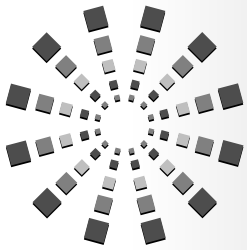

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Effectiveness of a Multimodal Nursing Intervention on Quality of Sleep, Fatigue, and Level of Depression Among Indonesian Patients With Gynecological Cancer

A Pilot Study

KEYWORDS
Depression
Fatigue
Gynecological cancer
Multimodal nursing intervention
Sleep quality

Background: The use of nonpharmacological modalities in managing symptoms experienced by patients with cancer is increasingly important in providing holistic care. However, limited studies have reported on integrating nonpharmacological interventions to improve physical and psychological symptoms of women with gynecological cancer. **Objective:** The aim of this study was to examine the effect of a multimodal nursing intervention (MNI) on sleep quality, fatigue, and level of depression among Indonesian women with gynecological cancer. **Methods:** The quasi-experimental nonequivalent group design involved 50 patients in 2 groups and used convenience sampling. An experimental group (n = 25) received MNI including progressive muscle relaxation and a counseling session; the control group received routine hospital care (n = 25). Sleep quality was assessed by the Pittsburgh Sleep Quality Index (PSQI), depression levels by the Beck Depression Inventory-II, and fatigue by the Piper Fatigue Scale (PFS). Pretest data were collected after 3 days of hospital admission; posttest data were gathered after the intervention. **Results:** The PSQI ($P = .000$), Beck Depression Inventory-II ($P = .008$), and PFS ($P = .000$) changed significantly in the intervention group; the PSQI ($P = .000$) and PFS ($P = .000$) in the control group changed significantly. The PSQI ($P = .00$) and PFS ($P = .000$) scores differed significantly between the 2 groups before and after the intervention. The effect size of the MNI for difference scores before and after the intervention was medium effect size. **Conclusions:** The role of nonpharmacological

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modalities in managing symptoms experienced by patients with cancer is increasingly important to providing holistic care. **Implication for Practice:** Gynecology nurses can lead the implementation of MNI to decrease patient fatigue and depression and to increase sleep quality.

Cancer is the first or second leading cause of death globally among patients less than 70 years old in 112 of 183 countries, with an estimated around 10.0 million in 2020 or 1 in 6 deaths being caused by cancer.[1] Gynecological cancers are the fourth most common cancers in women internationally.[2] Gynecological cancers include cancers of the cervix, ovary, fallopian tube, vagina, and vulva.[2] Cervical cancer has the highest prevalence in Indonesia and is the most common type requiring hospitalization (12.8%).[3]

Patients with gynecological cancer have physical and psychosocial concerns, as well as a need for information and psychological support during and after their cancer treatment.[4] Side effects result from toxic effects of cancer treatments on the body's systems.[5] Studies have reported physical changes including fatigue, pain, sleep disorders, menopausal symptoms, kidney disorders, liver disorders, infertility, neuropathy, and skin damage.[6] Treatments can also influence psychological changes, including the development of depression and uncertainty, and negative perceptions can lead to quality of life problems for people with cancer.[7]

The use of nonpharmacological modalities in the management of symptoms experienced by patients with cancer plays an increasingly important contribution in providing holistic patient care, including as co-analgesic.[8] Research on nonpharmacological modalities in cancer management is, therefore, important. A variety of interventions have been developed to deal with physical effects of fatigue (eg, physical exercise/activity, resistance exercise, aerobic exercise, yoga, progressive muscle relaxation [PMR]),[9,10] and to provide psychoeducational support (eg, health education, psychosocial support, spiritual group therapy).[11,12] However, previous studies have often assessed physical and psychological responses, especially fatigue and psychological responses, separately.

A multimodal, nonpharmacological intervention involves integration of components such as physical programs, restorative approaches, or supportive-expressive or cognitive-behavioral psychosocial interventions, which have been identified as having the benefit of addressing multiple symptoms and as being acceptable to people with cancer.[13] However, limited studies have reported on the effects of multimodal, nonpharmacological interventions on the physical and psychological status of women with gynecological cancer.[13] Oncology nurses need to understand multimodal nursing interventions (MNIs) to provide a positive effect on fatigue, quality of sleep, and depression in women with gynecologic cancer. The aim of this study was to examine the effect of an MNI on quality of sleep, fatigue, and level of depression among Indonesian women with gynecological cancer.

■ Conceptual Framework

Multimodal nursing intervention is based on a nursing theory adapted from the work of Roy[14] (Figure 1). According to Roy, the goal of nursing is to increase individual adaptation to a stimulus that a person faces; the adaptation can assist them to obtain health, improve quality of life, or a peaceful death. Its application in the nursing process is a problem-solving method for identifying stimuli and assessing functions in the adaptation model.[14] Multimodal nursing intervention is a combination of PMR intervention and psychological counseling. Progressive muscle relaxation is a well-known mind-body intervention where movement directs the individual's attention to skeletal muscles with the goal of relaxing the whole body. Progressive muscle relaxation has been used by patients with cancer to manage severe symptom burden.[15] Counseling psychology is a psychological treatment designed to improve adjustment to one's daily environment and increase the sense of well-being. Such counseling has fostered patients' coping with side effects of ongoing medical treatments, including surgery, chemotherapy or radiotherapy.[16]

■ Methods

Design and Participants

A quasi-experimental design approach was adopted using an equivalent control group pretest-posttest design. A convenience sampling

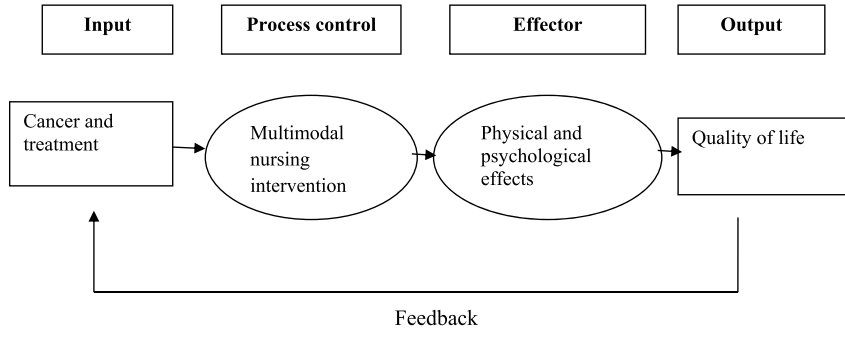

Figure 1 ■ Theoretical model of MNI based on nursing theory adaptation from the work of Roy.[14]

method was used to recruit eligible participants from a tertiary hospital in South Sulawesi, the national referral hospital with the highest number of hospitalized patients with cervical cancer. Inclusion criteria were women 18 years or older with first- to third-stage gynecological cancer. Patients with cardiovascular disease, chronic kidney disease, acute or mobility limitations, and receiving antidepressant therapy were excluded. To prevent subject pool contamination, patients in the experimental and control groups were selected from the population using cluster method. The cluster method was created according to the patient's room number; patients who had an odd room number were allocated to the experimental group, and those in even number rooms were allocated to the control group. All rooms included 6 beds, and room separation for the experimental and control groups was intended to reduce research bias or contamination. In Indonesian culture, patients are accompanied by 1 family member during hospitalization.

Sample size calculation with different mean hypothesis testing was conducted and determined that 50 participants should be included in both groups to achieve 80% power, with 2-sided α level of .05, using the score of SD according to Charalambous et al,[9] and 10% anticipated dropout. This sample was then divided into 2 groups, with 25 participants in each group. The control group (n = 25) received the routine care offered by the hospital. The intervention group (n = 25) received an MNI combining physical and psychological interventions adapted from the Nursing Intervention Classification (NIC).[17] The physical intervention involved PMR, and the psychological intervention entailed using psychological counseling. Two patients declined to participate in the study, whereas the other 4 patients were ineligible to take part in this study because of their fourth-stage cancer.

Data Collection

Data collection was carried out between August and December 2018. The sociodemographic, quality of sleep, fatigue, and depression questionnaires were collected by the research team. Potential participants that met the inclusion criteria were recruited by a team member and if interested were provided information about the study including the aims, processes, confidentiality, and their right to withdraw at any time. The participants who agreed to participate provided written informed consent. After a minimum of 3 days of hospital admission in each group, the pretest data were collected. The posttest data were gathered after 2 weeks of the intervention period for the intervention group and after 2 weeks of hospital routine care for the control group.

INTERVENTION GROUP

The MNI program was performed 1 to 2 weeks after hospital admission and included 2 combination therapies: PMR and psychological counseling. Progressive muscle relaxation is a nursing intervention from the NIC defined as facilitating tensing and releasing of successive muscle groups and impacting different responses. Psychological counseling is a nursing intervention including therapeutic communication through counseling and has been widely used to minimize stress, improve quality of life, reduce symptoms of depression, and provide support during diagnosis and recovery.[18] The procedure of PMR involved using a sitting or lying position and relaxing from head to foot for 10 major muscle groups. Participants received a module on PMR for guidance in performing the intervention, and the researchers then instructed the intervention group on how to choose a relaxed position. This procedure was performed every day for 2 weeks, 3 times per day, and for 20 minutes per session. The instructor provided guidance every day in the morning for 2 weeks, and the participants did the exercises themselves with a module PMR as an exercise guidance. A weekly schedule was developed for each participant and included 3 supervised sessions weekly. A research team member, qualified in PMR, performed all PMR and provided these individually to each participant.

The second intervention entailed psychological counseling. This intervention was offered by 2 mental health nurses who had educational backgrounds in psychiatric nursing. The intervention was performed twice weekly over 2 weeks and for 30 minutes per session. This nursing intervention focused on patient information and psychosocial needs, and patient expression of emotional feelings to help modulate distress and improve his or her ability to deal with psychological challenges. Psychosocial counseling interventions included asking and listening, giving compliments, limited advice, evaluation of understanding, and therapeutic communication.

CONTROL GROUP

The control group received the routine care offered by the hospital. The nurses provided routine interventions such as medication administration and monitoring of vital signs, but with no specific or standard intervention to overcome physical and/or psychological responses.

The protocol for the study is presented in Figure 2.

INSTRUMENTS

The study used a sociodemographic questionnaire, quality of sleep scale, fatigue scale, and depression scale. The sociodemographic questionnaire included age, educational level, marital status, type of cancer, stage of cancer, and type of medical therapy.

Quality of sleep was assessed by the Pittsburgh Sleep Quality Index (PSQI), a standard self-reporting tool.[19] The PSQI form contains 19 items in 7 components: subjective sleep quality (question 9), sleep latency (questions 2 and 5a), sleep duration (question 4), sleep efficiency (questions 1, 3, and 4), sleep disturbance (questions 5b-5j), use of sleep medication (question 6), and daytime dysfunction (questions 7 and 8). In scoring the PSQI, 7 component scores are derived, each scored 0 (no difficulty) to 3 (severe difficulty). The component scores are summed to produce a global score (range, 0–21). Higher scores indicate poor quality of sleep, and lower scores indicate good quality of sleep. The PSQI Indonesian version was adapted from the original PSQI with Cronbach's α coefficient of .741.[20]

Fatigue was assessed using the Piper Fatigue Scale (PFS).[21] The PFS consists of 22 items with a numerical scale range between 0 and 10 and 5 open-ended questions. A high score indicates high levels of fatigue. The PFS when translated into Bahasa Indonesia had a Cronbach's α coefficient of .98.[6] The open-ended questions in the PFS instrument consist of 5 questions: length of fatigue feeling, contributing factors of fatigue, how to relieve fatigue feeling, additional information related fatigue, and other symptoms.

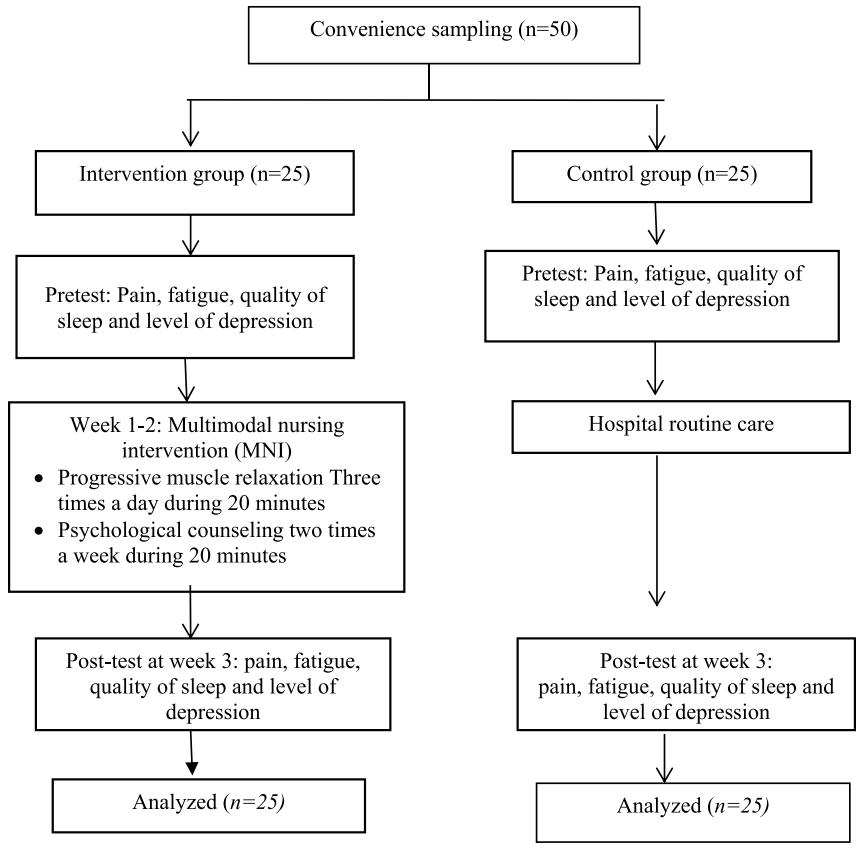

Figure 2 ■ Flowchart of study protocol.

Depression levels were measured by the Beck Depression Inventory-II (BDI-II). Ratings from the 21 items were summed to calculate a total score, which can range from 0 to 63. Scores of 0 to 13 are suggestive of minimal depression, scores of 14 to 19 are indicative of mild depression, scores of 20 to 28 are indicative of moderate depression, and scores of 29 or greater are suggestive of severe depression.[22] The Indonesian BDI-II reliability, as reported by Cronbach's α coefficient, in this study was high ($\alpha = .90$).[23]

DATA ANALYSIS

The sociodemographic data were analyzed using frequencies for categorical variables and means and SDs for interval-level variables. The outcomes of this study were analyzed using independent *t* test, chi-square, Mann-Whitney *U* test, Wilcoxon, marginal homogeneity, Kolmogorov-Smirnov, and a regression analysis, along with power and effect size. A value of $P < .05$ was considered statistically significant. All analyses were performed using SPSS 20.0 for Windows. The responses to the open-ended questions of the PFS instrument were analyzed by first grouping the same or highly similar words of the participants' responses, categorizing the responses, and then coding the contents of each category and quantifying the codes with frequencies.

ETHICS

The research received ethical review and approvals from the relevant institutional review board of the University (admission number: 639/H4.8.4.5.31/PP36-KOMETIK/2018). The study was performed following the Helsinki Declaration. Participants took part voluntarily after receiving an explanation of the aims and requirements of the research, and written informed consent was obtained. Participants were assured that they could withdraw from the study at any time without stating a reason.

■ Results

Sample

Data were collected over a 5-month recruitment process from 50 women with gynecologic cancer. The mean age of the women in the intervention group was 46.77 ± 7.86 years, whereas the mean age of the women in the control group was 48.08 ± 8.3 years. Most of the patients in both groups were married (intervention, 84.0%; control, 88%). More than half in both groups were diagnosed with cervical cancer: 52% in the intervention and 60% in the control group. The majority of participants were diagnosed with stage III cancer (intervention, 56%; control, 40%) and received chemotherapy (intervention, 60%; control, 52%). No significant differences were found in any of the sociodemographic characteristic between the intervention and control groups at baseline (Table 1).

THE BETWEEN-GROUP DIFFERENCES

Comparing the difference in PSQI scores pre- and posttest, both groups yielded meaningful results. The total PSQI score of the

Table 1 • Characteristics of the Respondent

	Intervention Group (n = 25)		Control Group (n = 25)			
	Mean (SD)		Mean (SD)		χ^2/t	*P*
Age	46.77 (7.86)		48.08 (8.38)		−0.613a	.54
	n	%	n	%		
Educational level					0.865	.649
Primary school	11	44	8	32		
High school	10	40	13	52		
University degree	4	16	4	16		
Marital status					0.000	1.000
Married	21	84.0	22	88		
Single	4	16.0	3	12		
Type of cancer					2.143	.343
CA cervix	13	52	15	60		
CA ovary	10	40	10	40		
CA endometrium	2	8	0	0		
Stage of cancer					1.282	.258
I	0	0	0	0		
II	11	44	15	60		
III	14	56	10	40		
Type of therapy					0.325	.569
Chemotherapy	15	60	13	52		
Other adjuvant treatment	10	40	12	48		

Abbreviation: CA, cancer.
$P < .05$.

posttest indicated a statistically significant difference between the 2 groups ($P < .05$). No statistically significant difference was observed in the total pretest PSQI score in both groups ($P > .05$). The intervention group showed a difference in PSQI score pre- and posttest of 1.60 ± 1.323, and the control group showed a difference PSQI score on pre- and posttest of 0.12 ± 1.56, which is statistically significant ($P < .05$) (Table 2). No statistically significant difference was observed in the total PFS pretest scores between the intervention and control groups (119.04 ± 36.16 and 102.24 ± 52.47; $P > .05$) or in the total posttest PFS scores between the 2 groups (76.52 ± 24.43 and 93.24 ± 51.12; $P > .05$). No statistically significant difference was observed in the BDI-II pretest mean scores between the intervention and control groups ($P > .05$). The BDI-II posttest mean scores showed no statistically significant difference between the 2 groups ($P > .05$) (Table 3).

Table 2 also describes the difference in PFS scores pre- and posttest in the intervention and control groups. The differences of PFS scores pre- and posttest within both groups showed a significant difference ($P < .05$), with the observed differences to be 42.52 ± 19.74 and 9.00 ± 14.52 (Table 2).

Table 4 describes the responses to the 5 open-ended questions from the PFS instrument. All participants in the intervention (n = 25) and control groups (n = 25) completed the PFS open-ended questions. The duration of fatigue experienced by participants in the intervention group was 2 to 12 months as reported in the pretest (n = 17, 68%), and declined to a few days as reported in the posttest (n = 15, 60%). Most participants in the control group reported a duration of fatigue of 2 to 12 months in the pretest (n = 15, 60%) and of 2 to 12 months in the posttest (n = 15, 60%). Contributing factors to fatigue were pain, symptoms of disease, lack of sleep, loss of appetite, headache, breathlessness, ascites, and chemotherapy. Pain was the most frequently identified contributing factor for fatigue in the pretest in the intervention group (n = 14, 56%) and the control group (n = 18, 72%). In the posttest, pain remained the most frequent contributing factor for fatigue in the intervention group (n = 9, 36%) and the control group (n = 14, 14%). Participants reported efforts to relieve their fatigue by taking a rest and sleeping, praying, lying down, distraction, and massage. The combination of taking a rest and sleeping was the main endeavor to relieve feelings of

Table 2 • Comparison of Pretest, Posttest, and Difference Score of the Intervention and Control Groups in Quality of Sleep and Fatigue (N = 50)

	PSQI Score				PFS Score			
	Pretest	Posttest	Difference		Pretest	Posttest	Difference	
Groups	Mean ± SD	Mean ± SD	Mean ± SD	*P*	Mean ± SD	Mean ± SD	Mean ± SD	*P*
Intervention (n = 25)	4.92 ± 1.75	3.32 ± 1.28	1.60 ± 1.323	**.000**	119.04 ± 36.16	76.52 ± 24.43	42.52 ± 19.74	**.000**
Control (n = 25)	5.04 ± 2.34	4.92 ± 1.61	0.12 ± 1.56	**.000**	102.24 ± 52.47	93.24 ± 51.12	9.00 ± 14.52	**.000**
P	.898	**.001**	**.001**		.204	.112	**.000**	

Boldface indicated $P < .05$.

Table 3 • Comparison of Pretest, Posttest, and Change Level of Depression by the Beck Depression Inventory-II of the Intervention and Control Groups

	Pretest			Posttest				Change of Level of Depression	
	Minimal	Mild	Moderate	Minimal	Mild	Moderate		Decrease	No Decrease
Groups	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	*P*	n (%)	n (%)
Intervention (n = 25)	10 (40)	9 (36)	6 (24)	20 (80)	1 (4)	4 (16)	**.008**	10 (40)	15 (60)
Control (n = 25)	14 (56)	8 (32)	3 (12)	18 (72)	5 (20)	2 (8)	.059	6 (24)	19 (76)
P		.906			1.000			.225	

Boldface indicated $P < .05$.

fatigue for the intervention groups in the pretest (n = 15, 60%) and posttest (n = 15, 60%). Lying down was the most frequent endeavor to relieve feelings of fatigue for the control groups in the pretest (n = 12, 48%) and posttest (n = 10, 40%). Most of the participants in the intervention group did not report other symptoms at the time of the pretest (n = 14; 56%) but did report

Table 4 • Open-Ended Questions From the Piper Fatigue Scale

			Intervention Group		Control Group	
No. Questions	Open-Ended Questions	Response	Pre, n (%)	Post, n (%)	Pre, n (%)	Post, n (%)
1	Length of fatigue feeling	Days	2 (8)	15 (60)	1 (4)	4 (16)
		Weeks	2 (8)	3 (12)	2 (8)	0 (0)
		A month	2 (8)	1 (4)	1 (4)	0 (0)
		2–12 months	17 (68)	4 (16)	15 (60)	15(60)
		>12 months	2 (8)	2 (8)	6 (24)	6 (24)
		Total	25 (100)	25 (100)	25 (100)	25 (100)
24	Contributing factors of fatigue	Pain	14 (56)	9 (36)	18 (72)	14 (56)
		Symptom of disease	3 (12)	2 (8)	3 (12)	5 (20)
		Lack of sleep	1 (4)	8 (32)	1 (4)	5 (20)
		Loss appetite	1 (4)	1 (4)	0 (0)	0 (0)
		headache	1 (4)	1 (4)	0 (0)	0 (0)
		Ascites	4 (16)	3 (12)	1 (4)	0 (0)
		breathless	1 (4)	1 (4)	0 (0)	0 (0)
		chemotherapy	0 (0)	0 (0)	1 (4)	1 (4)
		Total	25 (100)	25 (100)	25 (100)	25 (100)
25	How to relieve fatigue feeling	Take a rest and sleep	15 (60)	15 (60)	6 (24)	9 (36)
		Sleep	2 (8)	2 (8)	2 (8)	1 (4)
		Pray	1 (4)	1 (4)	1 (4)	1 (4)
		Lie down	7 (28)	7 (28)	12 (48)	10 (40)
		Massage	0 (0)	0 (0)	2 (8)	3 (12)
		Distraction	0 (0)	0 (0)	2 (8)	1 (4)
		Total	25 (100)	25 (100)	25 (100)	25 (100)
26	Additional description about the fatigue feeling	None	25 (100)	25 (100)	23 (92)	24 (96)
		Lack of sleep	0 (0)	0 (0)	1 (4)	0 (0)
		pregnancy	0 (0)	0 (0)	1 (4)	1 (4)
		Total	25 (100)	25 (100)	25 (100)	25 (100)
27	Other symptoms	None	14 (56)	19 (76)	17 (68)	17 (68)
		Yes	11 (44)	6 (24)	8 (32)	8 (32)
		Total	25 (100)	25 (100)	25 (100)	25 (100)
27	Description of symptoms	Lack of sleep	1 (4)	0 (0)	0 (0)	0 (0)
		Breathless in activity	1 (4)	0 (0)	0 (0)	0 (0)
		Breathless	4 (16)	0 (0)	5 (20)	3 (12)
		Headache	1 (4)	0 (0)	0 (0)	0 (0)
		Medical equipment	1 (4)	0 (0)	0 (0)	0 (0)
		Heartburn	2 (8)	2 (8)	0 (0)	0 (0)
		Edema	0 (0)	2 (8)	2 (8)	1 (4)
		Vomiting	0 (0)	1 (4)	0 (0)	1 (4)
		Cough	1 (4)	1 (4)	1 (4)	3 (12)
		Total	11 (44)	6 (24)	8 (32)	8 (32)

an increase in symptoms at the time of the posttest (n = 19; 76%), whereas in the control group, there were no difference in the frequencies between the pre- and posttest (n = 17; 68%).

The power and effect size of the MNI program were evaluated using linear regression analysis as shown in Table 5. The MNI program for quality of sleep had strong power (0.95) and medium effect size (0.25). The MNI program for fatigue had strong power (1) and large effect size (0.93). The MNI program for depression had strong power (0.93) and small effect size (0.23).

THE WITHIN-GROUP DIFFERENCES

The comparison of pretest, posttest, and difference scores within groups in the PSQI scores are shown in Table 2. Statistically significant differences were observed in the pre- and posttest of the PSQI score in the intervention group, which were 4.92 ± 1.75 and 3.32 ± 1.28, respectively ($P < .05$), and the control group, which were 5.04 ± 2.34 and 4.92 ± 1.61, respectively ($P < .05$). The PFS scores within group were statistically significantly different in the intervention and control groups; the intervention group mean scores changed from 119.04 ± 36.16 to 102.24 ± 52.47, with $P < .05$, and the mean PFS scores in the control group changed from 76.52 ± 24.43 to 93.24 ± 51.12, with $P < .05$ (Table 2).

The differences of the pre- and posttest within group of BDI-II score was statistically significantly different ($P < .05$). The BDI-II mean scores from pre- to posttest in the control group showed no statistically significant difference ($P > .05$) (Table 3).

■ Discussion

The purpose of this study was to investigate the effects of a nurse-led MNI intervention on sleep quality, fatigue, and level of depression in patients with gynecologic cancer. According to the present study results, statistically significant improvement was observed in both sleep quality and fatigue by participants in the intervention group. The positive change is similar to previous studies that used PMR to improve sleep quality in patients with chronic obstructive pulmonary disease[24] and in patients with COVID-19.[25] Evidence has shown that nonpharmacological interventions contribute to improvement of sleep quality among adults in treatment for cancer who are not in remission.[26] Progressive muscle relaxation training could help increase physical and mental relaxation[25]; thus, MNI that includes PMR and counseling could improve sleep quality.

Fatigue is a distressing and persistent symptom for women with gynecological cancer and survivors.[27] This study revealed that the MNI program had a positive reduction effect on fatigue. Findings from this study are consistent with other studies that have assessed the efficacy of patient-controlled, cognitive-behavioral interventions, including counseling, for patients with lung, prostate, colorectal, or gynecologic cancer who reported significant reductions in severity of pain and fatigue.[28] In a study by Seyedi Chegeni et al,[24] findings indicated that PMR reduced fatigue and improved sleep quality in patients with stages 3 and 4 chronic obstructive pulmonary disease. Nonpharmacological interventions for the management of cancer-related fatigue have varied, including exercise/physical activity, where structured and repetitive body movement has been reported to decrease cancer-related fatigue.[29]

The study findings showed that the difference mean scores pre- and posttest for fatigue of the participants in the intervention group were significantly decreased compared with the control group in this study (42.52 ± 19.74). Furthermore, this study reported decreased duration of feeling fatigued after the intervention, and most of the participants revealed pain and lack of sleep as factors contributing to fatigue. When reviewing all study outcomes with a holistic perspective, a significant decrease in fatigue scores in our study could be related to the effects of MNI, including PMR and counseling, which involve energy restoration in the body and increase the positive psychological state. It is possible that regular practice of PMR contributes to an increase in the oxygen concentration of muscle cells and a positive influence on patients' psychological responses.[15]

Although there were significant differences in the level of depression from before to after the intervention in the intervention group, there was no significant change in depression in the control group. A previous study revealed that psychological treatment is not likely to show a unified effect size. The patient's clinical state and treatment side effects were moderating factors. That study highlights a significant, small, positive overall effect size of MNI among adults with gynecological cancer.[16]

In this current study, the MNI program for depression had a positive impact but small effect size. One study concluded that providing psychological treatments should be considered as

Table 5 • Predictive Power and Effect Size of the MNI for Change in Difference Score Pre and PostTest of Quality of Sleep, Fatigue, and Depression

	Quality of Sleep			Fatigue			Depression		
Variable	*B*	SE	*β*	*B*	SE	*β*	*B*	SE	*β*
Constant	3.080	0.648		76.040	7.749		9.440	1.959	
MNI	−1.480	0.410	−0.462	−33.52	4.901	−0.703	−4.320	1.239	−0.450
R	0.462			0.703			0.450		
R^2	0.197			0.483			0.186		
F	0.214			0.494			0.202		
P	.001			.000			.001		
DW	2.109			1.238			1.736		
Effect size	0.25			0.93			0.23		
Power	0.95			1.0			0.93		

Abbreviations: DW, The Durbin Watson; MNI, multimodal nursing intervention.

crucial for the patient's health in cancer contexts.[16] Another study concluded that active nursing interventions are necessary to reduce cancer-related fatigue and improve emotional function, sleep quality, and thereby quality of life among women with gynecological cancer.[30] Patients with cancer who have received planned nursing interventions have shown much lower rates of psychological symptoms such as anxiety, depression, and significant improvement of emotional well-being compared with those who received routine care offered by hospital staff.[31] There is a need to decrease depression levels that could negatively affect the overall quality of life.

Limitations

There are limitations of this study that require acknowledgment. Women with gynecological cancer from only a single location were included, the sample size was small, and results may not be generalizable to other areas or populations. However, the study was conducted in a major hospital in the east of Indonesia, which may represent the population of eastern Indonesia. In addition, we performed only a single time assessment after the intervention. Further research with a larger scale and longer duration is recommended to examine effects of MNI on physical and psychological responses among patients with gynecological cancer.

Clinical Implications

The present study showed that MNI is a valuable nursing intervention for increasing sleep quality and reducing fatigue. A small effect size on level of depression in patients with gynecology cancer was also noted. The best available evidence indicates that MNI is a safe nursing intervention. The MNI, like other nonpharmacologic therapies, is anticipated to improve quality of life, especially in women with gynecologic cancer who need support in these areas. The use of MNI for these patients can be implemented by nurses.

■ Conclusion

Multimodal nursing intervention including PMR and counseling is an NIC that can be readily performed by nurses for women with gynecologic cancer. The results provide some evidence that combining physical and psychological interventions could decrease fatigue, increase sleep quality, and exert a small effect on levels of depression. Health services can consider training programs for clinical nurses to provide skills in MNI intervention. This would enable clinical nursing staff to teach PMR and provide psychological counseling to improve quality of life in patients with gynecologic cancer.

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