



The effectiveness of technical guided imagery on pain intensity decreasing in breast cancer patients[☆]



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Abstract

Objective: This aim of the study was to determine the effectiveness of guided imagery techniques to decrease pain intensity in patients with breast cancer.

Method: This was a quantitative research with a quasi-experimental design with a total sampling of all breast cancer patients who experience pain in ambulatory surgery in the treatment room and the chemo room using Numeric Rating Scale (NRS) and the guided imagery as an intervention.

Results: The results indicated guided imagery for pain intensity reduction was ($p=0.000$), pulse rate ($p=0.005$), and systolic blood pressure ($p=0.000$). Spearman correlation test indicated a change in pain intensity with changes in pulse rate ($p=0.029$, $r=0.445$), change in pain intensity of the systolic blood pressure ($p=0.006$, $r=0.544$), and changes in the pulse of the systolic blood pressure ($p=0.000$, $r=0.809$).

Conclusion: This study indicates a reduction of the pain after being carried out guided imagery technique compared to the control.

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Introduction

Breast cancer is a non-communicable disease and a health problem in the world seen from its incidence, prevalence, and increasing morbidity and is the leading cause of death in women.¹ Estimated percentage of new cases and cancer deaths in the world based on GLOBOCAN International Agency for Research on Cancer (IARC) in 2018 that breast cancer occupies the highest new case presentation

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of 11.6% and the percentage of breast cancer deaths is 6.6%.² Data in Indonesia breast cancer is equal to 42.1 per 100,000 population with an average mortality of 17 per 100,000 population.³ Besides causing death, breast cancer has an unpleasant effect on the patient, one of which is pain.⁴

Pain felt by cancer patients can affect several aspects such as work, social relations, and general activities commonly carried out by patients.⁵ Also, some patients mention the effects of breast cancer, such as emotional stress, anxiety, and depression.⁶ Therefore, to overcome the effect is needed by the role of nurses professionally in helping patients.⁷ One of them is by doing pain management using guided imagination or Guided Imagery (Williams and Hopper, 2007).⁸ Guided imagery is part of Complementary and Alternative Medicine,⁹ which teaches individuals to use their imagination to influence physiological and psychological conditions.¹⁰ Imagine in a specific environment or situation can activate the senses, produce physical or psychological effects.¹¹

Some studies mention the effectiveness of Guided Imagery for dealing with pain, among others, in Fibromyalgia patients who combine Guided Imagery with muscle relaxation.¹² Other reviews mention the effectiveness of Guided Imagery combined with acupuncture and reflexology in patients who will undergo surgery (perioperative) that causes symptoms such as pain, nausea and anxiety,⁹ and in pediatric patients who experience pain and anxiety before surgery.¹³ Seeing the benefits of several Guided Imagery studies on reducing pain and the magnitude of pain problems in cancer patients, the purpose of this study was to see the effectiveness of Guided Imagery to reduce pain intensity in breast cancer patients.

Method

This study used a Quasi-Experimental type of two group pretest and posttest design with the control group. The population in this study were breast cancer patients who experienced pain who received treatment in the Oncology surgery room and Chemotherapy room. The sample used in this study were all breast cancer patients who felt pain with a sample of 24 people (12 treatments and 12 controls). The sampling technique in this study was carried out with total sampling techniques. Data were obtained using a pain assessment tool, the Numeric Rating Scale (NRS) with a range of pain scale measurements of 0–10. The procedure for collecting data included administrative and technical procedures. Data analysis was carried out using the SPSS program and statistical tests using the Mann–Whitney statistical test with a significant value of $p < 0.05$. Patients and families received an explanation of the objectives and methods of the study before signing informed consent. Research permission was obtained from the research ethics commission (Nomor: 901/H4.8.4.5.31/PP36-KOMETIK/2016), Faculty of Medicine, Hasanuddin University.

Results

Based on education, mainly participants graduated from high school ($n = 11, 45.8\%$), with age group dominant adult

Table 1 Characteristics of participants between the intervention and control group.

Characteristics	Group				Total	
	Intervention		Control		n	%
	n	%	n	%		
<i>Education</i>						
Uneducated	1	8.3	0	0	1	4.2
Elementary school	2	16.7	0	0	2	8.3
Junior high school	1	8.3	1	8.3	2	8.3
Senior high school	4	33.3	7	58.3	11	45.8
Undergraduate	4	33.3	4	33.3	8	33.4
<i>Age group</i>						
Adult	9	75	8	66.7	17	70.8
Elderly	3	25	4	33.3	7	29.2
<i>Pain experience</i>						
Ever	5	41.7	8	66.7	13	54.2
Never	7	58.3	4	33.3	11	45.8

Table 2 Effect guided imagery between intervention and control group.

Variable	Group	
	Intervention	Control
<i>Pain intensity</i>		
Pre	6.00 (0.95)	5.58 (1.08)
Post	4.83 (1.40)	5.83 (1.12)
Difference	1.17 (0.71)	−0.25 (0.45)
<i>Pain duration</i>		
Pre	1.50 (0.67)	1.25 (0.45)
Post	1.25 (0.62)	1.25 (0.45)
Difference	0.25 (0.45)	0.00 (0.00)
<i>Pulse</i>		
Pre	83.75 (3.30)	86.50 (3.83)
Post	80.08 (1.73)	86.92 (4.08)
Difference	3.67 (2.64)	−0.42 (3.75)
<i>Blood pressure (systolic)</i>		
Pre	133.33 (7.78)	138.33 (8.35)
Post	124.17 (6.68)	137.50 (8.6)
Difference	9.17 (2.88)	0.83 (2.88)
<i>Blood pressure (diastolic)</i>		
Pre	80.83 (2.88)	84.17 (9.00)
Post	76.67 (7.78)	82.50 (9.65)
Difference	4.17 (7.93)	0.83 (2.88)

($n = 17, 70.8\%$). More than half of the participants have experience pain previously ($n = 13, 54.2\%$) (Table 1).

Regarding to within group comparison, after intervention of guided imagery, there is positive reduction of pain intensity (mean difference: 1.17 ± 0.71), pain duration (mean difference: 0.25 ± 0.45), pulse (mean difference: 3.67 ± 0.64 bpm), Systolic blood pressure (mean difference: 9.17 ± 2.88 mmHg), and Diastolic blood pressure (mean difference: 4.17 ± 7.93 mmHg) (Table 2).

Table 3 Effect of guided imagery against pain, pulse, and blood pressure.

Group	N	Mean (SD)	Mean Difference (SD)	p
<i>Pain intensity</i>				
Intervention	12	1.17 (0.72)	1.41 (0.24)	0.000
Control	12	-0.25 (0.45)		
<i>Pain duration</i>				
Intervention	12	0.25 (0.45)	0.25 (0.131)	0.069
Control	12	0.0 (0.0)		
<i>Pulse</i>				
Intervention	12	3.67 (2.64)	4.08 (1.32)	0.005
Control	12	-0.42 (3.75)		
<i>Blood pressure (systolic)</i>				
Intervention	12	9.17 (2.88)	8.33 (1.71)	0.000
Control	12	0.83 (2.88)		
<i>Blood pressure (diastolic)</i>				
Intervention	12	4.17 (7.93)	3.33 (2.43)	0.185
Control	12	0.83 (2.88)		

Table 4 Correlation between pain against pulses and blood pressure.

Correlation variable	p	r
Reduction pain-pulses	0.029	0.445
Reduction pain-blood pressure (systolic)	0.006	0.544
Reduction pain TD-blood pressure (systolic)	0.000	0.809

^aSpearman correlation.

The mean pain intensity in the treatment group was 1.17 (+0.72) and -0.25 (+0.45) in control group with mean difference of 1.41 (+0.24) ($p=0.000$), while mean pain duration in the treatment group was 0.25 (+0.45) and the control group 0.0 (+0.0) with mean difference of 0.25 (+0.13) ($p=0.069$). Regarding to pulse rate, in the treatment group mean pulse was 3.67 (+2.64) bpm and the control group -0.42 (+3.75) bpm with an average difference of 4.08 (+1.32) bpm ($p=0.005$). Reduction found in systolic blood pressure in the treatment group with a mean 9.17 (+2.88) mmHg and the control group 0.83 (+2.88) mmHg with an average difference of 8.33 (+1.71) mmHg ($p=0.000$). Similar reduction found in diastolic blood pressure in the treatment group averaged 4.17 (+7.93) mmHg and the control group 0.83 (+2.88) mmHg with an average difference of 3.33 (+2.43) mmHg ($p=0.185$) (Table 3).

We also evaluate the correlation between pain against pulses and blood pressure. Correlation between reduction pain and pulses ($r: 0.445$, $p: 0.029$), pain and systolic blood pressure ($r: 0.544$, $p: 0.006$, and pain and diastolic blood pressure ($r: 0.809$, $p: 0.000$) (Table 4).

Discussion

The results of this study indicate that guided imagery affects decreasing the patient's pain intensity. Besides that, it also helps reduce the pulse and systolic BP. This is supported

by one of the previous studies using guided imagery techniques to reduce pain levels in caesarian section patients.¹⁴ Guided imagery creates interactions between body and mind, targeting conditions to be relaxed, such as relieving pain.¹⁵ Guided imagery affects the body's autonomic balance by refocusing the mind, resulting in physiological relaxation by decreasing the sympathetic nervous system response and increasing parasympathetic responses through neurochemical and peptide changes.¹⁶ Other studies that are in line are the studies of¹⁷ who gave guided imagery therapy to cancer patients one hour before chemotherapy and continued at home for 20 minutes per session within seven days. Guided imagery used for healing often includes actual content from images that provide a better feeling or comfort.¹⁶

The results of the study for the patient's pain duration were found to have no statistical effect; this is because pain experienced in cancer patients is neuropathic pain which is a pain that arises due to lesions or diseases that affect the somatosensory system.¹⁸ The primary mechanism states that the relaxation response obtained by patients can reduce blood pressure, inhibit direct activation of the sympathetic nervous system through nerve responses, increase the stimulation of the parasympathetic nervous system, or both. These changes can subsequently result in a decrease in heart rate and contractility (cardiac output), increased relaxation of blood vessels (peripheral systemic vascular resistance), or both, potentially reducing blood pressure.¹⁵

Guided imagery has been given to heart patients who will undergo the catheterization process, and the results show a decrease in blood pressure in patients.¹⁹ Therefore guided imagery can be used as one of the strategies in nursing interventions that are part of complementary nursing; besides this therapy also contribute and promote more effective ways of carrying out nursing actions.²⁰

Conclusion

This study indicates a reduction of the pain after being carried out guided imagery technique compared to the control. Changes in the level of pain after a guided imagery technique affects the pulse and blood pressure, which shows different results before and after the application of guided imagery.

Conflict of interest

The authors declare no conflict of interest.

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