Reducing Anxiety in Cancer Sufferers with Progressive Muscle Relaxation Therapy: Literature Review

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Abstract:

One of the symptoms of cancer is the emergence of pain and anxiety related to each other, especially in patients who suffer from cancer. This can be caused by pain from cancer, examinations carried out and treatment that sufferers undergo. Anxiety can be caused by uncertainty about the prognosis of the disease, the effectiveness of treatment for recovery of the condition, which is often found in cancer patients, especially at an advanced stage. Anxiety management is provided through the main nursing interventions, namely progressive muscle relaxation techniques. The purpose of this study was to identify progressive muscle relaxation to reduce anxiety in cancer patients. The method used is a literature review in the form of a literature review obtained from Garuda Ristekbrin, PubMed, Google Scholar and Science Direct searches. After filtering, the author examines the contents of the article in accordance with the subject matter in accordance with the author's title. There were 10 journals selected for review by the authors, 6 of which used a quasi-experiment, 3 used a systematic review, and 1 used a randomized controlled trial. The results of statistical tests for the 10 journals selected, all journals showed a significant influence on the nursing intervention carried out, namely Progressive Muscle Relaxation therapy in reducing anxiety in cancer sufferers. It is hoped that this literature review will become a reference and reference for nursing interventions in reducing anxiety in cancer patients, one of which is progressive muscle relaxation therapy.

INTRODUCTION

Cancer is a disease that poses a serious threat to public health, with a continuous increase in incidence and mortality. Cells that grow uncontrollably and abnormally in the body are called cancer, which can become malignant and affect a person's life. In addition, cancer sufferers will certainly feel anxiety for themselves. The patient's family will certainly contribute to the psychosocial problems experienced by cancer sufferers in recovering and reducing the patient's anxiety about the disease. These anxiety disorders include panic disorder, obsessive-compulsive disorder, and post-traumatic disorder. Anxiety can be caused by uncertainty about the prognosis of the disease and the effectiveness of treatment for recovery of the condition, which is often found in cancer patients, especially at an advanced stage (WHO, 2017).

The appearance of cancer in the body that causes abnormal and uncontrolled cell growth is life-threatening to sufferers. The mass formed by cancer originates from malignant tissue so that it spreads to other tissues throughout the body. Cancer that grows quickly can endanger the patient's life if not treated immediately. Symptoms of cancer, one of which is the emergence of

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pain, pain and anxiety are interconnected, especially in patients who suffer from cancer, this can be caused by pain from cancer, examinations carried out and treatment that sufferers undergo (Natosba et al., 2020). The emergence of problems with physical and psychological conditions due to physical illness will lead to psychosocial problems. Cancer as a chronic disease is very at risk of causing psychosocial problems for sufferers. Cancer sufferers will certainly feel traumatized for themselves, and the patient's family will certainly contribute to the psychosocial problems experienced by patients. Cancer survivors themselves are major stressors that result in anxiety about functioning, social values, finances, family burdens, and death. In addition, cancer treatment will produce an impact that causes discomfort both physically and psychologically (Pasaribu, 2020) because high mortality rates in cancer cases are often associated with delays in diagnosis. Most patients whose cancer is detected are already at an advanced stage. Cancer cases are usually found at an advanced stage so that the primary cancer detected has spread to other parts of the body (Fibriansari, & Azizah, 2023). Anxiety in cancer patients can have a negative impact on the chemotherapy they undergo as well as their psychological and medical recovery, and this anxiety can also cause patients to stop chemotherapy treatment. One of the emergences of anxiety problems can also be caused by delays in the detection of cancer experienced by patients who have entered an advanced stage. The condition of anxiety experienced by sufferers, if not treated immediately, results in stimulation of the cerebral cortex, which stimulates the feeling of vomiting, resulting in an increase in the feeling of nausea and vomiting in sufferers (Ambarsari & Mustikarani, 2019).

Treatment for cancer patients is not only in the form of pharmacological therapy but also complementary therapy. One of the studies in providing relaxation therapy to cancer patients is effective in reducing the level of pain and anxiety in cancer patients. The relaxation technique starts with not straining the muscles for too long, after which it is gradually stretched from the head to the toes (Natosba et al., 2020). The purpose of this study was to identify progressive muscle relaxation to reduce anxiety in cancer patients.

METHOD

The database used by the author in the literature search comes from studies conducted and published online with the latest research. Authors use Garuda Ristekbrin, PubMed, Google Scholar, and Science Direct searches to find search results that include the author's journal. After filtering, the author examines the contents of the article in accordance with the subject matter and the author's title. Ten journals were selected for review by the authors, 6 of which used a quasi-experiment, 3 used a systematic review, and 1 used a randomized controlled trial.

RESULT

Regarding the statistical test results for ten journals, 100% of the journals showed a significant effect on the interventions carried out, namely Progressive Muscle Relaxation therapy in reducing anxiety in cancer patients with a p-value test result <0.05, which indicates Progressive Muscle Relaxation therapy is effective for cancer patients.
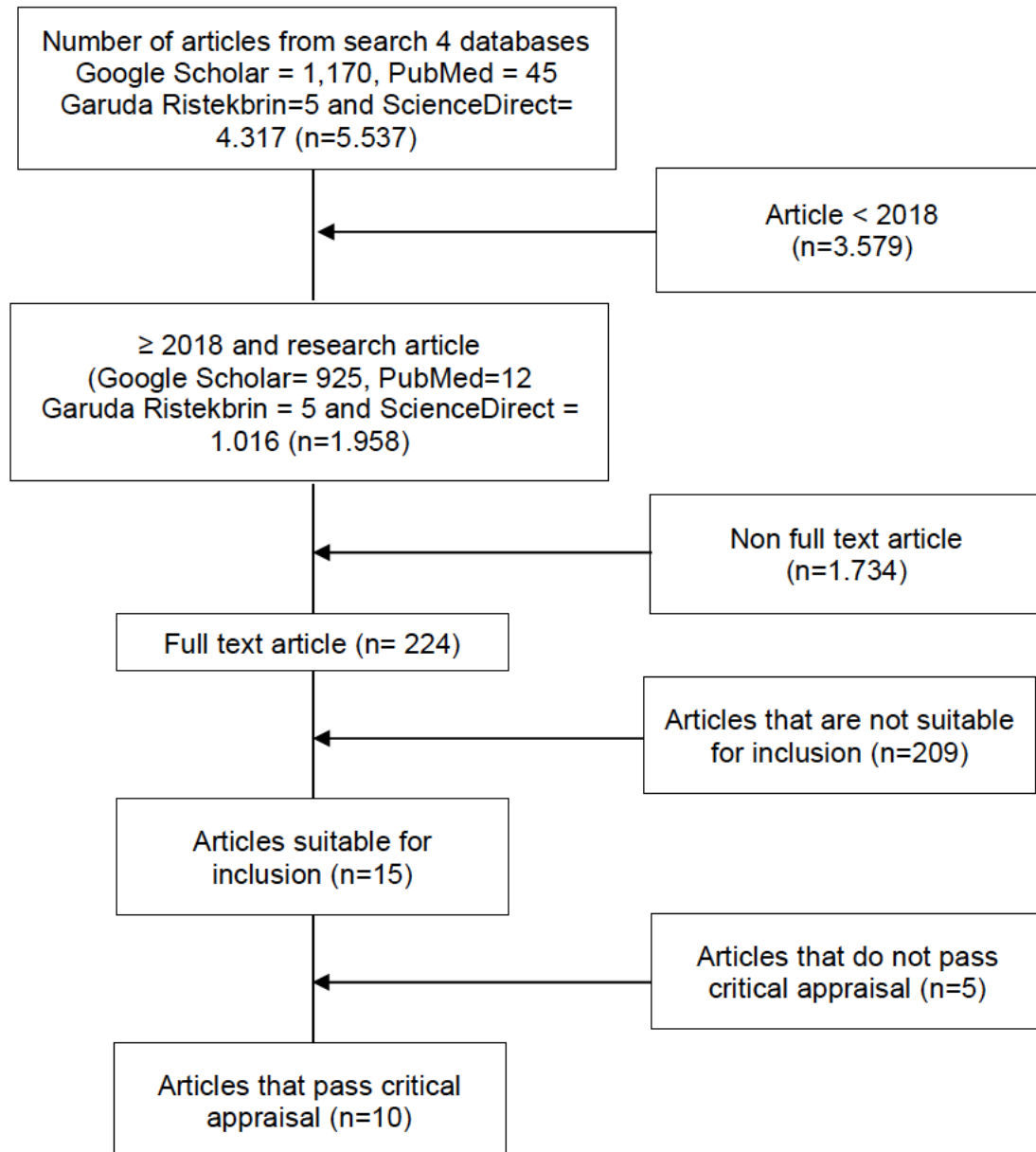
Figure 1. Literature Search Flowchart

RESULT

Table 1. Theoretical Mapping

Author	Title	Design	Sample	Intervention	Result	Research Instrument	Analysis
(Ozhanli & Akyuz, 2022)	The Effect of Progressive Relaxation Exercise on Physiological Parameters, Pain and Anxiety Levels of Patients Undergoing Colorectal Cancer Surgery:	*This study is a randomized controlled study and has been registered at the Clinical Trial Registry Center*	The study was conducted on 63 patients (experimental group = 31, control group = 32), who were scheduled for elective laparoscopic-colorectal surgery in the	The patients in the experimental group were given progressive relaxation exercises for 15 minutes before surgery and on days 1, 2, and 3 postoperatively after breathing exercises. The	The preoperative anxiety level (T1a) of the groups was similar, whereas the anxiety level of postoperative day 3 patients (T3b) in the experimental group was lower compared to the anxiety level of patients in the control group (P = 0.00; P <	STAI (*State-Trait Anxiety Inventory*)	Mann-Whitney U test

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	A Randomized Controlled Study		general surgery clinic of a university hospital in Istanbul between March 2018 and May 2019 and met the inclusion criteria.	routine care and treatment processes of patients in the control group were maintained. The preoperative and postoperative pain and anxiety levels of both groups were evaluated. Blood pressure, heart rate and respiratory rate, oxygen saturation, and serum cortisol levels were measured at certain time intervals before and after relaxation exercises.	0 , 95).		
(Febrianti et al., 2018)	Application of Progressive Muscle Relaxation and Guided Imagery in Overcoming Anxiety Complaints of Cancer Patients Undergoing Chemotherapy	*A Systematic Review*	Journal searches related to topics raised in December 2017 by entering terms or phrases in databases and resources available on the internet. The first major search strategy focuses on the PubMed and Google Scholar databases. Results: The final results of the journal or article selection were obtained and conducted in 14 journals consisting of systematic reviews, RCTs, and quasi-experimental studies.	Progressive muscle relaxation and imagination guide as complementary therapy in dealing with patient complaints after chemotherapy.	This literature study shows that PMR and GI can reduce anxiety in cancer patients undergoing chemotherapy.	-	Journal searches related to topics raised in December 2017 by entering terms or phrases in databases and resources available on the internet.
(Nurkayatun & Fitriyani, 2021)	Progressive Muscles Relaxation (PMR) Against Rate Patient Anxiety Cancer at Halfway House by Samarinda Cancer	*Quasy Experiment*	This study used a system of pre test and post test therapy to see the difference in the anxiety level of cancer patients before and after being given Progressive Muscle Relaxation (PMR) therapy.	Experimental research is research with a treatment or intervention that aims to determine the consequences after an intervention is carried out in one or more groups. Then, the results of the intervention were compared with the group that was not given the intervention/control	(Nurkayatun & Fitriyani, 2021) Progressive Muscles Relaxation (PMR) Against Rate Patient Anxiety Cancer at Halfway House by Samarinda Cancer Quasy Experiment This study used a system of pre test and post test therapy to see the difference in the anxiety level of cancer patients before and after being given Progressive Muscle Relaxation (PMR)	-	Data analysis used the Sample paired T test.

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					therapy. Experimental research is research with a treatment or intervention that aims to determine the consequences after an intervention is carried out in one or more groups. Then, the results of the intervention were compared with the group that was not given the intervention/control March to May 2021 involving 36 cancer patient respondents at the Samarinda City Cancer Shelter. The research was conducted by filling out the cancer patient respondents directly using an anxiety questionnaire sheet on the level of anxiety experienced. - Data analysis using the Simple paired T test.		
(Praptini, Sulistiowati, 2019)	The Effect of Progressive Muscle Relaxation on the Anxiety Level of Chemotherapy Patients at the Denpasar Cancer Hospital	*Quasy Experiment*	The population in this study were all cancer patients who were in halfway houses as many as 22 people. Researchers used non-probability sampling techniques, especially saturated samples or total sampling so that the number of samples was 22 people.	All respondents were given a questionnaire to determine their level of anxiety (pretest). Then the subjects were divided into two groups. The treatment group consisted of 11 people with moderate, severe to very severe (panic) levels of anxiety and the control group numbered 11 people with no anxiety to mild anxiety. The treatment group was given progressive muscle relaxation exercises for 15 minutes which were carried out for three days in the morning and evening. After being given progressive muscle relaxation exercises for three days in the treatment group, the subjects returned to fill out a questionnaire to find out their level	According to the results of the statistical test, the difference in the difference in anxiety levels in the treatment and control groups, the Mann-Whitney U Test, yielded p = 0.002 (p <0.05), which means that Ho was rejected and Ha was accepted. So it can be concluded that there is an effect of progressive muscle relaxation on the anxiety level of chemotherapy patients at the Denpasar Cancer Hospital with a Mean Rank value in the treatment group of 15.68 which is greater than n respondents so that progressive muscle relaxation exercises have a positive response to anxiety levels in the treatment group.	HARS (*Hamilton Anxiety Rating Scale*)	Mann-Whitney U Test

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Author	Title	Design	Sample	Intervention	Result	Research Instrument	Analysis
(Ricky et al., 2018)	The Effectiveness of Progressive Muscle Relaxation Against Anxiety in Breast Cancer Patients Undergoing Chemotherapy	*A Systematic Review*	This study explores quantitative evidence published in electronic databases, such as Pubmed, Google Scholar, and ProQuest. Using electronic publications, we have identified 193 articles of potential interest and relevance while fifteen studies have been included in the final analysis.	After the intervention of progressive muscle relaxation exercises, there was a decrease in anxiety in cancer patients undergoing chemotherapy. This can be seen from the influence on the physical condition of the patient, namely fatigue after the progressive muscle relaxation intervention treatment.	The study demonstrated that there was a significant post-intervention improvement in reducing anxiety in participants who received PMR compared to all control groups.	-	This study explores quantitative evidence published in electronic database
(Rustandi et al., 2018)	The Effect of Progressive Muscle Relaxation Therapy on Anxiety Scores in Lung Ca Patients Undergoing Chemotherapy at the Hospital. Dr. H.A Rotinsulu Bandung City	*Quasy Experiment*	With a quasi-experimental research design with pre and post without control design, this involved 42 respondents who underwent chemotherapy in the Dahlia Room, Dr. H.A Rotinsulu.	By using Consecutive sampling technique. The research questionnaire used the SRAS Anxiety Questionnaire designed by Wiliam WK Zung. Data were analyzed using analysis with the Paired t-test.	The results showed that the average anxiety score before the intervention was given was 66.97 with a standard deviation of 3.57 while the anxiety score after the intervention was given was 47.78 with a standard deviation of 4.98.	SAR-S (*Self-Rating Anxiety Scale*)	Data were collected and analyzed descriptively and inferentially by using a paired t-test with a significance scale of $p < 0.05$
(Saputri et al., 2021)	The Effect of Progressive Muscle Relaxation on Anxiety in Cancer Patients	*Quasy Experiment*	Sampling using consecutive sampling with a sample of 43 respondents.	The instrument used was the STAI questionnaire which consisted of 20 questions.	The results of the Paired t-test showed a P Value of 0.000 with a value of α <0.05, so Ha accepted Ho was rejected, which means that there is an effect of Progressive Muscle Relaxation on the anxiety of cancer patients.	STAI (*State-Trait Anxiety Inventory*)	The data in the study used the data normality test with the provisions using Shapiro Wilk <50 respondents in determining the data analysis test.
(Nainggolan et al., 2020)	Effectiveness of Progressive Muscle Relaxation Training on Reducing Anxiety Primary Caregivers in Children with Leukemia	*Quasy Experiment*	There were four subjects in this study who were primary caregivers and the research instrument used was the Anxiety Scale. There were four research subjects who obtained scores from the Anxiety Scale in the moderate category.	Relaxation therapy is done to reduce the body's stress response so that it becomes relaxed.	The results of this study indicate that routine progressive muscle relaxation training can reduce the anxiety of primary caregivers in children with leukemia.	-	The data analysis technique used in this study was hypothesis testing using visual inspection analysis techniques to see changes in the subject's behavior from time to time.
(Simanullang, 2019)	Effect of Progressive Muscle Relaxation (PMR) on Anxiety in Cancer Patients	*Quasy Experiment*	A sample of 50 respondents with accidental sampling technique.	The research questionnaire uses the Anxiety Questionnaire adopted from HADS. Data will be analyzed using	The results showed that the majority of anxiety before PMR had a moderate level of anxiety and anxiety after PMR the majority had a mild	HADS (*Hospital Anxiety and Depression Scale*)	Univariate Analysis: Univariate analysis used to present the frequency

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	Undergoing Chemotherapy at RSU Martha Friska Brayan Medan			bivariate analysis with t-test.	level of anxiety. There is a difference in the average value of the anxiety level of the respondents before and after implementing PMR, namely from 2.24 to 1.50. with a ρ value of 0.000 (ρ <0.005).		distribution of demographic data. Bivariate analysis was used to examine the effect of the PMR technique on reducing anxiety in cancer patients undergoing chemotherapy. Bivariate analysis in this study included a homogeneity test which was carried out to see the homogeneity of the sample. In this study, the data were normally distributed, so the T-test could be used to test the difference between the two means.
(Yusuf et al., 2021)	The effect of progressive muscle relaxation interventions on depression, stress, anxiety, and quality of life for cancer patients: a systematic review	A Systematic Review	Thirty-four published studies and nine original articles identified as potentially relevant, conducted in the last six years to date (2013 to 2019) with databases at Scopus, Proquest, Google Scholar, Oxford, and Science Direct Searches. Information flow chart from record identification to study inclusion was performed according to PRISMA and extract data with PICOT.	Progressive muscle relaxation intervention is a technique that involves stretching and relaxing muscles continuously and systematically until the whole body is relaxed.	The impact of progressive muscle relaxation interventions persists between seven days and six months after the intervention.	-	-

DISCUSSION

Relaxation has the effect of relaxing the limbs, lightness and feeling warmth spreading throughout the body. The changes that occur during and after relaxation affect the work of the autonomic nerves. The emotional response and calming effect elicited by this relaxation transforms the dominant physiology of the sympathetic system into that of the parasympathetic system (Simanullang, 2019).

Based on the results of a review of 10 articles that have been taken, this progressive muscle relaxation can show results, namely reducing anxiety in cancer patients. Progressive muscle relaxation therapy when given to cancer patients who experience anxiety, this therapy provides a relaxing effect because this relaxation can inhibit feedback pathways which can result in muscle tension sending stimulus to the brain by activating the parasympathetic nervous system and reducing the hypothalamus through focusing on thoughts which aims to strengthen positive attitudes towards stressful stimuli (Saputri et al., 2021).

Based on the statistical test results of 10 journals, 100% of the journals showed a significant effect on the interventions carried out, namely Progressive Muscle Relaxation therapy in reducing anxiety in cancer patients with a p-value test result of <0.05 which indicates that Progressive Muscle Relaxation therapy is effective for cancer patients. The treatment group was given progressive muscle relaxation exercises for 15 minutes, carried out for three days in the morning and evening (Praptini, Sulistiowati, 2019). After being given progressive muscle relaxation exercises for three days in the treatment group, the subjects returned to fill out a questionnaire to determine their level of anxiety (posttest). The same thing was done in the control group which was not given progressive muscle relaxation exercises to determine the level of anxiety after three days (posttest). From the results of statistical tests, the value of p = 0.002 was obtained, which means that progressive muscle relaxation affects anxiety levels (Praptini, Sulistiowati, 2019).

Based on these results, it was found that all articles had a P Value <0.05, which means that progressive muscle relaxation affects reducing anxiety in cancer patients. This is in accordance with the results of the Paired t-test showing a P Value of 0.000 with a value of α <0.05 then Ha is accepted by Ho being rejected which means there is an influence of the intervention carried out (Saputri et al., 2021).

CONCLUSION

Based on a literature review study conducted, the application of progressive muscle relaxation therapy has been proven to be effective in reducing anxiety in cancer sufferers. Progressive Muscle Relaxation Therapy can be used as a treatment intervention for psychosocial anxiety problems, especially in cancer sufferers.

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