

## Chemotherapy Patients' Pain Levels and Their Ability to Perform Activities of Daily Living (Adl)

Raras Merbawani

Universitas Bina Sehat PPNI Mojokerto

### ABSTRACT

Chemotherapy induces pain in individuals with cancer, leading to various physical consequences such as fatigue, reduced appetite, vomiting, and compromised muscle strength. As a consequence of this effect, activities of daily living (ADL) are disrupted. The purpose of this study was to determine the relationship between pain intensity and capacity to perform activities of daily living (ADL) among chemotherapy patients in the Bangil Pasuruan Regional Hospital's Chemotherapy Room. This study employs a correlational design and a cross-sectional methodology. All 31 chemotherapy patients in the Chemotherapy Room at Bangil Pasuruan Regional Hospital comprised the population of this investigation. Utilizing consecutive sampling, a sample of twenty-three individuals was collected between April 15 and May 15, 2023. The investigation utilized the Barthel index and numeric pain scale as its instruments. For data analysis, the Spearman Rho Test was utilized. 18 respondents (78.3%) reported experiencing moderate discomfort, and the majority of respondents (15 respondents, or 65.2%) reported having mild ADL abilities, according to the findings of the study. The Spearman test yielded a p-value of 0.0 and a correlation coefficient of 0.722; therefore, H<sub>1</sub> is accepted. This indicates that there is a significant relationship between the intensity of pain and the ability of chemotherapy patients to perform activities of daily living (ADL) in the Chemotherapy Room at Bangil Pasuruan Regional Hospital. Specifically, as the intensity of the pain increases, so does the degree of dependence of the patients on ADL. A decrease in muscle strength brought on by pain diminishes the ability to perform ADLs. It is the responsibility of hospital nurses to assist chemotherapy patients with activities of daily living (ADLs) and to instruct them in non-pharmaceutical relaxation and distraction techniques to alleviate discomfort.

**Keywords:** *Chemotherapy, Daily living, pain intensity*

**Corresponding Author**

**Name :** Raras Merbawani

**Email:** rmerbawani@gmail.com

### INTRODUCTION

The condition of cancer patients undergoing treatment complains of several things such as eating disorders, fatigue, anemia, hair loss, and limited activity. Cancer patients often experience physical complaints such as weakness due to lack of energy in the body, which results in long periods of rest and results in loss of body function, weakness and loss of muscle movement which results in impaired ability to perform Daily Living Activities (ADL) (Wulandari & Wahyunadi, 2020). Disturbances in *Activity Daily Living* (ADL) of cancer patients with chemotherapy can be due to the symptoms felt by the patient, especially fatigue and pain. Pain is one of the symptoms felt by cancer

patients with chemotherapy which can interfere with the patient's ADL (Tarihoran & Banjarnahor, 2019) .

Data from *the Global Burden of Cancer* (GLOBOCAN) released by the World Health Organization (WHO) states that the number of cases and deaths due to cancer up to 2018 was 18.1 million cases and 9.6 million deaths in 2018. Deaths due to cancer are estimated will continue to increase to more than 13.1 million by 2030. The WHO Southeast Asia Region reported approximately 2.2 million new cases and 1.4 million cancer-related deaths, accounting for more than 1 in 10 deaths in the Region. Among cancer deaths, lung cancer accounts for 10.6% of deaths, breast cancer 9.4%, cervical cancer 8%, liver 6.6% and lip and oral cavity cancer 6.4% of deaths (WHO, 2019 ) . 2018 Riskesdas data states that the prevalence of cancer in Indonesia is 1.4% or estimated at around 347,792 people. East Java Province is the province with the third most cancer sufferers after Java Yogyakarta and Central Java, namely around 61,230 people (Ministry of Health of the Republic of Indonesia, 2022) .

Patient data at Bangil Pasuruan Regional Hospital shows that the number of patients undergoing chemotherapy during 2022 fluctuates every month, sometimes rising and sometimes falling, from January 33 people, February 28 people, March 44 people, April 30 people, May 22 people, June 29 people, July 20 people, August 44 people, September 43 people, October 30 people, November 47 people and December 44 people. The data for the last 3 months is in January 2023 with 34 patients, February 2023 with 36 patients, and March 2023 with 33 patients. Initial survey results on 5 chemotherapy patients showed that 80% felt moderate pain, and 20% felt severe pain. ADL ability shows that the patient is unable to carry out daily activities independently, especially dressing, mobility, moving and going up and down stairs.

Chemotherapy causes pain in cancer patients. Pain in cancer patients undergoing chemotherapy can be caused by neuropathic pain caused by drugs such as oxaliplatin or avastin. The impact of physical pain includes; fatigue, decreased appetite, vomiting, decreased muscle strength. This impact results in disruption of daily activities. The long-term effect of activity disruption is that the patient's quality of life will decrease (Khoirunnisa et al., 2017) .

*the Activity Daily Living Training* exercise program are believed to be able to increase patient independence to carry out their life functions such as daily self-care (Hasibuan, 2018) . Chemotherapy patients undergoing treatment must actively carry out movement exercises to maintain and improve *ADL abilities* according to the body's ability to perform physical activity. Physical exercise is also carried out according to the recommendations of health workers and is programmed during the treatment or care period. Before carrying out movement exercises, patients must consult a physical therapist to help with movement exercises that are safe, effective and enjoyable for the patient (Tarihoran & Banjarnahor, 2019) .

## METHOD

The design of this research is correlation analytic with a *cross sectional approach* . The population of this study were all 31 chemotherapy patients in the Chemotherapy Room at Bangil Pasuruan Regional Hospital. The *sampling* technique used was *consecutive sampling* so that a sample of 23 people was obtained in the period 15 April-

15 May 2023. The instruments in this study were the numerical pain scale and the Barthel index. The data analysis used was the Spearman Rho Test . The significance level used was  $p < 0.05$ , and the analysis was carried out with the help of SPSS ( *Statistical Package for the Social Sciences* ) software .

## RESULTS

### General data

Table 1. Frequency Distribution of Respondents Based on Characteristics in the Chemotherapy Room at Bangil Pasuruan Regional Hospital on April 15-May 15 2023

Characteristics	Category	Frequency	Percentage (%)
<b>Age</b>	40-44 years old	3	13.0
	45-23 years old	3	13.0
	50-54 years old	7	30.5
	55-59 years old	7	30.5
	≥ 60 years old	3	13.0
<b>Education</b>	Elementary (Elementary, Middle School)	12	52.2
	Intermediate (High School)	11	47.8
	High (College)	0	0
<b>Chemotherapy</b>	1	5	21.7
	2	6	26.1
	3	7	30.5
	4	3	13.0
	5	2	8.7
<b>Companion</b>	Husband	13	56.5
	Child	10	43.5

Source: Primary Data, 2023

Table 1 shows that almost half of the respondents were aged 50-54 and 54-59 years, namely 7 respondents (30.5%), most of the respondents had basic education (SD, SMP), namely 12 people (52.2%), almost half of the respondents undergoing the 3rd chemotherapy, namely 7 people (30.5%), most of the respondents were accompanied by their husbands during chemotherapy, namely 13 people (56.5%).

### Custom Data

Table 2. Frequency Distribution Based on Pain Intensity in the Chemotherapy Room at Bangil Pasuruan Regional Hospital on April 15-May 15 2023

Pain intensity	Frequency	Percentage (%)
No pain	0	0
Mild pain	0	0
Moderate pain	18	78.3
Severe pain	5	21.7
Severe pain	0	0
Amount	23	100

Source: Primary Data, 2023

Table 2 shows that almost all respondents experienced moderate pain, namely 18 respondents (78.3%), and a small portion experienced severe pain, namely 5 respondents (21.7%).

Table 3 .Frequency Distribution Based on ADL Ability in the Chemotherapy Room at Bangil Pasuruan Regional Hospital on April 15-May 15 2023

ADL ability	Frequency	Percentage (%)
Independent	0	0
Light dependency	15	65 , 2
Moderate dependency	8	34 , 8
Heavy dependency	0	0
Total dependency	0	0
Total	23	100

Source: Primary Data, 2023

Table 6 shows that the majority of respondents with ADL abilities were mildly dependent, namely 15 respondents (65.2%), and those who experienced moderate dependence were 8 respondents (34.8%).

Table 4 . Cross Tabulation of the Relationship between Pain Intensity and ADL Ability in the Chemotherapy Room at Bangil Pasuruan Regional Hospital on April 15-May 15 2023

May 15, 2025

Pain intensity	ADL ability										Total	
	Indepen dent		Light dependency		Moderate dependency		Heavy dependency		Total dependen cy			
	f	%	f	%	f	%	f	%	f	%	f	%
No pain	0	0	0	0	0	0	0	0	0	0	0	100
Light	0	0	0	0	0	0	0	0	0	0	0	100
Currently	0	0	15	83.3	3	16.7	0	0	0	0	18	100
Heavy	0	0	0	0	5	100	0	0	0	0	5	100
Great	0	0	0	0	0	0	0	0	0	0	0	100
Amount	0	0	15	65.2	8	34.8	0	0	0	0	23	100

Source: Primary Data, 2023

Table 4 shows that almost all respondents who experienced moderate pain had mild dependence on their ADL abilities, namely 15 of 18 respondents (83.3%), while 3 of 18 respondents (16.7%) experienced moderate pain and moderate dependence, and all respondents who experiencing severe pain, their ADL ability is moderately dependent, namely 5 out of 5 respondents (100%).

The results of the Spearman test show that *the p value is 0.000 with a correlation coefficient value of 0.722*, so  $H_1$  is accepted, which means there is a strong relationship between pain intensity and the ADL ability of chemotherapy patients in the Chemotherapy Room at Bangil Pasuruan Regional Hospital where the more severe the pain, the more dependent the patient's ADL is.

## DISCUSSION

### Pain Intensity

The research results showed that almost all respondents experienced moderate pain, namely 18 respondents (78.3%), and a small portion experienced severe pain, namely 5 respondents (21.7%).

Pain in cancer sufferers comes from somatic pain, namely physical damage due to cancer in the form of nociceptive pain, namely pain due to stimulation of peripheral nerve afferent nociceptors caused by the influence of prostaglandin E, poor blood circulation because there are blood vessels that are not smooth. Pain is also due to pressure or damage to tissue containing pain receptors and also due to pulling, pinching or metastases. In cancer patients, pain occurs due to inflammation. This pain is due to damage to the receptor nerve endings due to inflammation or being pinched by the swelling. So it can be concluded that pain is caused by disruption of the pain receptor nerve fibers (Syam & Sunuh, 2020). Chemotherapy causes pain in cancer patients. Pain in cancer patients undergoing chemotherapy can be caused by neuropathic pain caused by drugs such as oxaliplatin or avastin. The impact of physical pain includes; fatigue, decreased appetite, vomiting, decreased muscle strength. This impact results in disruption of daily activities. The long-term effect of activity disruption is that the patient's quality of life will decrease (Khoirunnisa et al., 2017).

The pain experienced by respondents was caused by the drug's action in an effort to kill cancer cells. Pain will be felt if the body feels a threat or tissue damage, in this case the target organ affected by cancer, namely the breast, so the body will respond to pain. Differences in pain intensity are influenced by age, history of previous chemotherapy, and also the presence of people closest to you.

Pain intensity is influenced by several factors including age, past experience, and social support. The first factor is age. Based on table 4. 1 It is known that almost half of the respondents aged 50-54 were 7 respondents (30.5%) and 54-59 years were 7 respondents (30.5%). Age is an important variable that influences pain in particular because the way of responding to pain may be different, the perception of pain may be reduced (Potter & Perry, 2015). The respondent's age is classified as elderly so their body physiology has experienced a decrease in pain response, therefore, almost all respondents felt moderate pain, and no one experienced severe pain. Respondents who experienced severe pain could be due to the severity of the cancer or the metastases experienced by the respondent may be more extensive.

The second factor is past experience, in this study the current chemotherapy regimen. The research results in table 4.3 show that almost half of the respondents underwent chemotherapy 3, namely 7 people (30.5%). Pain or soreness is the most understood response by individuals when experiencing injury. This is also a personal experience that is expressed differently by each individual and pain is an individual sensation of discomfort. Pain is inherent in the human nervous system and is a long-lasting individual experience (Potter & Perry, 2015). In accordance with the theory above, pain that is attached to the human nervous system will last a long time so that respondents who have undergone chemotherapy before tend to feel lighter pain compared to those who have undergone chemotherapy for the first time, so they have

never felt pain after chemotherapy. Respondents who have undergone chemotherapy have begun to adapt to their bodies, especially if what they feel is chronic pain.

Another factor that also influences the response to pain is the presence of people nearby. The results of this study showed that almost all respondents were accompanied by their husbands during chemotherapy, namely 13 people (56.5%). People who are in pain often depend on family for support, help or protection. The absence of family or closest friends may make the pain worse. The presence of parents is especially important for children in dealing with pain (Potter & Perry, 2015). Respondents who were accompanied by their husbands tended to have lower pain intensity than those accompanied by children, because the husband was someone the respondent loved and felt could protect and provide a feeling of security, which would give rise to a calmer feeling.

### **ADL ability**

Based on the research results, it is known that the majority of respondents with ADL abilities were mildly dependent, namely 15 respondents (65.2%), and those who experienced moderate dependence were 8 respondents (34.8%).

The condition of cancer patients undergoing treatment complains of several things such as eating disorders, fatigue, anemia, hair loss, and limited activity. Cancer patients often experience physical complaints such as weakness due to lack of energy in the body, which results in long periods of rest and results in loss of body function, weakness and loss of muscle movement which results in impaired ability to perform Daily Living Activities (ADL) (Wulandari & Wahyunadi, 2020).

Chemotherapy patients who experience mild dependence can be seen from a situation where most of the activities to fulfill daily life are carried out independently and only a few activities require a little help, such as mobilization, ambulation (moving), dressing, and going up and down stairs. Respondents who experienced moderate dependence also experienced the same thing where patients needed more help when mobilizing and moving, and were unable to go up and down stairs.

ADL ability is also influenced by age factors. Based on table 4.1, it is known that almost half of the respondents were aged 50-54 and 54-59 years, namely 7 respondents (30.5%). The respondent's age should not prevent the respondent from carrying out activities, however, due to the effects of chemotherapy which causes pain, the respondent becomes reluctant to carry out activities. As a person gets older, his physical and mental abilities will slowly decline. Chemotherapy patients who experience moderate dependence cannot go up and down stairs because they are afraid of falling, while other daily activities can still be done with a little help, while patients with moderate dependence need more help.

At the time of the study it was found that 8 chemotherapy patients were moderately dependent because when the results of the assessment it was found that all the criteria listed in the Barthel Index done with assistance. Chemotherapy patients with moderate dependence require assistance for almost all of their daily needs. Chemotherapy patients with moderate dependency who cannot carry out activities independently, the hospital has provided assistive devices such as wheelchairs for chemotherapy patients who are unable to do anything.

### Relationship between pain intensity and ADL ability

The research results in table 4.7 show that almost all respondents who experienced moderate pain had mild dependency on their ADL abilities, namely 15 out of 18 respondents ( 83.3 %), and all respondents who experienced severe pain had moderate dependency on ADL abilities , namely 5 out of 5 respondents . (100 %). The results of the Spearman test show that *the pvalue* is 0.000 with a *correlation coefficient value* of 0.722 , so that  $H_1$  is accepted, which means there is a strong relationship between pain intensity and the ADL ability of chemotherapy patients in the Chemotherapy Room at Bangil Pasuruan Regional Hospital where the more severe the pain , the The patient's ADL becomes increasingly dependent .

A person's physiological health can influence the ability to participate in *Activity Daily Living* (ADL) abilities , for example the nervous system collects, transmits and processes information from the environment. The musculoskeletal system coordinates with the nervous system so that it can respond to incoming sensors by making movements. Disturbances in this system, for example due to illness or traumatic injury, can interfere with the ability to fulfill *Activity Daily Living* (ADL) (Dewi, 2015) . The impact of physical pain includes; fatigue, decreased appetite, vomiting, decreased muscle strength. This impact results in disruption of daily activities. The long-term effect of activity disruption is that the patient's quality of life will decrease (Khoirunnisa et al., 2017) .

According to researchers' assumptions, chemotherapy patients who experience moderate pain can still do some ADLs independently, such as eating, bathing, defecating and urinating, while mobilization, moving, going up and down stairs, and dressing still require a little help, so it does not significantly interfere with their lives. so that you can still carry out some daily activities independently.

Chemotherapy patients who experience severe pain experience moderate dependence because chemotherapy patients cannot go up and down stairs, because chemotherapy patients are at great risk of falling so they are very careful not to do activities, the stairs here are not just stairs with several levels, but the position goes up from The previous place also needed help because he was afraid of falling. Getting out of bed also requires help because he feels pain all over his body.

There were also 3 chemotherapy patients who experienced moderate pain who had moderate dependency on their ADL abilities, this was because the chemotherapy patients were very worried about their physical condition which was getting weaker and weaker, especially they were very afraid of death to the point of feeling many physical symptoms, so they felt that with their condition they were not can do activities on their own and needs more help

### CONCLUSION

Based on data from research in the Chemotherapy Room at Bangil Pasuruan Regional Hospital, it shows that 78.3% of Ca Mamae patients undergoing chemotherapy experienced moderate pain and 65.2% of Ca Mamae patients undergoing chemotherapy had mild dependent ADL abilities. The results of the Spearman test show that *the p value* is 0.000 with a *correlation coefficient value* of 0.722, so that  $H_1$  is accepted, which means

there is a strong relationship between pain intensity and the ADL ability of chemotherapy patients in the Chemotherapy Room at Bangil Pasuruan Regional Hospital where the more severe the pain, the more dependent the patient's ADL is. The family is expected to assist the patient in fulfilling ADLs such as helping with dressing, going up and down stairs, moving or mobilizing, providing a comfortable rest room so that when the patient goes home because a comfortable environment will help reduce pain. Patients are expected to seek information through health workers or on the internet about methods to reduce pain . Future researchers are expected to conduct further research on other influencing factors ADL abilities such as cognitive function, mental status, or psychological status of the patient or interventions that can be done to reduce post-chemotherapy pain

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