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Effects of Spiritual Guided Imagery and Music on Hemodynamic Status of Cancer Patients Undergoing Chemotherapy

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A B S T R A C T

Spiritual Guided Imagery and Music (SGIM) is a Mind, Body, and Spirit therapy that has been used for several years in nursing for the management of anxiety of patients with cancer. This study aimed to investigate the effects of SGIM on the hemodynamic status of cancer patients undergoing chemotherapy. The study was a quasi-experimental study, with 30 patients who received SGIM therapy and 30 as a control group. The hemodynamic status measured in this study consisted of Blood Pressure (BP), heart rate, respiratory rate, and oxygen saturation. Hemodynamic status was measured 3 times: 1 day and 30 minutes before chemotherapy and 1 day after chemotherapy. Data were analyzed by GLM repeated-measures test with SPSS 21. The analysis of the GLM repeated measure test has a known p-value <0.05 for systolic and diastolic BP, Mean Arterial Pressure, and heart rate, whilst the effects of SGIM on respiratory rate and oxygen saturation there was no significant difference between the two groups but still in the normal range. SGIM Therapy can improve the hemodynamic status of cancer patients undergoing chemotherapy. this therapy can be applied as one of the complementary therapies for cancer patients undergoing chemotherapy.

Kata kunci:

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A B S T R A K

Spiritual Guided Imagery and Music (SGIM) adalah mind, body dan spirit terapi yang telah digunakan selama beberapa tahun dalam keperawata, untuk mengatasi kecemasan pasien kanker. Penelitian ini bertujuan untuk mengetahui pengaruh SGIM terhadap status hemodinamik pasien kanker selama menjalani kemoterapi. Penelitian ini merupakan penelitian eksperimen semu, dengan 30 pasien yang mendapat terapi SGIM dan 30 sebagai kelompok kontrol. Status hemodinamik yang diukur dalam penelitian ini terdiri dari Tekanan Darah (BP), denyut jantung, laju pernapasan, dan saturasi oksigen. Status hemodinamik diukur 3 kali: 1 hari dan 30 menit sebelum kemoterapi dan 1 hari setelah kemoterapi. Data dianalisis dengan menggunakan uji GLM repeated measure dengan bantuan SPSS 21. Analisis uji GLM repeated measure diketahui p-value <0,05 untuk TD sistolik dan diastolik, Mean Arterial Pressure, dan denyut jantung, sedangkan efek SGIM pada laju pernapasan dan saturasi oksigen tidak ada perbedaan yang signifikan antara kedua kelompok, tetapi masih dalam kisaran normal. Terapi SGIM dapat memperbaiki status hemodinamik pasien kanker yang menjalani kemoterapi. Terapi ini dapat diterapkan sebagai salah satu terapi komplementer bagi pasien kanker yang menjalani kemoterapi.

INTRODUCTION

Cancer is still a major health problem in the world and becomes the number two cause of death after heart disease and blood vessels. As many as 9.6 million people died from cancer in 2018 and an estimated 1 of 6 deaths was caused by cancer (American Cancer Society, 2015; World Health Organization, 2018).

The increase in cancer cases in Indonesia slowly began to shift the position of a heart attack as the cause of death. The reports of Basic Health Research (2018) showed that the prevalence of cancer amounted to 1.4 to 1.8 per 1,000 population from 2013 to 2018. The prevalence of cancer in the NTT province (1.0%) was lower than the national rate (Ministry of Health RI, 2013).

The main management of cancer reported 24% resolved by using chemotherapy (Ministry of Health RI, 2015). Chemotherapy is a type of cancer treatment that uses drugs to destroy cancer cells. Cancer patients receiving chemotherapy can lead to symptoms of anxiety and depression and worsen during chemotherapy. These symptoms are very damaging. The effect not only on the quality of life, but also on many important things (Yusof, Nadzirah, Keterina, & Dasiman, 2016; Morgan et al., 2017).

The side effects of chemotherapy on the physical problems caused nausea and vomiting, decreased appetite, hair loss, bone marrow damage, neuropathy, gastrointestinal disorders weak and damaged skin (Chan & Ismail 2014; Lorusso et al. 2016). This condition can cause hemodynamic instability. Hemodynamic is a situation where pressure and blood flow to maintain perfusion or substance exchange in the tissue. Hemodynamic Monitoring aims to identify and evaluate the hemodynamic physiological changes at the right time so that immediate corrective therapy. Monitoring Full include: ECG, heart rate, arterial blood pressure, central venous pressure, wedge pressure pulmonary capillary wedge pressure of oxygen and carbon dioxide arterial acid-base status, of urine, measurement of cardiac output, the temperature of the central and peripheral, potassium serum and balance blood. (Smeltzer et al. 2013).

Research by (Ueda & Saeki, 2019) about total hemoglobin concentration and oxygen saturation of breast cancer patients who received neoadjuvant chemotherapy known to a decline in average total hemoglobin and oxygen saturation from the first day to the third day. Then Oreto et al., (2012) & Bloom et al., (2016) explain that chemotherapy-induced cardiotoxicity is a side effect of chemotherapy that affects the heart. These conditions led to a decrease in ventricular filling that affects the patient's blood pressure. This happens because cytotoxic cancer therapies including chemotherapy molecular targets that could cause myocyte damage, left ventricular dysfunction, heart failure, thrombogenesis, pericardial pathology, hypertension, ischemia, conduction and rhythm disorders, as well as vasospasm.

Sana, et al. (2016) explains the chemotherapy makes most of the patients who have been diagnosed with cancer overcome with worry, anxiety, and fear to face the threat of death and pain during therapy. Anxiety is stressors that can affect hemodynamic status. Hemodynamic monitoring is used to identify the deviation of the hemodynamic and to assess the response or the effect of the therapy. The basis of hemodynamic monitoring is adequate tissue perfusion (Jevons, Ewens, & Pooni, 2009)

Hemodynamic monitoring consists of two parts, namely invasive and non-invasive. Non-invasive hemodynamic monitoring is the examination that includes blood pressure, heart rate, and respiration, whereas invasive hemodynamic monitoring using the CVP (Central Venous Pressure), IAP (Invasive Atrial Pressure), and PAC (Pulmonary Artery Catheter) (Woods, Froelicher, Motzer, & Bridges, 2010).

Based on preliminary studies carried out in July 2018 is known of the 108 cancer patients undergoing chemotherapy in hospitals Prof. Dr. WZ Johannes Kupang in May 2018 to July 2018 that most types of cancer are breast cancer as many as 60 deaths, and subsequent ovarian cancer as much as 10 deaths, 15 deaths of cervical cancer and the rest are in other cancer types (Medical Record, 2018). Based on interviews with the head of the room chemotherapy known each month there are 3 to 4 people who did not complete undergoing chemotherapy. Some things cause these problems to occur among patients not able to withstand the rigors of chemotherapy side effects, despair and fear of the shadow of death there is even a depression.

Various studies have been done to address the psychological and physical complaints as a result of chemotherapy, including cognitive-behavioral therapy, mindfulness meditation, relaxation progressive, guided imagery, and music therapy. Among these approaches, music and guided imagery intervention are highly recommended (Wang, Zhang, Fan, Tan, & Lei, 2018; Nuwa, 2018).

Spiritual Guided imagery and music (SGIM) is a non-pharmacological therapy that involves aspects of mind-body and spirit with a spiritual motivation and listens to music that fits Currently spiritual aspect is that continues to be a concern in the treatment of cancer patients. Spirituality is the humanitarian aspect which refers to the way people find and express the meaning and purpose and how they establish their current relationship, for themselves, others, to nature, and things that are important or sacred (Puchalski et al., 2009; Setiadi & Irawandi, 2017).

The effectiveness of music therapy and guided imagery has been widely reported separately. According to Bhanu (2016) GIM has the effect of physical, psychological, social, and spiritual support that can improve cancer patient care. GIM can improve mood and increase the quality of life of cancer patients. A systematic review of the physical and psychological effects of music therapy in cancer patients is known that music therapy can lessen anxiety and improve mood in patients with cancer, in addition to music therapy are also able to improve the patient's blood pressure, stabilize the heart rate and respiratory rate (Wang, Zhang, Fan Tan, and Lei, 2018; Nuwa, 2018), This study aimed to investigate the effects of SGIM on the hemodynamic status of cancer patients undergoing chemotherapy.

METHOD

Research Design

This research is a Quasi-experiment to draft one group pre and post-test with control group design where there is an intervention group that received therapy SGIM in the form of MP3 recordings and also guidance and explanation of the procedure of chemotherapy and motivation by nurses, while the control group is a group that just getting a briefing and explanation of chemotherapy procedures and motivation by nurses before the patient undergoing chemotherapy. Briefing and explanation of chemotherapy is the standard treatment of the nurses were in the hospital's chemotherapy unit of General Hospital of Prof. Dr. W.Z. Johannes Kupang.

Sampling

A total of 60 respondents involved in this study were divided into 30 treatment groups and 30 control groups with a purposive sampling technique. Purposive sampling is a technique determination of sample by choosing a sample among the population according to the desired researchers so that these samples can represent the characteristics of the previously known populations (Boswell, C., & Cannon, S..2020)

The samples were selected by the inclusion criteria as follows: (1) Patients aged 17-65 years old who have not experienced anxiety and hypertension (2) Never get *guided imagery* therapy and music therapy. While the selected exclusion criteria in determining the sample are (1) Experiencing multiple comorbid diseases (2) Having a hearing loss.

Procedure

This study protocol has been passed the test of health research ethics at the Health Research Ethics Committee of the Faculty of Nursing, the University of Airlangga with the number 1386-KEPK. Data collection is conducted by five people enumerators who have done the same perception regarding the study. Data were collected during May-July 2019 in the Chemotherapy Inpatient room of the General Hospital of Prof. Dr. WZ Johannes Kupang. The demographic data were collected through questionnaires while the clinical data were collected through the medical records of patients. The total time required in obtaining data from the pre-test intervention and post-test before the patient conduct chemotherapy is for 3 days subsequent stages of data collection are as follows:

Conducting pre-test scores hemodynamic status consisting of blood pressure (BP), heart rate, respiratory rate, and saturation oxygen in each group. The pre-test takes about 30 minutes and is performed one day before chemotherapy, subsequent awarding the SGIM treatment group and the control group. In the treatment group, before listening to the recording SGIM patients get guidance and explanation of the procedure of chemotherapy and motivation of nurses for 30 minutes, then the patient is given MP3 recordings containing therapy SGIM according to their respective religions with a dose 2 times per day, at 10 am and at 10 the night before bed to be heard before chemotherapy.

In conducting the intervention in both groups arranged so that the two groups did not meet each other to prevent bias that is by namely by placing the treatment group in a different room from the control group. 30 minutes before chemotherapy group SGIM listens again recording, while the control group was given the motivation of preparation for chemotherapy. Post-test conducted one day after chemotherapy. Scores repeated measurements of blood pressure, heart rate, respiratory rate, and oxygen saturation in both groups using the same instrument.

Measuring Instrument

This study uses a measuring instrument that is standard and has proven its validity and reliability. Blood pressure and heart rate using digital sphygmomanometer of Omron 8712, and oxygen saturation using pulse measuring instrument oximetry Choicemmed MD300C20 SGIM Oximeter and recording media stored in MP3

Data Analysis

Categorical data (demographic and clinical data) is presented in the form of numbers and presentations while hemodynamic status (Blood pressure, heart rate, respiratory rate, and saturation oxygen) patients are presented in the form of the average count. Analysis of the General Linear Model (GLM) repeated measures used to answer the purposes of this study. The analysis is said to be significant if the *p-value* <0.005, which shows the influence of the Status SGIM hemodynamic (blood pressure, heart rate, respiratory rate, and saturation oxygen) cancer patients undergoing chemotherapy, with the help of IBM software 21

RESULT AND DISCUSSION

Demographic and Clinical Characteristics of Patients

A total of 60 cancer patients involved in this study consisted of 30 groups SGIM and 30 controls. Table 1 and Table 2 illustrate a summary of demographic data, while Table 3 is the clinical data of patients.

Table 1.
Summary of age data of cancer patients who undergoing chemotherapy in the chemotherapy unit room of General Hospital of W.Z. Johannes Kupang in May-July 2019

SGIM (n=30)		Control (n=30)	
Mean ±SD	**Min-Max**	**Mean** ± SD	**Min-Max**
50,00 ±7.479	(36-69)	52,80 ±9.68	36-69
Total Mean ±SD age (51,40±8,69)			

Source: primary data

Table 1 shows the age of the patient is at the age of 50 years with a minimum age of 36 and the oldest was 69 years old. Based on the criteria set by the Ministry of Health (2009), the average age of patients undergoing chemotherapy in both groups is in the early elderly age.

Table 2 known to most of the respondents were female with a patient number of women more than men (83% vs. 17%) in the treatment group and (80% vs. 20%) in the control group. In general, work as a housewife (46.7%) with the most basic education and over 75% in general already married.

Table 3 shows that most patients suffering from breast cancer by 50%. On average, patients who undergo chemotherapy are already suffering from advanced cancer in stage III and IV with experience following the first chemotherapy session 1 63.3% in the treatment group vs 66.7% in the control group. Most are known to have cancer for more than 1 year with the main treatment being chemotherapy.

Hemodynamic status

The hemodynamic status was measured in this study is the systolic BP, diastolic BP Mean Arterial Pressure (MAP) heart rate, respiratory rate, and oxygen saturation (SO2). Hemodynamic status is measured as much as 3 times that first day and 30 minutes before chemotherapy and one day after chemotherapy. Summary of Pre-test results can be seen in Table 4 and the post-test in table 5, while the analysis of the difference in Table 6.

Table 2.
Frequency Distribution of Gender, Religion, and Education Level of Cancer Patients Undergoing Chemotherapy in The Chemotherapy Unit Room of General Hospital of W.Z. Johannes Kupang in May-July 2019

Characteristics	SGIM (n = 30)		Controls (n= 30)	
	f	%	f	%
Gender				
Male	5	16,7	6	20
Female	25	83,3	24	80
Marital status				
Single	3	10	3	10
Married	23	76,7	24	80
Widow/ widower	4	13,3	3	10
Religion	4	13,3		
Islam			3	10
Catholic	8	26,7	9	30
Protestant	18	60	18	60
Education Level				
Basic	17	56,7	18	60
Secondary	10	33,3	9	30
High	3	10	3	10
Occupation				
Civil Servants	4	13,3	3	10
Housewife	14	46,7	14	46,7
Farmer	6	20	7	23,3
Private	6	20	6	20

Source: primary data

Table 3
The Frequency Distribution of Clinical The Characteristics of Cancer Patients Who undergoing Chemotherapy in The Chemotherapy Room Unit of General Hospital of W.Z. Johannes Kupang in May-July 2019

Clinical characteristic	SGIM (N = 30)		Controls (n = 30)	
	f	%	f	%
Cancer types				
Lymphoma Nonhodkin	2	6,7	1	3,3
Nasopharyngeal cancer	2	6,7	2	6,7
SCC gingival	2	6,7	2	6,7
Ca parotid	1	3,3	1	3,3
Cervical cancer	4	13,3	5	16
Ovarian cancer	2	6,7	2	6,7
Breast cancer	15	50	15	50
Osteosarcoma	1	3,3	1	3,3
Penis cancer	1	3,3	1	3,3
Cancer stage				
Stage I	2	6,7	3	10
Stage II	7	23,3	8	26,7
Stage III	16	53,3	15	50
Stage IV	5	16,7	4	13,3
Early Diagnosis of Cancer				
<1 year	11	36,7	10	33,3
> 1 year	19	63,3	20	66,7
Chemotherapy session				
1 Session	19	63,3	20	66,7
> 1 Session	11	36,7	10	33,3
Another addition to the treatment of Chemotherapy				
Available	5	16,7	4	13,3
Not available	25	83,3	26	86,7

Source: primary data

Table 4
Frequency Distribution of Pre-test Status Score on the hemodynamic status of cancer patients who cundergoing chemotherapy in the chemotherapy unit room of General Hospital of W.Z. Johannes Kupang in May-July 2019

Hemodynamic status	Group	n	Mean	SD	Min-Max	Normality (P-value)
Systolic BP	Treatment	30	135,80	9,14	122-170	0,66
	Control	30	136,20	7,08	118-152	0,27
	Total	**60**	**136**	**8,11**	**118-170**	
Homogeneity (p=0,41)						
Diastolic BP	Treatment	30	88,63	6,43	70-100	0,38
	Control	30	87,63	6,12	78-98	0,74
	Total	**60**	**88,13**	**6,28**	**78-100**	
Homogeneity (p=0,58)						
mean Arterial	Treatment	30	104,35	6,32	95-113	0,82
pressure	Control	30	103,82	5,37	88-123	0,55
(FOLDER)	**Total**	**60**	**104,09**	**5,82**	**88-123**	
Homogeneity (p=0,82)						
Heart Rate (HR)	Treatment	30	92,07	11,87	74-177	0,91
	Control	30	94,40	10,12	75-116	0,42
	Total	**60**	**93,23**	**10,99**	**74-177**	
Homogeneity (p=0,22)						
Respiratory rate (RR)	Treatment	30	16,07	2,16	12-20	0,55
	Control	30	15,73	1,66	12-19	0,17
	Total	**60**	**15,90**	**1,92**	**12-20**	
Homogeneity (p=0,298)						
Oxygen saturation	Treatment	30	96,17	1,05	95-98	0,18
(SPO_2)	Control	30	96,20	0,96	95-98	0,12
	Total	**60**	**96,18**	**1,00**	**95-98**	
Homogeneity (p = 0,521)						

Source Primary data

The results of Research in Table 4 show score hemodynamic status of cancer patients undergoing chemotherapy have a normal distribution and homogenous data between the treatment group and the control group with a *p-value* > 0,05. This means that there is no significant difference in the average value of pre-test hemodynamic status (systolic blood pressure, diastolic blood pressure, MAP, heart rate, respiratory rate, and oxygen saturation) between the treatment groups with the control group.

Table 5
Hemodynamic Status Score after being given SGIM in Cancer Patients Undergoing Chemotherapy in the chemotherapy unit room of General Hospital of WZ Johannes Kupang in May-July 2019

Hemodynamic status	Measurement		Group n = 30	Mean	SD	Min-Max	95% CI
systolic BP	30 Minutes chemotherapy	Pre-	Treatment	126,57	6,5	117-135	124,12-129,01
			Control	133,53	6,42	120-145	131,14-135,93
	Post Test		Treatment	120,57	7,45	110-135	117,78-123,35
			Control	129,97	7,08	110-145	127,32-132,61
Diastolic BP	30 Minutes chemotherapy	Pre-	Treatment	76,43	5,39	70-87	74,42-78.45
			Control	85,53	7,32	70-95	82,80-88,27
	Post Test		Treatment	72,47	5,66	64-87	70,35-74,58
			Control	80,43	7,23	70-98	77,73-83,14
MAP	30 Minutes chemotherapy	Pre-	Treatment	93,16	4,34	87-100	91,54-94,77
			Control	101,53	5,25	97-111	99,57 -103,49
	Post Test		Treatment	88,49	5,00	83-98	86,63-90,36
			Control	96,95	5,99	87-109	94,71-99,18
Heart rate	30 Minutes chemotherapy	Pre-	Treatment	81,30	8,45	68-98	78,14 -84,46
			Control	87,40	8,68	67-100	84,16-90,64
	Post Test		Treatment	80,23	4,92	68-88	78,39-82,07
			Control	78,40	5,16	67-88	77,07-79,73
Respiratory rate	30 Minutes chemotherapy	Pre-	Treatment	15,73	1,36	12-18	15,22 – 15,18
			Control	15,40	1,13	12-18	14.98 – 15,82
	Post Test		Treatment	15,73	1,51	12-18	15:17 – 16,30
			Control	15,83	1,21	14-18	15,38-16,28
SPO_2	30 Minutes		Treatment	97,10	0,66	96-98	96.85 -97,35
			Control	97,20	0,65	96-99	97,03-97,37
	Post Test chemotherapy	Pre-	Treatment	97,47	0,68	96-99	97,21-97,72
			Control	97,23	0,67	96-98	96,98 -97,49

Source: Primary data

Measurement of hemodynamic status scores in the intervention phase was conducted to determine the changes that occur as a result of the interventions on the mean value of the hemodynamic status group 30 minutes before chemotherapy and one day after chemotherapy, The survey results revealed that a decline in the average tatus hemodynamics in systolic BP, diastolic BP MAP, and heart rate, while the average scores for the respiratory frequency and SPO_2 not much different from the situation before the given intervention. Nevertheless, the value is still within the normal range. Repair hemodynamic status (Systolic BP, diastolic BP, MAP, and heart rate) higher in the treatment group than in the control group at each measurement time.

Table 6 is known Analysis GLM repeated measure shows the *p-value* <0.05 on the measurement of systolic BP, diastolic BP, and MAP. The results of this analysis showed that in general, SGIM therapy has a significant influence on the improvement of systolic BP, diastolic BP, and MAP at each measurement. The table also notes there is no significant difference in the improvement of respiratory rate, heart rate, and SPO2 between treatment and control groups at each measurement. However, the independent T-test on the heart rate variable, which showed a significant difference in heart rate between the treatment group and the control group, was measured 30 minutes before chemotherapy and 1 day after chemotherapy. The results of this analysis showed SGIM affects changes in blood pressure and heart rate of respondents in the intervention group when compared with the control group. The results of the analysis also showed a substantial contribution of SGIM effect for systolic BP (39%), diastolic BP (36%), and MAP (46%), while for the heart rate, respiratory rate, and oxygen saturation of less than 5%.

Table 6.
Analysis of Differences in the Effect of SGIM on Hemodynamic Status of Cancer Patients Undergoing Chemotherapy in the chemotherapy unit room of General Hospital of WZ Johannes Kupang in May-July 2019

Variables	Time	Group	n	mean	SD	95% CI	p-Value
		Treatment	30	135,80	9,14	-4,63-3,83	0,85
	Pre Test	Control	30	136,20	7,08		
		Mean difference		**3,83**			
	30 Minutes pre	Treatment	30	126,5	6,55		
Systolic BP	Chemotherapy	Control	30	133,5	6,42	-10,32- (-3,61)	0,001
		Mean difference		**6,97**			

Variables	Time	Group	n	mean	SD	95% CI	p-Value
	Post Test	Treatment	30	120,57	7,45	-13,17 - (- 6,64)	0,001
		Control	30	129,97	7,08		
		Mean difference		**9,40**			
Test of GLM repeated measure							0,001
Tests of Within-Subjects Effects							0,001
Partial eta square							0,39
		Treatment	30	88,63	6,43	-2,263-4,25	0,613
	Pre Test	Control	30	87,63	6,19		
		Mean difference		**1,00**			
	30 Minutes pre	Treatment	30	76,43	5,39	-12,42-(-5,78)	0,001
	Chemotherapy	Control	30	8,.53	7,32		
Diastolic BP		**Mean difference**		**1.66**			
	Post Test	Treatment	30	72,47	5,66	-11,33-(-4,61)	0,001
		Control	30	80,43	7,25		
		Mean difference		**7,96**			
Test of GLM repeated measure							0,001
Tests of Within-Subjects Effects							0,001
Partial eta square							0,36
		Treatment	30	104,35	6,32	-2,50-3,56	0,729
	Pre Test	Control	30	103,82	5,37		
MAP		**Mean difference**		**0,528**			
	30 Minutes pre	Treatment	30	93,16	4,33	-10,86-(-5,88)	0,001
	Chemotherapy	Control	30	101,53	5,25		
		Mean difference		**8,37**			
	Post Test	Treatment	30	88,49	5,00	-11,304-(-5,60)	0,001
		Control	30	96,95	5,98		
		Mean difference		**8,45**			
Test of GLM repeated measure							0,001
Test of Within-Subjects Effects							0,001
Partial eta square							0,46
		Treatment	30	92,07	11,87		
	Pre Test	Control	30	94,40	10,10	-8,03-3,364	0,416
		Mean difference		**2,33**			
Heart rate	30 Minute pre	Treatment	30	81.30	8,45		0,008
	Chemotherapy	Control	30	87.40	8,67	-10.52-(-1,67)	
		Mean difference		**6,1**			
		Treatment	30	76,57	4.92		0,005
	Post Test	Control	30	80,23	5.15	-6,17-(-1,156)	
		Mean difference		**3,66**			
Test of GLM repeated measure							0,336
Tests of Within-Subjects Effects							0,342
Partial eta square							0,038
Respiratory rate		Treatment	30	16,07	2,16		
	Pre Test	Control	30	15,73	1,66	-0,66-1,33	0,506
		Mean difference		**0,33**			
	30 minutes of pre	Treatment	30	15,73	1,36		
	Chemotherapy	Control	30	15,40	1,13	-0,31-0,98	0,307
		Mean difference		**0,33**			
		Treatment	30	15,73	1,50		
	Post Test	Control	30	15,83	1,20	-0,80-0,60	0,778
		Mean difference		**0,10**			
Test of GLM repeated measure							0,458
Test of Within-Subjects Effects							0,548
Partial eta square							0,027
		Treatment	30	96,17	1,05		
	Pre Test	Control	30	96,20	0,96	-0,55- 0,48	0,889
		Mean difference		**0,3**			
SPO_2	30 Minutes pre	Treatment	30	97,30	0,65		
	Chemotherapy	Control	30	97,10	0,66	-0,13- (-0,53)	0,243
		Mean difference		**0,2**			
		Treatment	30	97,47	0,68		
	Post Test	Control	30	97,23	0,67	-0,11-0,58	0,189
		Mean difference		**0,24**			
Test of GLM repeated							0,693
Tests of Within-Subjects Effects status hemodynamic							0,609
Partial eta square							0,013

Source: Primary data

The results showed beneficial effects of therapy SGIM to changes in hemodynamic status ie systolic BP, diastolic BP, MAP, and heart rate during chemotherapy to get better by the time 30 minutes before chemotherapy and measurement

one day after chemotherapy. The research findings are in line with several studies that show the effectiveness of either jointly or separately from the music therapy and guided imagery in a variety of actions. The research of (Pamela, Wilson, Pryor, Boyd, & Prickett, 2011) known as music therapy can reduce the MAP in patients undergoing mastectomy. The research of (Burrai, Micheluzzi, & Bugani, 2014) is known to music therapy can improve mood and improve oxygen saturation in patients with cancer. Guided imagery and music therapy can decrease blood pressure, heart rate, and respiration (Wang et al., 2018). Music therapy can reduce stress in liver cancer patients who receive chemo-embolization transcatheter hepatic artery, as well as stabilize the intraoperative physiologic index (heart rate, respiration, and blood pressure) patients. The research of. (Beizaee et al., 2018) is known that guided imagery affects decreasing anxiety and depression and respiratory frequency and heart rate on hemodynamic patients.

Spiritual Guided Imagery and Music in this study is a mind, body, and spirit therapy that can inhibit the response stress by producing beta-endorphin endogen that triggers quiet or relaxed conditions. Jacobson (1938), Hart (2005), and Beck's (2012) in their study said the purpose of GIM is to reduce the body's oxygen consumption, metabolic rate, respiratory rate, muscle tension, premature ventricular contractions, and systolic blood pressure, lowers cortisol and alpha waves brain and can increase beta-endorphin which functions to increase cellular immunity and comfort.

Increased systolic BP, diastolic BP, MAP, and heart rate at pre-test in this study are suspected in response to the stress experienced by the patient in the face of actions that will be undertaken in chemotherapy. In general, patients in this study is the first time you will be undergoing chemotherapy. Whereas in patients who have undergone chemotherapy stress responses appear as a result of side effects of chemotherapy issues that impact the patient's hemodynamic status changes.

According to Ajjadi et al. (2017), the increasing physical and mental stress can cause problems in the patient's hemodynamic status. The anxiety experienced by patients before chemotherapy would disturb blood pressure, pulse, and oxygen demand of the heart. Changes in the cardiovascular system due to anxiety hemodynamic activates nerve sympathetic thereby increasing the production of norepinephrine which causes increased peripheral resistance. This condition can lead to increased blood pressure.

SGIM therapy at 30 minutes before chemotherapy and one day after chemotherapy has proven to lower scores of blood pressure and heart rate. This is because patients who listened to this therapy quickly adapt to the spiritual motivations that are at this SGIM recording. The words are on the record SGIM has the power to cultivate the spiritual power that is a sense of sincerity, confidence, gratitude, patience, and solemnity in the face of cancer. This spiritual aspect is one of the protective factors that support the improvement of the adaptive response of the patient.

SGIM therapy is thought to be lowered even reduce negative emotional blocks that exist in the patient as a result of a stressor obtained while undergoing chemotherapy and also increase the spiritual power. Prayer is in therapy raises hopes and great confidence to recover and survive in trouble, or it can be said to increase positive patient adaptation mechanisms (Nuwa, 2018).

One of the objectives of Guided imagery and music is to reframe a stressful situation of negative responses fear and anxiety towards positive images of healing and well-being. Guided imagery and music can also be used to raise awareness of emotions and restructure the meaning of a situation. Emotional response to the situation triggering the limbic system and the signal devices and physiological changes in the autonomic nervous system, resulting in the characteristic form of resistance or avoidance of the stressor. Work nervous system causing hemodynamic changes (Dossey 1995; Epstein 2004; Hart 2008; Beck's .2012).

Spiritual motivation is in the SGIM will trigger the limbic system for generating more spiritual aspects of the picture stored power gained from previous experience or spiritual practice. This will cause the right brain hemisphere to store images, which could be raised again to lower the existing psychological stressor.

Provision of Guided Imagery and music intervention in cases of cancer patients who experience psychological stress is believed to improve comfort patients by stimulating one's mind. When Spiritual motivation is in SGIM will trigger the limbic system for generating more spiritual aspect picture stored power gained from previous experience or spiritual practice. Spiritual motivation is in the SGIM will trigger the limbic system for generating more spiritual aspects of the picture stored power gained from previous experience or spiritual practice. This will cause the right brain hemisphere to store images, which could be raised again to lower the existing psychological stressor.

Provision of Guided Imagery and music intervention in cases of cancer patients who experience psychological stress is believed to improve comfort patients by stimulating one's mind. When positive thinking is received by the autonomic nervous system and patients in a relaxed state of mind then this will be forwarded to the hypothalamus. The hypothalamus will produce the *Corticotropin-Releasing Factor* (CRF). Furthermore, CRF will stimulate the pituitary gland to increase the production of Proopioidmelanocortin which causes an increase in enkephalin by the adrenal medulla. Besides, the pituitary gland will affect several systems to produce Beta-endorphins which are thought to make moods relaxed or in other words can reduce problems related to psychological stressors such as stress, anxiety, or depression and improvement of the body's hemodynamic functions.

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Large donations SGIM effect on systolic BP, diastolic BP, and MAP ranged between 36% -40%, for the heart rate is only 3.8%, while the rest influenced by other variables outside of this therapy. Blood pressure and heart rate are strongly influenced by the activities carried out and also the emotions. But naturally, changes in blood pressure and heart rate will also be affected by age. Anxiety, fear, pain, and emotional stress can lead to sympathetic stimulation that increases the heart rate, cardiac output, and systemic vascular resistance. These sympathetic effects increase blood pressure. Anxiety increases blood pressure by 30 mmHg (Potter, Perry, Stockert, & Hall, 2016).

Many factors that can affect heart rate and blood pressure in this study include factors relating to the problems of medical illness that are the diagnosis of cancer and the stage of cancer where the average patient is diagnosed with breast cancer, cervical cancer, and head and neck cancer and was hospitalized own at an advanced stage. Another factor is age, where the average age of patients undergoing chemotherapy is at the beginning of the elderly age group. The aging process results in changes in the structure and function of the cardiovascular system work. The diagnosis of cancer becomes a stressor affecting neuroendocrine work that affects blood pressure and heart rate.

The results are also known there is no difference in the effect of the improvement SGIM respiratory rate and oxygen saturation between the treatment group and the control group. The mean score of respiratory rate and oxygen saturation showed normal values at each measurement. Hemoglobin oxygen saturation is a presentation that binds with oxygen in arterial oxygen saturation normal range is between 95-100%. The value of Oxygen saturation is influenced by hemoglobin (Hb), circulation, activity, body temperature, presence of hyperbilirubinemia, and the presence of hypoxemia. (Smeltzer, 2013).

Average scores of oxygen saturation did not differ between the treatment groups with the control group in this study because all patients had a hemoglobin level of sufficient blood. Patients will not receive chemotherapy if Hemoglobin levels Pre chemotherapy are in low numbers and should get a blood transfusion.

The amount of oxygen taken into the body is also influenced by the frequency of respiration. Breathing is breathing Gerkan consisting of inspiratory and expiratory namely chest and respiratory movements during the inhale and exhale in the thoracic cavity. normal respiratory rate is 12-20 beats per minute in adults and in this study, the average respiratory frequency ranges antara15-16 times per minute.

By looking at the mechanism of action of SGIM as well as the findings of several studies, it can be said that the sources of the risk factors of change in hemodynamic status in cancer patients who undergo chemotherapy can be controlled through relaxation therapies one of which is a spiritual guided imagery and music therapy.

LIMITATION OF THE STUDY

This study has limitations that confounding factors cannot be controlled. However, the placement of samples into groups is arranged by matching to minimize bias.

CONCLUSION AND SUGGESTION

Spiritual Guided Imagery and Music is a mind, body, and spirit therapy that can improve quiet or casual relaxed conditions. Giving SGIM therapy to cancer patients who undergoing chemotherapy can improve hemodynamic status (blood pressure, heart rate, and oxygen saturation). This therapeutic recommendation is SGIM can be applied as a complementary therapy in the delivery of nursing interventions in hospitals, especially for cancer patients undergoing chemotherapy in the first chemotherapy.

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Conflict of Interest statement

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