatment Hours			Total
	>6 hours	4 – 6 hours	< 4 hours	
Severe stress	4	1	0	5
Moderate stress	3	12	2	17
Mild stress	1	4	3	8
Total	8	17	5	30

patients about 4 – 6 hours/ day, most patients who cared by caregivers had moderate dependence and the majority of caregivers had moderate stress levels.

Based on table 3 showed that the majority of participants who spent 4 – 6 hours/ day to take care of cancer patients had moderate stress levels.

Based on table 4 showed that most participants who have been caring for cancer patients who had moderate dependence also had moderate stress levels as well.

It right below of the table the data are tested by a multinomial logistic regression test which aims to test the influence of two independent variables on one dependent variable with an ordinal data scale of more than 2 categories. Based on table 5 showed that there was a significant influence between duration treatment hours and the level of the patient's dependence on the caregiver's stress level. The duration treatment hours affect 34.3% on the caregiver's stress level and the level of patient dependence affects 41.9% on the caregiver's stress level.

Table 4. Cross tabulation Level of dependence and stress level

Stress level	Level of dependence			Total
	Total dependence	Moderate dependence	Independence	
Severe stress	4	1	0	5
Moderate stress	2	12	3	17
Mild stress	2	2	4	8
Total	8	15	7	30

Table 5. Multinomial Regression Test

Variable	Stress level	
	P	Pseudo R Square
Duration treatment hours	0.03	0.343
Level of patient's dependence	0.01	0.419

Discussion

Based on table 5 showed that duration of treatment hours affect the caregiver's stress level. This finding was supported by another study that stated the condition of patients and duration of caring in patients with chronic diseases especially cancer had a significant relationship to the onset of depression which decreases the caregiver's quality of life (4). This was consistent with the results of this study that the majority of participants have treated cancer patients for more than 1 year (table 1) and every day most participants spent time 4 – 6 hours to take care of patients (table 2). A study stated that cancer patient's caregivers spent about 33 hours a week with patients and helping to carry out complex nursing processes (17). Another study of 69 family caregivers reported that the majority of caregivers accompany cancer patients throughout the day, and they assisted help patients physically (88.4%), provided psychological assistance (78.3%) and provided financial assistance (34.8%) (18).

Another study explained that the majority of caregivers who provide caring for families with cancer for 21 hours every day have the worst quality of life and the majority of them live in under psychological pressure while treating patients (19). A study of caregivers in cancer patients found that 82% of caregivers experienced moderate stress and 18% had severe stress, which triggered caregivers to have negative coping (20). This is in line with the findings in this study that the majority of caregivers had moderate stress levels. This study also found that most participants have

been resigned from their work due to difficulties in managing the time between work and caring for patients, but some participants still survive to work because of high financial needs. A study stated that most caregivers were forced to change their work schedules but in reality there were difficulties in balancing work, caring and finances, which in turn has an impact on caregiver anxiety and depression. (21). The financial burden in the process of treating cancer patients is often caused by expensive drug costs (22). Other studies explained that the emergence of financial burdens was caused by many factors such as reduced income from patients and families, hospital costs, medication costs, daily living costs for other family members, nutrition repair costs, transportation costs to the hospital and laboratory examination costs (23). Caregivers of cancer patients who were older, women and who did not have a job tend to have moderate to heavy burdens, while those who were still working tend to have mild burdens (24).

Based on table 5 also showed that the level of patient's dependence affects the caregiver's stress level. Caring for family members with a terminal illness can cause a great burden on caregivers because of changes in family dynamics that are different from normal (25). The main stressors associated with treating cancer patients come from the symptoms felt by patients due to cancer and personal care needs that were not met by the patient independently. Based on table 1 showed that most participants taking care of third stage of cancer patients and undergoing chemo-radiotherapy. Cancer patients who underwent a cycle of cancer therapy experienced three groups of symptoms namely neurocognitive symptoms, emotional symptoms and fatigue-anorexia symptoms (26). Another study also stated that cancer patients after undergoing therapy experienced cancer-related fatigue that can interfere with daily activities (27). Cancer-related fatigue that often occurs in cancer

patients who undergoing chemotherapy and radiation was in moderate to severe levels which also led to the high level of patient dependence on caregivers in fulfilling their activities of daily living needs in mild to total level assistance (28).

A study was conducted in adult cancer patients who undergoing outpatient care found that there were basic activities daily living disorders which included difficulties in personal hygiene, walking, transfers, and difficulties in instrumental activities of daily living namely house chores, shopping, and transportation, the majority of whom needed help to do basic and instrumental activities of daily living (29). The complexity of symptoms can cause patients to experience difficulty in their activities independently, therefore caregivers must help to fulfill it. The process of caring for patients with a terminal illness for a long time caused the caregiver felt full of emotional distress.

A study reported that caregiver in cancer patients who were of productive age (18-65 years old) as many as (37.5%) had a mild to moderate burden (30). This is similar to the findings in this study that the majority of participants were in the age range of 36 – 65 years old. A study explained that caregivers who accompanied cancer patients were more likely to experience psychological disorders such as anxiety, depression, emotional disturbances, and poor quality of life (31). Caregivers who care for depressed patients showed high emotional pressure scores on caregivers (32). A study stated that the high burden experienced by almost half of caregivers was caused by the diagnosis of cancer for the first time in patients treated, this raises new situations that are felt by patients and caregivers as the main stressors, so that they have more difficulty in adapting (33). During the process of treating patients with chronic illness, caregivers often ignore their own routine health care needs, because there is not enough time (34).

CONCLUSION AND RECOMMENDATION

Duration treatment hours and cancer patient's level dependence contributed significantly to the caregiver's stress level. The longer duration treatment hours have led to less caregiver's free time for their personal needs. Likewise, the higher level of patient dependence on caregivers results in caregivers spent a lot of time for caring and further trigger stress on caregivers to various degrees ranging from mild to the severe stress level.

Based on this research, the researcher recommend that the caregiver needs to manage time to balance the duration of caring hours and cancer patient's level dependence with personal needs to reduce stress.

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