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Pain Management Knowledge and Pain Control: A Cross-Sectional Study Among Cancer Patients

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Abstract

Cancer is one of the diseases that causes the most deaths in the world. Cancer patients experience several symptoms due to the disease and the treatment they are undergoing. One of the symptoms that often appears is pain. The experience of cancer patients in controlling and managing pain is an important thing for nurses to pay attention to. Cancer patients require knowledge of pain management to effectively control the pain. This research aims to see the relationship between knowledge of pain management and pain control in cancer patients. This study used a cross-sectional design with a sample of 90 cancer patients at Government Hospital at Bukittinggi. The instrument in this study uses an adapted questionnaire from the Nursing Outcomes Classification (NOC) to measure both variables. Data were analyzed using Pearson correlation. The results of this study obtained p-value 0.000 (α=0.005), where it can be said that there is a significant relationship between knowledge of pain management and pain control in cancer patients. This research showed that the higher the knowledge, the better the pain control for cancer patients. Cancer patients need a lot of support from both health workers and family as caregivers in caring for patients when experiencing pain. This research can be a guide to paying more attention to the pain felt by cancer patients. It is also hoped that more education regarding non-pharmacological pain management will be carried out to improve pain control and pain management in order to improve the quality of life among cancer patients. Further research may be conducted to carry out the study about the relationship between pain management and quality of life among cancer patients.

Keywords: *Cancer; Correlation; Pain control; Pain management*

INTRODUCTION

Cancer is a disease characterized by the abnormal growth of cells in the body. These abnormal cells can grow uncontrollably and have the ability to attack and move between cells and tissues in the body, also disregarding the normal mechanism of cell division (Yadav & Mohite, 2020). Cancer has now become one of the non-communicable diseases whose existence is a global problem, as well as in Indonesia (Payu & Mariah, 2022) (Utomo et al., 2021). Cancer is caused by genetic mutations that can be inherited or acquired through certain risk factors such as unhealthy diet, tobacco use, and exposure to chemicals and radiation (Can, 2023). In cancer patients, changes were found in DNA (*Deoxyribonucleic Acid)* in cells that experienced abnormalities so that these cells could exit the proper life cycle. Cancer patients are now increasing in various parts of the world because every human being with various internal and external factors currently has a risk of suffering from cancer (Wahyuningsih & Ikhsan, 2018).

Data obtained from *the American Cancer Society* states that cancer has become the second leading cause of death and has been predicted to become the leading cause of death after heart disease, causes the greatest number of deaths worldwide, and is ranked sixth as the cause of death (American Cancer Society, 2016) (World Health Organization, 2020). This disease has the potential to damage

human body function by damaging normal cells and growing abnormally, twice as fast or even more rapidly, chlorinating and uncontrollably. Cancer can occur both in tissues and in human organs, eating away at normal cells to cause very severe cell damage (Sulistyorini, 2014). Consequently, cancer cells that develop into malignant tissue can disrupt the functioning of the human body and diminish its normal operations. This decrease in body function is the cause of death for cancer sufferers. Cancer is known to be the leading cause of death globally, with the incidence predicted to reach 10 million deaths in 2018 (Sharma, 2022).

The same studies conclude that the development of this disease is growing globally all over the world. Furthermore, in Indonesia, cases of cancer are very worrying considering that data shows 68,858 cases of cancer occurred in Indonesia, with deaths reaching more than 22,000 people (Ren et al., 2020). The WHO (*World Health Organization*) has estimated that the number of cancer sufferers will increase by up to seven times by 2030 (Cannon et al., 2012). This illustrates that cancer can potentially cause death in individuals of any gender. However, data shows that there are several types of cancer that are common in men or women. The types of cancer that often occur in men are lung cancer, prostate cancer, colorectal cancer, and liver cancer. The highest incidence in Indonesia for men is lung cancer, with an incidence of 19.4 per 100,000 population, followed by liver cancer at 12.4 per 100,000 population. Meanwhile, breast, colorectal, lung, cervical, and thyroid cancers are the most common among women. The highest incidence for women is breast cancer, which is 42.1 per 100,000, followed by cervical cancer at 23.4 per 100,000 population. Both of these cancers can be found at an earlier stage, however, data shows that 70% of cancers that are known and treated are at an advanced stage, which makes the mortality rate of cancer patients high (Suardi & Suardi, 2021).

Numerous signs and symptoms commonly accompany advanced-stage cancer. Some of the most common symptoms that appear in patients are symptoms such as pain, *fatigue,* sleep disturbances, anxiety, and depression. Of the various symptoms experienced by cancer patients, pain is the most common. Previous research conducted on cancer patients showed that 64% of patients complained of pain, and around 59% of patients undergoing curative anti-cancer treatment also complained of pain (Utomo et al., 2021). Pain in cancer patients is also often found in daily practice, such as when they first come for treatment; around 30% of patients complain of pain. In addition, 70% of advanced cancer patients undergoing chemotherapy complain of pain (Wahyuningsih & Ikhsan, 2018).

Pain is a complex and persuasive experience depending on the sufferer. Many factors, including anxiety, influence physical pain (Nantawong et al., 2023). Cancer pain is dominated by *neuropathic*, *psychological*, *social,* and spiritual factors, all of which psychologically become predictors of pain in patients (Ciucă & Băban, 2017). Pain that is continuously felt by cancer patients can indirectly affect the quality of life and physical body function, cause fatigue, and interfere with daily activities (Nurmalisa, 2020). The characteristics of pain in cancer patients are often associated with age, gender, and frequency of chemotherapy. Age is one of the factors that influences decision-making, whether the decision is related to treatment or other things related to patient therapy (Wahyuningsih & Ikhsan, 2018). Older age affects a patient's pain control; as age increases, so does the locus of control over pain, enabling them to manage their pain more effectively (Kłosowska et al., 2023).

Pharmacologically, non-pharmacologically or complementary, we can systematically control and manage pain (Widyatuti, 2008). The most common cancer treatment is chemotherapy. Chemotherapy in its implementation has a physical and psychological impact on cancer patients (A'la et al., 2023). However, chemotherapy has side effects because the chemotherapy drugs used destroy cancer cells and attack healthy cells. Chemotherapy can even reduce weight and make patients tired (Jiang et al., 2021) (Wahyuningsih, 2018). In addition to systemic treatment with chemotherapy, along with the development of science and various research, many complementary therapies have been found that can be used by nurses to reduce pain, including relaxation techniques, sound therapy, music therapy, Al-Quran recitation, and aromatherapy (Suwardi & Desi, 2019).

Cancer patients' experiences in controlling and managing their pain are an important area of concern for nurses. Each patient is considered to have different perceptions and levels of pain and faces unique challenges in dealing with the pain they experience. It is important to improve the care provided to cancer patients regarding the understanding and knowledge of pain management, including knowledge about cancer treatment, both chemotherapy and radiotherapy, drug doses, and various other pain management techniques (Söderlund Schaller et al., 2021). Conducting a study on patients' knowledge of how to control their pain was important. The ability of pain assessment, pain management, and pain control are the leading factors to improve quality of life among cancer patients.

The goal of pain management is to reduce the level of pain to a condition that can be tolerated by the patient. Pain management is very important to learn the patient's history and methods in dealing with previous pain (Gumilang, 2019). Patients can perform various non-pharmacological therapies at home. Relaxation techniques, *massage*, distraction techniques, and audio therapy, such as music can be non-pharmacological therapy options for patients (Fallis, 2018). Based on data obtained from Achmad Mochtar Hospital through interviews with several nurses, medical records staff, and administration, it was determined that in several rooms, such as the Cancer Surgery Polyclinic and the Chemotherapy room, many were filled with cancer patients. Data per semester in 2023 obtained 450 patients undergoing cancer chemotherapy, and 43 of them died. The interviews with several patients revealed that they often experience pain, struggle to control it effectively, and are largely unaware of pain management techniques other than medication. Based on the background provided, researchers are continuing the investigation into the relationship between knowledge of pain management and pain control in cancer patients.

RESEARCH METHODS

Research Design

This study uses a descriptive correlation design with a cross - sectional study design approach. This study was conducted to assess the relationship or correlation between knowledge management variables and pain control variables in cancer patients.

Sample and Research Site

The research was conducted in the Surgery Room and Cancer Polyclinic in October – December 2024. The population in this study consisted of all cancer patients

receiving treatment in both the operating room and the Cancer Polyclinic of Government Hospital, Bukittinggi-West Sumatera. There were 90 people with cancer, while the sampling technique that was used was accidental sampling. The samples in this study were taken within a period of two months. In this study, samples were taken randomly with case criteria, they were patients diagnosed with cancer and willing to be respondents who can understand the purpose of the study and those who are in the productive age range. Using more than thirty persons as a sample in a cross-sectional study is generally considered sufficient (Sugiyono, 2017).

Research Instruments

Measuring tools used to measure Pain Management Knowledge and Pain Control are adapted questionnaires from *the Nursing Outcomes Classification* (NOC) with each consisting of 41 positive questions for Pain Management Knowledge and 11 positive questions for Pain Control (Moorhead, 2016) . Both questionnaires have been tested for validity and reliability with validity test results between 0.367 - 0.792 and a coefficient of r = 0.897 which states that the questionnaire is reliable for measuring both variables. The validity testing was conducted from 30 people randomly taken in Cancer Polyclinic. The questionnaire was developed from the book of *nursing outcomes classification* that showed several indicators for each questionnaire. The question was, how is pain management knowledge and pain control taken by patients in general condition. Then it was chosen to be more representative to measure the condition of cancer patients.

Data analysis

This research was then analyzed through two stages, namely univariate to determine the average knowledge of pain management and pain control, while bivariate analysis to determine the correlation between pain management knowledge and pain control using a correlation test *Pearson.* Pearson correlation is used to measure the strength and direction of the linear relationship between two normally distributed quantitative variables. This study showed that the data were normally distributed within (0.084 > 0.05) for pain management variables and (0.244 > 0.05) for pain control.

Research Ethics

Research ethics starts with permission from the institution of education and hospitals and uses the ethical principle based on Helsinki taking part about *informed consent*, *anonymity*, and *confidentiality.* This research has also obtained ethical approval with the number 501/KEPK/X/2024.

RESEARCH RESULT

The research conducted on 90 respondents obtained characteristic data and data related to variables of knowledge of pain management and pain control. The data collected with using this questionnaire instrument, obtained the following results following:

Table 1. Respondent Characteristics (N=90)

No.	Variables	Mean (SD)	Frequency (%)	Percentage (%)
1.	Age	41.7 (9,639)		
2.	Gender			
	Man		42	47
	Woman		48	53
3.	Types of Cancer			
	Gastrointestinal System		29	32
	Nasopharyngeal Cancer		3	3
	Lung Cancer		11	12
	Ca Mammae		20	22
	Pelvis		12	13
	Ca *Urinary System*		9	11
	Eyes		4	5
	Skin Care		2	1
4	Long time suffering from cancer			
	< 6 months		51	57
	> 6 months		39	43

Based on the table above, the results of the study for the respondent's characteristic data are obtained. Of the 90 respondents, the average is in the late adult age range (Mean = 41.7). For gender, the majority of respondents were female (53%) with the most common type of cancer (Ca) in patients being digestive system cancer, both colon Ca, Rectum Ca and other digestive system Ca (32%), and then Mammary Ca (22%). The length of time respondents experienced this cancer was mostly less than 6 months (57%).

In the univariate analysis, the results of data processing for the variables of knowledge of pain management and pain control were also obtained with the following data:

Table 2. Mean (average*)* knowledge of pain management and pain control (N=90)

Variables	*Mean*	*Median*	SD	*Min-Max*
Pain Management Knowledge	121.32	121	5,674	108-138
Pain Control	34.54	34	4.193	27-44

From table 2, the average result of the questionnaire assessment of pain control is 34.54 (SD = 4.193) with a range of 27-44, it is said that the knowledge of pain management is in the moderate range. Meanwhile, the average for the variable of knowledge of pain management is 121.32 (SD = 5.674) in the range of 108-138).

Next, data processing was continued with bivariate analysis using the *Pearson correlation test* and the following data was obtained:

Table 3. Correlation of Pain Management Knowledge and Pain Control

	Pain Management Knowledge	Pain Control
Pain Management Knowledge	1	0.694
Control Painful	0.694	1
		p-value = 0.000*

*α=0.005

The results of the data analysis obtained the correlation coefficient value "r" between pain management knowledge and pain control is 0.694. This value informs that the relationship between the two variables, namely pain management knowledge and pain control, is a strong relationship (in the range of 0.5-0.75). This result is also in accordance with the p value of 0.000 (α = 0.005) which means that there is a significant relationship between knowledge of pain management and pain control in cancer patients.

DISCUSSION

Pain characteristics in cancer patients are often associated with age, gender, duration of illness and frequency of chemotherapy. The data obtained indicated that the number of cancer sufferers was higher in women, in line with research and Cancer Statistics data indicating that women are more frequently affected by cancer, particularly with increasing cases of Ca Mammae (Siegel et al., 2023). In addition, the vulnerable age is 46 years and over where the incidence of breast cancer increases due to hormonal factors (Laamiri et al., 2015). Age is one of the factors that influences decision making because the older a person is, the lower their body condition will be. For this reason, experience in pain control in cancer patients is needed. (Wahyuningsih & Ikhsan, 2018).

Pain control can be done in various ways; one of the most *up-to*-date is with an application. Previous research discussed therapy that utilizes m-Health for pain management in patients with chronic diseases, including those who are suffering from cancer. Patients with cancer experience chronic pain, which interferes with their daily activities. The use of an application is carried out in managing pain. The results indicate that the m-Health application is very useful for selecting various pain management therapies (Hessam et al., 2022). Additionally, other studies suggest that pain management applications can assist patients in managing their pain (Kartika et al., 2022).

In addition to pharmacological treatment, several complementary therapies and effective communication can help reduce patients' pain (Alatas et al., 2020). Regarding the use of painkillers, a study stated that more than half of respondents were concerned about the emergence of tolerance or addiction to analgesics, and they tended to worry about long-term use. Pain intensity was also found to be significantly correlated with a tendency to fatigue, decreased vitality and physical strength, and increased psychological and emotional stress (Yu.A, 2024). These psychological conditions can be calmed using several pain management therapies using a non-pharmacological or complementary approach (Costa & Reis, 2014).

Several studies also discuss pain management in breast cancer patients using distraction techniques such as music therapy. The results of nursing actions with a

program of providing therapy to cancer patients obtained an improved response marked by a decrease in the pain scale (Sitinjak et al., 2018). Research that discusses the effectiveness of murottal therapy on reducing pain levels in cancer patients, the results obtained after 3 times of music therapy were able to reduce pain in cancer patients (Suwardi & Desi, 2019).

Pain management techniques are evolving rapidly and have become an integral part of cancer pain management. Complementary or modality therapies may provide additional options for cancer pain management, and may help reduce opioid consumption, with its associated side effects. With improvements in imaging modalities, procedural techniques, hardware, and infection control, these products have a good safety profile and provide a rapid and effective approach to cancer pain management (Habib et al., 2023).

This study aimed to discuss the experience of pain control and its relationship to knowledge of pain management in cancer patients. The higher the knowledge in pain management, the better the pain control on the treatment at all. The knowledge gap is considered to be related to the barriers to successful pain management in cancer patients. Training in cancer pain treatment is essential for improving coordination and communication between *caregivers* and patients. This will improve pain control in cancer patients (Othman & Al-Atiyyat, 2022). Good pain control will enhance the quality of life of patients (Su et al., 2021). Several methods that used to control the pain have become the important thing in managing cancer pain to improve their quality of life. Pain relief by massaging methods was effective in reducing the degree of pain and effectively increasing comfort as well as improving the quality of life among cancer patients (Sudirman et al., 2023).

Various factors can influence the highly variable quality of life of cancer patients, including their physical symptoms and side effects, psychological factors, lifestyle changes, physical limitations, social relationships, medical costs, quality of life at the end of life (Utomo et al., 2021). A good quality of life determines the condition of cancer patients. The family as a *support system* and nurses as the main health workers who care for patients need to provide education to patients regarding pain management. *Self-assessment* and *self-care* of patients in managing pain are references to the long-term condition of cancer patients. With various media used, it is effective in improving the quality of life of patients (Valeberg et al., 2013).

Strengths and Limitations

This study was conducted to describe the patients' knowledge about pain management and pain control as they live as the cancer survivors. It should be understood by health care providers, especially nurses. Nurses actually have to educate cancer patients to increase their knowledge, giving adequate information to change their inability to control pain and their knowledge about accurate pain management methods. It is necessary to increase the competency and to train the healthcare providers, especially nurses, to change their perspective on helping cancer patients manage their pain to increase their quality of life. This study is limited by its methodology, but it could become more relevant and reliable when the next study could explore the pain management from healthcare provider's perspective or some study to carry about the relationship between pain management and quality of life among cancer patients.

CONCLUSION

The research conducted on cancer patients obtained results that there is a strong relationship between knowledge of pain management and pain control, where the higher the knowledge, the better the control in pain management of cancer patients. In finding the meaning of the relationship, the results of this study explain that pain management, both pharmacological and non-pharmacological, can certainly be done to control patient pain. Cancer patients need a lot of support from both health workers and families as *caregivers* in caring for patients, especially when experiencing pain. As an implication, this study can serve as a guideline for caregivers to pay more attention to the pain experienced by cancer patients. It is also hoped that education on non-pharmacological pain management will be carried out more to improve pain control so that it will improve the quality of life of patients with cancer.

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