

Spiritual Caring As An Innovative Approach To Reduce Anxiety Levels In Cervical Cancer Patients Undergoing Chemotherapy

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Abstract

Chemotherapy is one of the treatment methods for cervical cancer aimed at halting the growth of cancer cells, but it often causes side effects such as anxiety. This study aimed to determine the effect of spiritual caring on the anxiety levels of cervical cancer patients undergoing chemotherapy. This study employed a pretest-posttest quasi-experimental design without a control group. Accidental sampling was utilized to recruit 38 respondents. Data were collected using the HARS questionnaire before and after the intervention and then processed statistically using the paired t-test. The results indicated that based on respondent characteristics, the majority of respondents were aged between 36 and 46 (44.7%), obtained elementary school education (39.5%), worked as homemakers (57.9%), and underwent chemotherapy 1-3 times (73.7%). The respondents' anxiety levels before and after the intervention showed a mean score of 3.29 and 2.68, respectively. There was an influence of implementing spiritual caring on the anxiety levels of cervical cancer patients undergoing chemotherapy

Keywords: Anxiety, Caring, Chemotherapy, Spiritual

BACKGROUND

One of the systemic treatment methods for cancer patients is chemotherapy (Wahyuningsih, 2018). Chemotherapy is an anti-cancer treatment that is administered orally or intravenously (Fathima et al., 2023; Nezhad et al., 2024). This medication inhibits DNA and RNA production, halts cell growth, and damages rapidly growing cell DNA (Fallis, 2018; Yaghoobi, 2022). Chemotherapy can disrupt gene function and protein formation in the body. Organs with high proliferation capacity, such as the digestive system, hair follicles, and bone marrow, will experience more severe tissue damage (Maarouf et al., 2022; Sharma et al., 2024). Chemotherapy is also one of the cancer treatment methods for patients with cervical cancer (Baek et al., 2024). Cancer is a disease caused by abnormal malignant cell development originating from body tissue cells. These cancer cells can mutate and spread to other body areas, leading to death as they grow. Uncontrolled cell development and spread, as well as deviant cells, are two typical characteristics of the group of disorders known as cancer (Chiodi & Mondello, 2020). Cancer is also described as a condition in which cells undergo DNA changes, causing them to deviate from the regulated life cycle. Cancer is categorized as a life-threatening disease, where cancer development, coupled with atypical cell division, invades the surrounding tissues and metastasizes to other distant areas (Costa et al., 2023). According to the Global Cancer Observatory in 2020, the total number of cancer cases worldwide reached 19.3 million (Hafsah, 2022). Cervical cancer is one of the types of cancer with a relatively high incidence rate. Cervical cancer ranks as the fourth most common malignancy in women, with approximately 570,000 new cases,

and constitutes 6.6% of all female cancer cases in 2018. Nearly 90% of cervical cancer deaths occur in low- and middle-income countries (Wantini & Indrayani, 2019). In 2022, there were 36,633 cases out of all cancer cases in Indonesia, with cervical cancer ranking second highest. According to the WHO in 2022, 95% of cervical cancer cases were caused by the Human papillomavirus (HPV) transmitted through sexual contact, while the remaining 5% were attributed to hereditary or genetic factors (Misgiyanto & Susilawati, 2019). HPV is the leading cause of cervical cancer that causes cervical cell abnormalities. HPV-derived oncoproteins E6 and E7 are the causes of malignancy (Misgiyanto & Susilawati, 2019).

Cervical cancer can have both physical and psychological impacts. Psychological issues can occur due to the pharmacological treatment undertaken by patients, namely chemotherapy. Chemotherapy not only targets cancer cells but also destroys healthy cells within the patient's body (Seifeldin et al., 2024). Potential side effects of chemotherapy may include physical and physiological reactions. The physical reactions include nausea followed by vomiting, alopecia (hair loss), and pain. Other physical responses include fatigue, increased susceptibility to bleeding and infections, sprue, decreased fertility, decreased hemoglobin, and decreased white blood cell production. Anxiety is one of the psychological problems faced by patients on chemotherapy (Brianna & Lee, 2023).

Anxiety is a common fear accompanied by feelings of helplessness, loneliness, and insecurity (Farooq et al., 2023). According to the Psychosocial Collaborative Oncology Group (PSYCOG), 47% of cancer patients experience psychological disturbances, with 68% experiencing depression or anxiety, 13% experiencing severe depression, 8% experiencing organic mental illness, and 7% experiencing personality disorders (Misgiyanto & Susilawati, 2019). Cervical cancer patients experiencing anxiety may face negative consequences, including an increased risk of non-compliance with cancer treatment, refusal to take medication, and even discontinuation of medication altogether, which can have a detrimental impact on their health and may lead to death. The level of anxiety experienced by each chemotherapy patient varies according to several factors, such as concerns about their condition or side effects (Nie, 2024; Novrianda et al., 2024).

Anxiety can be managed without medications (non-pharmacological therapy). One of the suggested interventions is using relaxation techniques involving deep breathing, deep breathing relaxation has a healing effect that reduces or eliminates anxiety and enhances mental and physical well-being (Candrawati et al., 2024). Deep breathing relaxation involves practicing breathing exercises by accurately changing the rhythm, calming the mind, and expressing gratitude to accelerate healing and reduce anxiety (Azwardi et al., 2022). Deep breathing relaxation can lower anxiety levels and increase blood circulation by relaxing the muscles in the abdomen; it is performed rhythmically with closed eyes while inhaling, when the muscles relax, they restore the body's organs to normal function and make the body feel lighter and more relaxed (Li et al., 2024; Mulyono & Chen, 2023).

In addition to deep breathing relaxation, another non-pharmacological therapy used to address psychological disturbances such as anxiety in cancer patients is Quranic recitation therapy. In this regard, Surah Al-Insyirah is one of the surahs offering advice on handling issues related to human existence in general and providing inner peace (Al-Jubouri et al., 2021). Surah Al-Insyirah (the expansion or the relief of the Prophet's concerns) was initially intended to strengthen some of the blessings bestowed by Allah upon Prophet Muhammad, namely relieving his mind from the burdens a Messenger should carry. Allah took away the burden and filled it with faith and guidance, and the Prophet's mind was relieved, and his soul was very peaceful when this surah was revealed (Nurkhaeriyah & Aji, 2021). Surah Al- Insyirah can provide a sense of calmness for patients undergoing chemotherapy.

To obtain comprehensive data on chemotherapy patients for this study, the researchers conducted a preliminary survey on May 8, 2023, in the oncology ward of Dr. Kariadi General Hospital in Semarang, Indonesia, specifically in the Kasuari ward on the 4th and 5th floors. This study obtained data on cervical cancer patients in April 2023 who were Muslim and undergoing chemotherapy. There were 37 patients aged between 29 and 68 years old. Interview results revealed that 2 out of

3 cervical cancer patients undergoing chemotherapy experienced anxiety, sometimes accompanied by nausea due to the side effects of chemotherapy. This study was conducted to determine the effect of spiritual caring on the anxiety levels of cervical cancer patients undergoing chemotherapy.

METHOD

Study design

The conceptual framework in research methodology describes a technique that will be applied to explain the relationship between variables under the study (Notoadmodjo, 2018). This study employed a pretest-posttest quasi-experimental design without a control group. The patients in this study were all cervical cancer patients

who experienced anxiety while undergoing chemotherapy at the Dr. Kariadi Central General Hospital, Semarang, Central Java, Indonesia.

Sample

The total population in Cassowary Rooms 4 and 5 in this study included 37 patients. The inclusion criteria in this study were as follows: (1) patients were willing to be respondents; (2) the patient was Muslim; (3) the patient was a stage 0-III cervical cancer sufferer; and (4) the patient was a cervical cancer sufferer who was undergoing chemotherapy. Meanwhile, the exclusion criteria in this study were as follows: (1) the patient was unconscious, (2) the patient could not speak or had a speech disorder, and (3) patients did not experience anxiety when undergoing chemotherapy. The sampling technique used was accidental sampling.

The population in this study was taken from the Cassowary ward on floors 4 and 5, namely 37 patients, and then recalculated using the Isaac and Michael formulas as follows:

Calculation:

$$\begin{aligned}
 S &= \frac{\lambda^2 \times N \times P \times Q}{d^4 (N-1) + \lambda^4 \times P \times Q} \\
 &= \frac{3,8416 \times 37 \times 0,5 \times 0,5}{(0,05)^4 (37-1) + 3,8416 \times 0,5 \times 0,5} \\
 &= \frac{0,0025 \times 36 + 0,9604}{35,5348} \\
 &= \frac{35,5348}{1,0504} = 33,829 \rightarrow 34
 \end{aligned}$$

Noted:

S = Number of sample members

N = Total population (55)

λ^2 = Chi square value depends on the degrees of freedom (dk) and error level, error level is 5% so $\lambda^2 = 3,8416$

d = Degree of accuracy expressed as a proportion (0.05)

Q = Probability of being wrong = population proportion (0.5)

P = Probability of correct = population proportion (0.5)

Thus, the research sample for anxiety in patients undergoing chemotherapy included 34 clients. In this study, researchers added a sample of 10% of the total sample calculated to anticipate dropout, using the formula:

$$\begin{aligned}
 n &= \frac{n}{1-f} \\
 n &= \frac{34}{1-0,10} \\
 n &= 37,7 \rightarrow 38
 \end{aligned}$$

Noted: n = calculated sample size

f = estimated drop out proportion

Thus, the sample in this study comprised of 38 respondents.

Variable

The research variables consisted two variable, variable independent is spiritual caring intervention and variable dependent is anxiety levels.

Instruments

The instruments in this study were observation sheets, standard operational procedures related to deep breathing relaxation, and the Hamilton Anxiety Rating Scale (HARS) questionnaire. Observation sheets and standard operational procedures related to breathing relaxation are useful in guiding interventions, and the Hamilton Anxiety Rating Scale (HARS) questionnaire is useful for measuring anxiety. The HARS questionnaire consisted of 14 questions with answer choices using a Likert scale with a value of 0 = none, 1 = light, 2 = moderate, 3 = severe, and 4 = very severe then scoring using a ratio scale.

Data Collection

The process of collecting data or interventions in this study is as follows: (1) Researchers arrange permits at the hospital; (2) After obtaining ethical approval from Dr. Kariadi General Hospital (ethical approval number 1492/EC/KEPK- RSDK/ 2023), then the researcher met the respondents who had been selected and explained by the researcher the research procedures. (3) Researchers assess the patient's anxiety level with the help of colleagues or research assistants who have previously carried out perception equations. (4) Prospective respondents who have been selected and are willing to participate in the research are asked to sign informed consent. (5) After signing the consent letter, the prospective respondent has officially become a research respondent. (6) The respondents were given spiritual caring treatment using Quranic recitation of Surah Al-Insyirah by Qori' Sheikh Mishary Rashid Alafasy played through MP3 via a headset. The intervention was administered for 15 minutes once daily for three days. Additionally, deep breathing relaxation was provided simultaneously to examine whether there was an influence between the independent variable (spiritual caring) and the dependent variable (anxiety level). (7) The intervention was carried out according to the wishes of the research respondents and was supervised by family members as observers. (8) The panel of researchers reminded them of the schedule for administering Al-Qur'an murrotal and deep breathing relaxation. (9) The results of measurements taken from respondents were re-evaluated by researchers. (10) The treatment group was asked to evaluate the level of anxiety after the intervention. (11) The researcher then processed and interpreted the data resulting from the research that had been carried out on the respondents.

Data analysis

Univariate analysis was carried out on the dependent variable (anxiety level) using SPSS. Bivariate analysis was carried out on the independent variable (spiritual caring), namely by testing the normality of the data using a non-parametric test, namely when the data distribution is not normal (p value <0.05) then using the alternative Wilcoxon test, the data is said to be normally distributed if the p value is >0 .05. Interpretation of the influence of the independent variable on the dependent variable if the p value is <0.05 (Hastutiningtyas & Maemunah, 2020).

Ethical consediration

This study received ethical clearance from the After obtaining ethical approval from Dr. Kariadi General Hospital (ethical approval number 1492/EC/KEPK-RSDK/ 2023), and has obtained the respondents' consent through informed consent, anonymity, confidentiality, fidelity, and autonomy.

RESULT

The results were presented in tables with further explanations. As shown in Table 1, the majority of respondents were aged between 36 and 46 years (n=17; 44.7%), had primary school education (n=15; 39.5%), and worked as homemakers (n=22; 57.9%). Additionally, regarding chemotherapy frequency, most respondents underwent chemotherapy 1-3 times (n=28; 73.7%).

Table 1. Frequency Distribution of Respondent Characteristics Based on Age, Education Level, Occupation, and Chemotherapy Frequency (n=38)

Characteristics	Frequency	Percentage (%)
Age (years) 36-46	17	44.7
47-57	12	31.6
58-69	9	23.7
Education level Elementary Junior		
high Senior high	15	39.5
Diploma 3 Bachelor	7	18.4
	11	28.9
	1	2.6
	4	10.5
Employment Homemaker Labor		
Seller Farmer Teacher	22	57.9
Retired	2	5.3
	4	10.5
	6	15.8
	3	7.9

	1	2.6
Chemotherapy frequency		
1-3	28	73.7
4-6	7	18.4
7-9	3	7.9
Total	38	100.0

Table 2 displays the anxiety levels of respondents before and after receiving the spiritual caring intervention (recitation of Surah Al-Insyirah and deep breathing relaxation). Prior to the intervention, 4 (10.5%) respondents experienced mild anxiety, 19 (50.0%) had moderate anxiety, and 15 (39.5%) reported severe anxiety, with an overall mean score of 3.29 and a standard deviation of 0.654. Following the intervention, the results showed that 1 (2.6%) respondent reported no anxiety, 12 (31.6%) had mild anxiety, 23 (60.5%) had moderate anxiety, and 2 (5.3%) had severe anxiety, resulting in an overall mean score of 2.68 and a standard deviation of 0.620. These findings indicate a reduction in anxiety levels following the intervention.

A normality test was conducted on the anxiety variable before and after the respondents received the spiritual caring intervention using the Shapiro-Wilk test, given that the sample size was less than 50 ($n < 50$).

Table 2 Frequency Distribution of Anxiety Levels Before and After Spiritual Caring Intervention (n=38)

Characteristics	Frequency	Percentage (%)	Mean	SD
Before				
No anxiety	0	0		
Mild anxiety	4	10.5	3.29	0.654
Moderate anxiety	19	50.0		
Severe anxiety	15	39.5		
After				
No anxiety	1	2.6		
Mild anxiety	12	31.6	2.68	0.620
Moderate anxiety	23	60.5		
Severe anxiety	2	5.3		
Total	38	100.0		

The results indicated significance for both variables before and after the intervention (pretest and posttest) with p-values of 0.056 and 0.543, respectively. Therefore, it can be concluded that the data distribution is normal ($p > 0.05$).

Table 3. The Difference in Anxiety Levels Before and After Receiving Spiritual Caring Intervention

Variable	n	Mean \pm SD	95 % CI	P- value
Before	38	6.00 (4.948)	4.374 -7.626	0.001
After	38			

Table 3 shows the difference in the anxiety levels before and after receiving spiritual caring intervention, with a mean score of 6.00 and a standard deviation (SD) of 4.948. The 95% confidence interval results indicated that the mean anxiety level falls within the range of 4.374 to 7.626. The paired t-test yielded a p-value of 0.001 ($p < 0.05$), indicating a significant difference in the mean anxiety levels before and after the intervention.

DISCUSSION

Most respondents were between 36 and 46 years, the age range of 36 to 46 is considered adulthood because individuals in this range tend to have high cognitive abilities and comprehension patterns, which impact their knowledge improvement. However, physical health decline also begins at this age, leading to the prevalence of many diseases (Breit et al., 2024). The finding of this study is consistent with a previous study that reported cervical cancer can develop in women aged 35 to 50 years; therefore, women over 35 years of age are encouraged to regularly check their health, especially to identify signs of the disease (Van, 2023).

Most respondents, obtained elementary school education, access to and understanding of information is more accessible for individuals with higher levels of education. Highly educated individuals respond to health education stimuli by changing their behavior to align with the health knowledge they acquire (Mancone et al., 2024). Low education status can influence lifestyle choices, potentially increasing the risk of cervical cancer transmission among individuals and impacting their awareness and understanding of the disease. Previous research in 2020 revealed that out of 70 individuals with elementary school education, 34 had cervical cancer, such as those who never attended school, only attended elementary school, or had completed junior high school (Simangunsong et al., 2019).

Concerning employment status, the majority of respondents in this study were homemakers, this study's finding aligns with previous research indicating that most cervical cancer cases occur among homemakers, with 35 out of 118 respondents falling into this category. This study also supports previous research in 2020 where most respondents were homemakers, totaling 29 out of 40. Another study showed that out of 70 cervical cancer patients undergoing chemotherapy, 32 were homemakers (Utami et al., 2020). The results of this study showed that most respondents underwent chemotherapy 1-3 times. A previous study by Melia also reported that frequent chemotherapy administration can cause changes due to its side effects, such as psychological effects like anxiety. Before the intervention, it was found that four individuals had mild anxiety, 19 individuals had moderate anxiety, and 15 individuals had severe anxiety. Most respondents ($n=19$) exhibited moderate anxiety. Previous research in 2020 stated that cervical cancer patients undergoing chemotherapy experienced physical and psychological challenges, such as anxiety. Anxiety is defined as a state of worry about adverse events accompanied by physical symptoms such as palpitations, shivering, and trembling hands. Cancer patients often experience a diminished quality of life and an increased need for spiritual care from medical professionals due to its psychological impact, such as feelings of sadness and anxiety.

The results of this study revealed that after the intervention, 1 respondent reported having no anxiety, 12 respondents had mild anxiety, 23 respondents exhibited moderate anxiety, and 2 respondents had severe anxiety. This finding is consistent with previous research in 2019, which demonstrated the effectiveness of a spiritual care program based on relaxation techniques in helping cancer patients relax and improve their quality of life. Moreover, it can alleviate the fear, anxiety, stress, and despair experienced by cancer patients. This study also aligns with the research conducted in 2020 which indicated that providing spiritual care daily for 15 minutes over three days, combined with deep breathing relaxation exercises, could help calm patients and reduce anxiety. In a previous study in 2018 cervical cancer patients undergoing chemotherapy received interventions involving Quranic recitations of Surah Al-Insyirah for three days, with the same duration. The intervention proved effective in reducing anxiety. Similarly, another study reported that Quranic recitation interventions successfully reduced anxiety. This study is further supported by other research indicating that patients undergoing chemotherapy ($n=7$) exhibited moderate anxiety before receiving Quranic recitation interventions, and their anxiety levels returned to normal after the interventions. Additionally, severe anxiety experienced by six other respondents decreased to mild and moderate levels (Syukuriyah & Alfiyanti, 2023).

This study aimed to determine the influence of spiritual caring on anxiety levels in cervical cancer patients undergoing chemotherapy at Dr. Kariadi General Hospital, Semarang. The result yielded a mean difference of 6.00, indicating decreased anxiety scores. Furthermore, the paired t -test showed a p -value of 0.001 ($p < 0.05$), indicating a significant difference in anxiety scores between before (pretest) and after (posttest) the intervention (recitation of Quranic verses from Surah Al-Insyirah and deep breathing relaxation)., spirituality is the patient's perspective or feeling about interacting with other components in their dynamic life. In this study, the authors used the Hamilton Anxiety Rating Scale (HARS), whose validity and reliability have been tested, to assess patient anxiety. The evaluation technique involved measuring anxiety levels before therapy on the first day and after receiving Quranic recitation and deep breathing relaxation interventions for three consecutive days. This analysis determined whether there was a decrease in anxiety after the intervention (Syukuriyah & Alfiyanti, 2023). This study is consistent which reported a decrease in anxiety mean scores of respondents after the implementation of Quranic recitation spiritual caring intervention.

CONCLUSION AND RECOMMENDATION

Regarding the characteristics of respondents, this study revealed that the majority were aged between 36 and 46 years, had completed elementary school education, worked as homemakers, and underwent chemotherapy 1-3 times. Before receiving the spiritual caring intervention (Quranic recitation of Surah Al-Insyirah and deep breathing relaxation), all respondents exhibited anxiety ranging from mild to severe, but after receiving the

spiritual caring intervention (Quranic recitation of Surah Al-Insyirah and deep breathing relaxation), respondents showed a decrease in anxiety levels ranging from mild to severe. The spiritual caring intervention influenced the anxiety levels of cervical cancer patients undergoing chemotherapy, indicating a significant difference before and after the intervention.

Patients are advised to be aware of the side effects of chemotherapy, particularly in managing anxiety levels, either by implementing spiritual caring interventions such as Quranic recitation of Surah Al-Insyirah and deep breathing relaxation or by seeking other healthcare services. Families are encouraged to provide support and encouragement throughout the patient's treatment and to monitor the patient's condition actively. Nurses are expected to offer health promotion and provide information to cervical cancer patients undergoing chemotherapy about managing anxiety side effects. Researchers are encouraged to distribute Quranic playlists and supply headsets to respondents. Furthermore, for future researchers interested in examining the effects of spiritual caring on anxiety levels, it is recommended to continue this study with either the same or different interventions to obtain more favorable outcomes. For example, they are expanding the range of Quranic verses used in the recitation to cover a more comprehensive selection of verses proven beneficial for reducing anxiety levels.

Declaration of Conflicting Interest: None declared

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Authors' Contributions

All authors contributed equally to all stages of the study, including making substantial contributions (conception and design or acquisition of data or analysis and interpretation of data), drafting, and revising the manuscript, giving final approval of the version to be published, and agreeing to be accountable for all aspects of the work.

Data Availability Statement

The datasets generated during and or analysed during the current study are available from the corresponding author on reasonable request.

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Nothing to disclose.

Authors' Contributions

TR: Conceptualization, Data Curation, Formal Analysis, Methodology, Validation, Visualization, Writing – Original Draft, Review & Editing; HD: Conceptualization, Investigation, Methodology, Validation, and Writing – Original Draft, Review & Editing; SW: Conceptualization, Methodology, Formal Analysis, Validation, and Writing – Original Draft, Review & Editing. YSA: Conceptualization, Methodology, Formal Analysis, Validation, and Writing – Original Draft, Review & Editing. MT: Conceptualization, Methodology, Formal Analysis, Validation, and Writing – Original Draft, Review & Editing. EM: Conceptualization, Methodology, Formal Analysis, Validation, and Writing – Original Draft, Review & Editing. IRA: Conceptualization, Methodology, Formal Analysis, Validation, and Writing – Original Draft, Review & Editing.

Data Availability Statement

The datasets generated during and or analysed during the current study are available from the corresponding author on reasonable request.

Declaration of Generative AI

Nothing to disclose.

Ethical Consideration

The study was ethically approved by Medical and Health Research Ethics Committee (MHREC) of General Hospital Dr.Kariadi Health Research Ethics Committee 1492/EC/KEPK- RSDK/ 2023 and had obtained the participants' consent through informed consent, thus patients first received an explanation from researchers about the research carried out in full, an explanation carried out orally and in writing. After the patient understands the research being conducted, the researcher is given informed consent in writing, and then the patient who agrees to be a respondent can sign the informed consent sheet, which is in accordance with the

ethical principles of research, namely informed consent, anonymity, confidentiality, fidelity, and autonomy.

APC Statement

The authors will pay APC if the article is accepted.

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