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The Effectiveness of Self-Hypnosis in Reducing Anxiety Levels in Cancer Patients

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ABSTRACT

Chemotherapy becomes the primary treatment for cancer patients, but it causes various side effects and leads to anxiety. Many efforts have been made to address anxiety, one of which is self-hypnosis performed independently by the patient. This study aims to determine the effectiveness of self-hypnosis in reducing the anxiety levels of cancer patients undergoing chemotherapy. This study applied a quasi-experimental design with a one-group pretest-posttest approach. A total of 40 cancer patients undergoing chemotherapy at Persahabatan Hospital were selected using purposive sampling. The intervention was self-hypnosis, administered for three consecutive days. Anxiety levels were measured using the HARS scale before and after the intervention. Data were analyzed using univariate and bivariate analysis, including normality testing and the dependent t-test. The results show that in the intervention group, there was an average decrease of 10.83 from 31.78 to 20.95. The results of the dependent T-test showed a p-value of 0.015; there is a significant difference in the average anxiety levels before and after the intervention. The implications of this study on healthcare are to enhance the role of nurses in providing independent nursing care. Nurses can better understand the adaptation processes that occur in cancer patients, where patients must undergo a long series of treatments, thus having to adapt from their previous environment, where they could move freely, to a limited one due to declining physical conditions and dependence on healthcare services to improve their health. Relaxation through self-hypnosis can restore patients' motivation to recover and become more optimistic about undergoing treatment.

INTRODUCTION

Cancer is a disease that begins when abnormal cells form clones and begin to reproduce abnormally, ignoring growth-regulating signals in the cell's environment. Cancer is a type of non-communicable disease characterized by the presence of abnormal cells or tissues that continue to grow, are malignant (uncontrolled), and can damage the function of a tissue. Cancer cells can form from various elements in the formation of organs, leading to tumor masses due to proliferating cells, and can spread through blood vessels and lymph vessels (Harbeck et al., 2019).

Cancer is the third leading cause of death in Indonesia. According to data from the Global Cancer Observation Center (Globocan), there were more than 408,661 new cases and nearly 242,099 deaths in Indonesia in 2022, with the highest number of deaths caused by breast cancer, cervical cancer, lung cancer, and colorectal cancer. Furthermore, breast cancer and lung cancer are the cancers with the highest number of cases, both in women and men. This epidemiological data is consistent with data from the national hospital-based cancer registry (HBCR), which covers 26 districts/cities in 14 provinces for cases from 2008-2017, as well as cancer prevalence data from BPJS Kesehatan patients in 2022 (Kementerian Kesehatan RI, 2024).

The Basic Health Research Riskesdas in 2018 stated that the number of overall cancer cases increased by 0.4 per 1000 population from 1.4 per 1000 population in 2013 to 1.8 per 1000

population in 2018 (Kementeruan Kesehatan RI, 2018). According to data from the Global Cancer Observatory (Globocan) in 2018, there were 18.1 million new cases of cancer, while the death rate from cancer reached 9.6 million deaths. The growth of cancer cases reached 207,000 cases per year. The high number makes cancer one of the global health problems (Infodatin, 2019). Globocan 2020 stated that there were 19.3 million new cancer cases and 9.9 million cancer deaths worldwide (World Health Organization, 2020).

Problems that arise due to cancer include high medical and treatment costs that will increase the economic burden and disrupt economic stability. Advanced cancer has an impact of 70% to 80% on quality of life, including physical, psychological, spiritual, and financial problems. Long-term care also causes problems such as insomnia, sexual dysfunction, and other symptoms that arise during treatment, which will be high stressors for cancer patients and trigger prolonged stress (Prima et al., 2020).

Several medical treatments available for cancer patients include surgery, radiotherapy, chemotherapy, and hormone therapy, along with newer modalities such as immunotherapy and targeted therapy. Each treatment demonstrates effectiveness in eradicating cancer cells depending on the patient's condition and the characteristics of the tumor (Rezaei, 2023). Nevertheless, every therapy is also associated with specific side effects. For instance, chemotherapy may lead to anemia, nausea, or organ toxicity; radiotherapy often results in fatigue and skin changes; and hormone therapy can trigger complications such as osteoporosis or hormonal imbalances (Velcheti & Punekar, 2022). In breast cancer cases, a multidisciplinary approach is critical to manage post-treatment side effects, including cognitive impairments and changes in body image (Bakar & Tuğral, 2024).

Some medical treatments that cancer patients can undergo are surgery, radiation, hormone therapy, and chemotherapy. All medical treatments that cancer patients undergo have their own effectiveness, which is powerful in eradicating cancer cells under specific conditions and at certain levels. However, each treatment also has side effects ranging from mild to moderate, which will affect health conditions (Smeltzer, 2013).

Chemotherapy side effects include physical side effects and psychological side effects. Physical side effects include nausea and vomiting, alopecia, red urine, nail discoloration, stomatitis, diarrhea, and constipation (Faiz, 2020). Meanwhile, according to Lestari et al. (2020), there are nine areas felt by respondents in the form of anxiety and stress in cancer patients, namely: when diagnosed with cancer, treatment decision-making, factors that influence the treatment decision-making process, when undergoing chemotherapy, the impact experienced by cancer patients when undergoing chemotherapy, efforts to deal with the impact experienced when undergoing chemotherapy, belief in the success of treatment, changes felt when undergoing chemotherapy, and hopes during chemotherapy treatment (Lestari et al., 2020).

Anxiety is one of the most common psychological problems experienced by cancer patients, and its severity tends to increase along with the progression of the disease. Evidence from recent studies highlights a strong association between advanced cancer stages and higher anxiety levels. A systematic review and meta-analysis conducted in Africa reported that patients with advanced-stage cancer were significantly more likely to experience anxiety (AOR = 5.44; 95% CI: 1.95–15.18) (Nakie et al., 2024). Consistent with this, a global umbrella review published in 2025 showed a pooled prevalence of anxiety of 30.55% (95% CI: 24.04–37.06), identifying advanced cancer stage as one of the major contributing factors (Getie et al., 2025). Similarly, a cross-sectional study carried out between 2021 and 2023 in a tertiary hospital revealed that patients with metastatic or late-stage cancer had a higher prevalence of anxiety (30.2%) compared to those at earlier stages (Shalata et al., 2024). These findings suggest that disease stage is an important predictor of anxiety in cancer patients, emphasizing the need for early psychosocial assessment and timely interventions in oncology care.

Anxiety is a vague feeling of fear accompanied by feelings of uncertainty, helplessness, isolation, and insecurity. The person feels that the core of his personality is being threatened. Anxiety is an emotion and an individual experience that is responsive and cannot be observed directly. Anxiety is an emotion without a specific object, which can be triggered by things that are unfamiliar and accompanies all new experiences. Anxiety is part of everyday life. Anxiety involves the body, self-perception, and relationships with others (Stuart & Keliat, 2023).

Overcoming anxiety experienced by cancer patients can be done with pharmacological and non-pharmacological therapy. Pharmacological therapy involves the administration of drugs while closely monitoring the patient's condition, whereas non-pharmacological therapy utilizes complementary medicine (Setyawan & Hasnah, 2020). Complementary treatments that can be done include wet cupping hypnotherapy, either done by a therapist or self-hypnosis. Progressive muscle relaxation is a muscle relaxation exercise that involves pressing and releasing muscles regularly and sequentially until relaxation occurs throughout the body. There is also guided imagery, which is an action to guide the patient's imagination. Both of these actions will be more effective with guidance from an instructor (Gerliandi et al., 2021). The next step is to provide education, which will increase the patient's knowledge on how to overcome anxiety. In addition, there is a hypnosis action that influences the patient's conscious mind, but this action must be supervised by a hypnotherapy instructor at a relatively high cost. Therefore, the next choice is self-hypnosis, an action to influence the subconscious by giving confidence or suggestion to oneself and is done independently with these considerations, self-hypnosis is very good to be applied by sufferers because it is easy and does not require additional costs to be done by sufferers who experience anxiety (Sabri, 2022).

Research conducted in Italy by Brugnoli et al. (2018), it was found that self-hypnosis was effective in reducing pain and anxiety in respondents with chronic diseases (rheumatism, nervous disorders, and cancer), p-value=0.001. In this research, respondents were given self-hypnosis measures, which were carried out 3 times a week during the research (Brugnoli et al., 2018). This self-hypnosis action is part of a non-pharmacological action that can help cancer patients adapt, especially those undergoing chemotherapy, so that they can undergo complete treatment. To avoid anxiety due to patient perceptions related to fear of death and increasing cancer stages, respondents need medical treatment such as chemotherapy. However, the side effects of chemotherapy can cause physical disorders such as nausea, vomiting, fever, alopecia, weakness, and also have an impact on the family's economic condition (Prima et al., 2020).

This study presents novelty by examining self-hypnosis as a non-pharmacological intervention to alleviate anxiety in cancer patients undergoing chemotherapy, introducing a simple, cost-effective, and independent approach compared to other complementary therapies that often require professional supervision. The urgency of this research is underscored by the high prevalence of anxiety among cancer patients, which escalates with disease progression and is further exacerbated by chemotherapy side effects, ultimately compromising quality of life and treatment adherence. Within the Indonesian context, where cancer care imposes substantial financial and psychological burdens, evaluating self-hypnosis as an accessible, low-cost, and evidence-based strategy is crucial for developing integrative care models that enhance psychological resilience and improve overall treatment outcomes.

The importance of management in cancer patients, especially those undergoing chemotherapy, is of particular concern to researchers. Based on these conditions, the author is interested in researching the effectiveness of self-hypnosis in reducing anxiety levels in cancer patients undergoing chemotherapy at Persahabatan Hospital.

METHOD

This research is a quantitative study with a quasi-experimental design, specifically a one-group pretest-posttest type. The treatment that will be given is self-hypnosis, which will be given for three consecutive days. However, before the treatment is given, a test/measurement of the anxiety level is first carried out, and after the intervention for three consecutive days, the anxiety level will be re-measured. Measurement of the effect of self-hypnosis carried out for three consecutive days in reducing anxiety levels using a pre- and post-test design.

This research will be conducted at Persahabatan Hospital. The reason for choosing Persahabatan Hospital is that it is one of the national referral hospitals that has recently reopened a collaborative research program after being closed due to the pandemic. In addition, because this hospital is located in East Jakarta, which borders the city of Bandung, the scope of services to patients is also broad and diverse in terms of economic, social, and cultural aspects. This hospital

provides chemotherapy services to a relatively large number of patients. From the 2019 annual report in Persahabatan Hospital, there were around 393 new cases undergoing chemotherapy.

The population in this research was patients who were diagnosed with cancer. Based on the 2019 annual report, there were 393 new cases treated at Persahabatan Hospital. Using purposive sampling, we obtained 40 samples based on the calculation results.

This research was conducted from early November 2022 to December 2022 in the inpatient room of Wijaya Kusuma and Cempaka Atas, Persahabatan Hospital. The criteria for respondents who will participate in this research are respondents suffering from cancer, undergoing chemotherapy, and being treated in a hospital. From the results of the pre-test using the HARS scale, anxiety was detected at all levels of anxiety. Respondents can read and write, and are fully conscious. They will be respondents. The statistical analysis used is univariate analysis and bivariate analysis (normality test and dependent t-test). This study obtained ethical approval from the Health Research Ethics Committee of Sint Carolus School of Health Sciences with approval number 103/KEPPKSTIKSC/VIII/2022.

RESULTS

Table 1. Distribution of respondents based on age, education level, and physical condition

Variabel	f	%
Age		
Early and late teenagers	3	7.5
Early and late maturity	7	17.5
Early and late elderly	30	75.0
Education level		
Low education	31	77.5
High education	9	22.5
Physical condition		
Advanced stage	18	45.0
Early stage	22	55.0

Table 1 shows that the majority of respondents were in the early and late elderly category (75%), followed by those in early and late maturity (17.5%), and only a small proportion were teenagers (7.5%). In terms of education, most respondents had a low education level (77.5%), while 22.5% had a higher education level. Regarding physical condition, more than half of the respondents were in the early stage of illness (55%), whereas 45% were in the advanced stage. The results of the analysis of the difference in average anxiety of cancer patients before and after being given self-hypnosis are as follows:

Table 2. Results of the average difference test of anxiety before and after self-hypnosis

Variabel	Before		After		p-value	n
	Mean	SD	Mean	SD		
Self Hypnosis	31.78	4.446	20.95	3.889	0.015	40

Table 2 shows that giving self-hypnosis can reduce the average anxiety by 10.83, namely from an average of 31.78 (before being given self-hypnosis) to 20.95 (after being given self-hypnosis). The results of the T-test obtained a p-value of 0.015, meaning that there was a significant difference in the average anxiety of cancer respondents between before and after being given self-hypnosis.

DISCUSSION

These findings are consistent with evidence reported by Liu et al. (2024), who emphasized that advanced age and low educational attainment are significant prognostic factors in cancer outcomes. In their multicenter cohort study, patients with higher education (college or above) had

a significantly lower overall mortality risk compared to those with only elementary education or less (HR=0.84; 95%CI:0.77–0.92), even after adjusting for age, TNM stage, and nutritional status (PG-SGA) (Liu et al., 2024). These results indicate that the majority of respondents are elderly. The results of this research are supported by the results of research by Dewi et al. (2020), which showed that the majority of respondents in their research were in the early elderly age. The early adult to early elderly age group was at a higher risk of cancer due to a lack of consumption of vegetables and fruits.

In addition, studies on colorectal cancer among patients aged ≥80 years revealed that, although elderly patients often received less aggressive treatment, survival outcomes remained significantly worse compared to younger patients, particularly when compounded by frailty, comorbidities, and perioperative complications (Yeo & Voutsadakis, 2025). The author assumption that the elderly have a higher risk of developing cancer because cancer is a degenerative disease because cancer is not a disease that comes suddenly but requires a long process until it can be diagnosed as cancer, this can be exacerbated by the process of cell atrophy including stomach cells which results in reduced nutrient intake so that it slows down the healing process and accelerates the development of a disease.

The results of the analysis of the distribution of respondents according to education level in the intervention group mostly had a low level of education, as well as in the control group. The highest percentage in the description above states that most respondents have low education. The results of this research are in line with the results of Pratiwi's research (2017), which stated that the level of anxiety in breast cancer patients was at an average of 59.8% anxiety, with most respondents having a low level of education, namely 44.3%. A person's low level of education will make it difficult for that person to understand the information provided.

The results of this study demonstrated that self-hypnosis significantly reduced anxiety levels among cancer patients, with the mean score decreasing by 10.83 points—from 31.78 prior to intervention to 20.95 following the intervention. Statistical testing confirmed the significance of this change (p=0.015), indicating that self-hypnosis was effective in lowering patients' anxiety. These findings suggest that hypnosis-based interventions, when delivered in a structured and accessible format, may serve as a promising complementary approach for psychological symptom management in oncology.

Our results are consistent with prior research. Similarly, Rosendahl et al. (2024) confirmed that hypnosis interventions are effective for both mental and somatic outcomes, including anxiety and sleep disturbances, in clinical populations. Furthermore, Bissonnette et al. (2023) found that hypnosis and music interventions improved anxiety, pain, and sleep quality in patients receiving palliative care, highlighting the broad applicability of hypnosis across different stages of cancer care. Taken together, these findings reinforce the present study's results, showing that self-hypnosis can meaningfully alleviate anxiety symptoms in vulnerable cancer populations (Bissonnette et al., 2023).

From the perspective of the researchers, these results underline the practical value of self-hypnosis as a feasible and scalable intervention. Unlike conventional psychotherapy, which may be resource-intensive and inaccessible to many patients, self-hypnosis can be delivered through short training sessions or pre-recorded audio guidance, allowing patients to practice independently at home. This is particularly relevant for patients with limited access to psychological services or those undergoing long-term cancer treatment. Nevertheless, it should be noted that while statistical significance was achieved, further research is needed to establish the clinical significance of this change, particularly through reporting effect sizes and evaluating the proportion of patients who achieve meaningful reductions in anxiety according to established clinical thresholds.

The implications of these findings are twofold. At the clinical level, self-hypnosis could be integrated into supportive oncology care as part of a multimodal approach to managing psychological distress, complementing pharmacological and psychotherapeutic strategies. Training oncology nurses or psychologists to deliver brief hypnosis sessions and providing patients with audio recordings may help promote continuity of care. At the research level, future studies should employ randomized controlled trial designs with larger sample sizes, active control conditions (e.g., relaxation or neutral audio), and longer follow-up to evaluate the durability of effects. Additionally, subgroup analyses by cancer stage, age, and educational level would provide

insights into which patient groups may benefit most. Such evidence would help refine clinical guidelines, which increasingly emphasize the importance of managing anxiety and depression among cancer survivors (Andersen et al., 2023). Researchers can assume that cancer patients are more likely to attack patients with low levels of education because low education affects the way of rational thinking in digesting information and making decisions, including decisions regarding early detection of the disease and its prevention.

This research aligns with the condition of the majority of respondents, who are in the elderly age range. The low education of respondents means that there are obstacles in obtaining sources of cancer information regarding prevention, lifestyle, and factors that cause cancer are very few, which is in accordance with the results of Rahmawati's research (2015).

Stage refers to the degree of cancer, namely, how large the tumor is and the extent of metastasis. Cancer stage helps understand the degree and chances of survival, plan the best treatment, and identify clinical trials that may be treatment options (Miftahussurur & Rezkitha, 2021). If the treatment is chemotherapy, it will have a physical impact that affects the patient's reluctance to complete treatment.

Research conducted by Laely (2017) found that the average anxiety level scale of chemotherapy respondents before being given hypnotherapy was 61.67, and after hypnotherapy, the average anxiety level scale became 36.33. The results of the hypothesis test showed that there was an effect of hypnotherapy on reducing the anxiety scale in chemotherapy respondents (Laely, 2017). Research by Juniarti et al. (2019) showed that the average anxiety level before being given deep breathing relaxation and the five-finger technique in the intervention group was 20. After the intervention, the average anxiety level became 9.

The average anxiety level in the control group in the pre-test measurement was 18, and in the post-test measurement, the average anxiety level became 15.9. The results of the unpaired t-test showed that there was a significant difference in anxiety between the intervention group and the group after the five-finger technique was carried out, with a p-value of 0.000, which means that the five-finger technique can reduce anxiety levels in breast cancer respondents undergoing chemotherapy (Juniarti et al., 2019).

CONCLUSION

This study revealed that the majority of cancer patients at Persahabatan Hospital were elderly, had low educational attainment, and nearly half were diagnosed at an advanced stage. These demographic and clinical characteristics highlight the compounded challenges of age-related frailty and limited health literacy in achieving optimal cancer outcomes. Notably, the study demonstrated that self-hypnosis significantly reduced anxiety levels in cancer patients, confirming its potential as an effective complementary therapy for psychological distress in oncology. The findings support the integration of structured self-hypnosis programs into supportive cancer care to address the mental health needs of vulnerable patient populations.

Clinically, oncology care providers are encouraged to incorporate self-hypnosis as part of multimodal supportive interventions to reduce anxiety and improve patient well-being. Training nurses or psychologists to deliver brief self-hypnosis sessions and equipping patients with audio-based guidance can make this approach more accessible and sustainable. On a broader scale, health education programs should be tailored to populations with lower educational levels to improve early detection, treatment adherence, and psychosocial outcomes. Future research should employ larger randomized controlled trials to confirm clinical significance, explore long-term effects, and identify patient subgroups most likely to benefit.

There is a significant difference in the average anxiety of cancer respondents before and after being given self-hypnosis. The implications of this research for health services, especially nursing, can improve the role of nurses in providing nursing care independently. Nurses can better understand the adaptation process that occurs in cancer patients from their previous environment, where they could freely move, to being limited due to declining physical conditions and dependence on health services to improve their health. Therefore, relaxation with self-hypnosis can restore patient motivation to recover and be more optimistic in undergoing treatment.

AUTHOR'S DECLARATION

Authors' contributions and responsibilities

ND: compiling research proposals, making research contacts with research locations, preparing research funds, compiling research reports and publishing research results; **FS:** prepare and search for literature relevant to the research, compile research questionnaires, participate in collecting data and assist in preparing research reports; **SPH:** collect research data, tabulate and analyze data and assist in the preparation of research reports.

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All data are available from the authors.

Competing interests

This research has passed the ethical review test.

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