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Islamic Caring Mindfulness-based Program for Reducing Fatigue in Indonesian Women with Advanced Breast Cancer

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ABSTRACT: *Fatigue is one of the most common symptoms that are still being complained about by cancer patients and those who underwent chemotherapy. This study aims to look at the effects of an Islamic Caring Mindfulness-based (ICMB) program on fatigue among patients afflicted with breast cancer undergoing chemotherapy. 112 women with Stage III breast cancer who are following chemotherapy treatment a the chemotherapy unit in Bandung, Indonesia during the period of February-July 2018, were enrolled in the control and experimental groups in a quasi-experimental study. The researcher assigned participants either to the experimental group (n = 53), receiving both the ICMB program and routine care, or to the control group (n = 59), received only routine care. Data were collected at day 1 (baseline), and day 23. Research tools are the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) and demographic information questionnaires. All statistical analyses were performed through the SPSS software (version 16.0) using the chi-square test and independent t-test. Result: Before the intervention on fatigue, all measures of the two groups were equal (P = 0.117). However, a significant difference was observed between the groups on day 23 (P = 0.001) after the intervention. Conclusion: The findings indicate that a nurse-led ICMB program can be used to reduce fatigue among patients with advanced breast cancer who are undergoing chemotherapy.*

Keywords: Breast cancer; caring; mindfulness; fatigue

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I. INTRODUCTION

Breast cancer ranks as one of the most prominent types of cancer affecting women around the world, with more than 2 million new cases detected in 2018. About 26% of all cancer cases in women are breast cancer [1]. Similarly, among Indonesian women, breast cancer cases constitute the most prevalent type of cancer [2] with an increasing number of patients diagnosed at a later stage [3]. According to the latest WHO data published in 2019, the number of deaths related to breast cancer was estimated at 22,692 or 17% out of all cancer deaths among women [2].

Many studies report that patients with advanced breast cancer (ABC) experience Cancer-Related-Fatigue (CRF) [1, 4-6]. In addition, these patients may have physical and psychological comorbidities that increase fatigue and complicate the management [1].

Not surprisingly, fatigue is also the side effect most commonly experienced by patients who are admitted to the chemotherapy unit in Indonesian hospitals [7]. According to the National Comprehensive Cancer Network [8], fatigue experienced by cancer patients is a state of persisting weakness, in which the sensations felt are very personal, and are not relieved by rest. Fatigue can affect patients in an immensely negative way. Fortunately, several programs have been developed to address it, such as mindfulness-based programs [9], yoga [1], spiritual intervention [10, 11], physical exercise [12], behavioral therapy [13], massage therapy [4, 5], and home-based music intervention [1]. Among all programs, MBSR was reported to be the most frequently used and to be effective in getting a significant outcome for fatigue [14, 15]. While physical exercise causes a little to moderate reduction in fatigue [16, 17], the psychosocial interventions suggested small but significant alleviations in fatigue [16].

II. LITERATURE REVIEW

A review of relevant existing literature related to mindfulness-based programs has been conducted. Most of the empirical evidence claims that mindfulness-based programs significantly reduce fatigue among breast cancer patients including those in an advanced stage of breast cancer [18]. However, none of the existing mindfulness-based programs mentioned in the literature was imbued with Islamic faith. Even though mindfulness is not necessarily a religious related practice but it is a consistent part of many religions as a core practice including Islam. Thus, it is interesting to explore an alternative mindfulness program which is appropriate for Islamic communities. Therefore, an Islamic religious mindfulness-based program was introduced to alleviate fatigue among Muslim patients suffering from breast cancer who are following chemotherapy treatment.

A literature search found a few studies on topics related to Islamic based interventions for reducing fatigue, or by using the term mindfulness. For instance, a study about spiritual therapy was carried out among Muslims in a Middle Eastern community [11]. However, the study may not be replicated and applied into an Indonesian community due to difference of background, cultural characteristics and customs, and sociological and geographical location. Since mindfulness is part of the Muslim religious practice, it has a potential therapeutic effect to alleviate fatigue among Muslim cancer patients.

This study aims to examine the effect of an Islamic mindfulness-based program to reduce fatigue in patients with ABC undergoing chemotherapy in Indonesia. Based on the reviewed literature, mindfulness has been shown to alleviate fatigue with minimal costs and side effects, and is easy to be implemented [19]. Therefore, the researcher designed this study to assess the impact of an ICMB program on fatigue among advanced breast cancer Muslim patients.

It was hypothesized that the mean scores of fatigue for the experimental group would be higher than those of the control group, after having received the program on day 23 as compared to the baseline level. The higher score of FACIT-F indicates a lower level of fatigue as experienced by the patients.

III. DATA COLLECTION

A quasi-experimental with two arms implementation, namely a pre- and post-intervention group which was employed for this study. The study was conducted during January – July 2018 at Chemotherapy unit Bandung (Bandung, Indonesia). First from the participants in the control group, and then from the participants in the experimental group. All eligible patients in the experimental group participated in a 23-day Islamic caring mindfulness-based program (ICMB). The program was started at the first meeting and the patients continued practicing following the protocol of the program in their home until finishing the program (23 days). The data collection for the outcomes were conducted at two time points; before the intervention (baseline) on day 1 and after the intervention on day 23. In this study, several Islamic caring actions were applied, such as showing respect and blessing in the Islamic way, praying together for healing and asking help from Allah, encouraging patients and the families to be patient with the disease and the risk of death, and reminding the patients and their families to exercise their faith and pray in dealing with suffering.

Sample

For this study, the target population consisted of Muslim breast cancer patients in an advanced stage who had been admitted to the chemotherapy unit. The study sample consisted of 112 patients who were then divided into two groups: an experimental group (n=53) and a control group (n=59). The inclusion criteria were as follows:

1. Aged more than 18 years old;
2. Breast cancer patients with stage III from the medical record;
3. Cognitively intact and without a documented diagnosis of mental illness;
4. Able to communicate and understand Bahasa Indonesia;
5. Able to be contacted by phone; and
6. Received chemotherapy treatments every three weeks.

The following exclusion criteria were applied:

1. They regularly used complementary alternative medicine.
2. They could not follow the mindfulness program protocol.

Data Collection

Three RAs were recruited in assisting data collection. After obtaining informed consent, the RAs collected all required data for both groups. Demographic background and clinical features of all participants were collected at day 1 (baseline), day 3, day 23, and day 44. Fatigue levels of participants were assessed by using the Indonesian version of the FACIT-F *Scale.* The baseline assessment and program instructions were given at the first meeting with potential participants when they came to receive their chemotherapy treatment for any cycle (≤ 4) based on their individual treatment plan in the outpatient oncology clinic. The intervention program was described by the researcher to the participants using face to face approach. In addition, FACIT-F was assessed among participants after consent was obtained which was marked as baseline assessment. FACIT-F assessment again was conducted during day 23 among the participants. In addition, the correctness of the practice prayer was measured by the Questionnaire of *Khushu* Prayer among the participants who were receiving the ICMB program. Moreover, the researcher asked the participants to document their daily practice at home by using the Home Practice Record Form.

Measurements

Demographic Data Questionnaire (DDQ) and medical history of all participants were collected at baseline. The data collected included age, marital status, occupation, number of children, education, family income, family caregiver relationship, medical cancer staging, surgical treatment, chemotherapy treatment, chemotherapy cycle menstrual status, and comorbidities.

The Functional Assessment of Chronic Illness Therapy (Fatigue) (FACIT-F) was used to measure level of fatigue at baseline, day 3, day 23, and day 44. The questionnaire consists of 13 items in the form of statements. The total score of FACIT-F should be in the range of 0-52. If the score was < 30, this indicates that the patient is having severe fatigue. The higher score of FACIT-F indicates a low-level of fatigue, whereas a lower score of FACIT-F indicates a high level of fatigue. The original instrument showed reliability of alpha Cronbach 0.95 and the validity test 0.88 [23] while the Indonesian version reported 0.88 for reliability test [10].

The Questionnaire of Khushu Prayer was used to measure the correctness practice of prayer after the participants received the ICMB program. The questionnaire consists of 30 items, with indicators of concentration to God during prayer, empower the heart to understand the meaning of readings/content of the prayer, exaltation and honor, fear to God, and ability to embody the message of prayer in everyday life. The score of 75-120 is categorized as high score of the *khushu* prayer, while the score of 30-74 is categorized as low score of khushu prayer. The participant should be able to follow the program when the level of *khushu* prayer is within the range of 75-120. This instrument has a high consistency with reliability with α Cronbach amounting to 0.91 [10].

Home Practice Record Form was used to report the daily practice of the ICMB program carried out at home.

IV. DATA ANALYSIS

Descriptive statistics; chi-square test, likelihood ratio, exact Fisher test, means, frequencies, standard deviations, as well as percentages were calculated to analyze the demographic information and medical history. The assumptions of normality and homogeneity of variance of the variables were tested and checked before the appropriate statistical analysis was performed. All analyses were set at a significant level of $P < 0.05$, and performed by SPSS version 16.

Ethical Considerations

Ethical approval was sought and obtained from the Center for Social and Behavioral Sciences Institutional Review Board, Prince of Songkhla University, Thailand (document number 2017 NSt-Qn 054, approval date: 15 January, 2018). Also, the researcher asked for informed consent from the participants before starting the study, as well as giving them information about the objectives, benefits, and confidentiality during and following the study.

V. PARTICIPANT CHARACTERISTICS AND MEDICAL HISTORY, COMPARISON OF THE FATIGUE SCORES IN THE EXPERIMENTAL AND CONTROL GROUPS

Table 1: Participant characteristics at enrollment in terms of frequency distribution and percentage

Variable	Experimental group (53)	Control group (59)	P-value
Age (years)	*M*±*SD*= 47.51(7.74)	*M*±*SD*= 46.83(8.60)	0.66
Education			
Primary	28(52.8)	35(59.30)	0.55**
High school	21(39.6)	20(33.90)	
University	4(7.6)	4(6.8)	
Occupation			
Unemployed	35(66.0)	39(66.1)	0.99*
Employed	18(34.0)	20(33.9)	
Marital status			
Single	3(5.7)	1(1.7)	0.53**
Married	41(77.3)	48(81.4)	
Widow	9(17.0)	10(16.9)	
Number of children			
0-2	34(64.2)	31(52.5)	0.21*
3-5	19(35.8)	28(47.5)	
Family income			
Adequate	45(84.9)	46(78.0)	0.35*
Inadequate	8(15.1)	13(22.0)	
Family caregiver relationship			
Spouse			
Child	32(60.4)	38(64.4)	0.49**
Parent	15(28.3)	13(22.0)	
Others	1(1.9)	0(0)	
	5(9.4)	8(13.6)	
Breast cancer staging			
IIIa	13(24.5)	23(39.0)	0.17**
IIIb	37(69.8)	31(52.5)	
IIIc	3(5.7)	5(4.5)	
Surgical treatment			
No	31(58.5)	36(61.0)	0.79*
Yes	22(41.5)	23(39.0)	
Chemotherapy treatment			
FAC	43(81.1)	47(79.7)	0.98**
TAC	6(11.3)	7(11.8)	
AC+paclitaxel	4(7.6)	5(8.5)	
Chemotherapy cycle			
1	22(41.5)	20(33.9)	0.32**
2	12(22.6)	23(39.0)	
3	9(17.0)	7(11.9)	
4	10(18.9)	9(15.2)	
Menstrual status			
Menopause	16(30.2)	18(30.5)	0.97*
Menstruation	37(69.8)	41(69.5)	
Comorbidities			
Yes	4(7.5)	3(5.1)	0.59***
No	49(92.5)	56(94.9)	

* = Chi-square test, ** = Likelihood ratio, *** = Fisher's exact test
Note: 'Fluoroacil/doxorubicin/cyclophosphamide (FAC), Docetaxel/doxorubicin/cyclophosphamide (TAC), doxorubicin/cyclophosphamide/ followed by paclitaxel (AC + Paclitaxel)'

Table 2: Comparison of the fatigue scores in the experimental and control groups classified Pre and Post Test (N =112)

Time	Group			
	Experimental (*n* = 53)	Control (*n* = 59)		
	Mean(SD)	*Mean(SD)*	*T*	P
Pre-test				
Day 1: Baseline	36.45(8.76)	33.86(8.58)	-1.58	0.117
Post-test				
Day 23	34.92(8.18)	29.34(9.30)	3.36	0.001*

Note. *P<0.05, **P<0.001

From the demographic characteristic obtained information that the mean age of the participants in the experimental and control group was 47.51±7.74 years and 46.83±8.60 years, respectively. In term of age-match, the result of the independent t-test showed that the both groups were identical (P = 0.66).

Moreover, others the demographic data and medical history were also compared in term education, occupation, marital status, number of children, family income, family care giver's relationship, breast cancer staging, surgical treatment, chemotherapy treatment, chemotherapy cycles, menstrual status, and comorbidities, the findings revealed that there were no differences between the two groups (experimental and control groups) (P > 0.05) (Table 1).

There was no significant difference between the groups on day 1 (P = 0.117) before intervention. However, a significant difference in the mean score of fatigue was observed between the groups after intervention on day 23 (P = 0.001) (Table 2).

VI. STUDY RESULTS, SUMMARY AND CONTRIBUTION

Based on the findings, the results showed that there was a statistical difference in fatigue scores between the experimental and the control group on day 23. The experimental group showed the mean scores of fatigue moderately increasing on day 23 even though the mean scores of fatigue show no significant differences at baseline (day 1) in both experimental and control groups. Statistical significant differences were noted between one pairwise comparisons of fatigue mean scores which increased in the experimental group from baseline (day 1) to day 23. This indicates that the fatigue level of the experimental group is significantly lower than that of the control group and there may be an accumulative effect of the ICMB program on fatigue. This may also contribute to the reduction of fatigue on day 23 of the experimental group. Additionally, the results are also supported by the data from the Questionnaire of *Khushu* Prayer. All of the participants could follow the program after receiving coaching and training on how to perform prayer properly and adequately. The data proved that the participants had a high level of khushu prayer (53%), moderate-high (28%), and very high (19%) (see Figure 1).

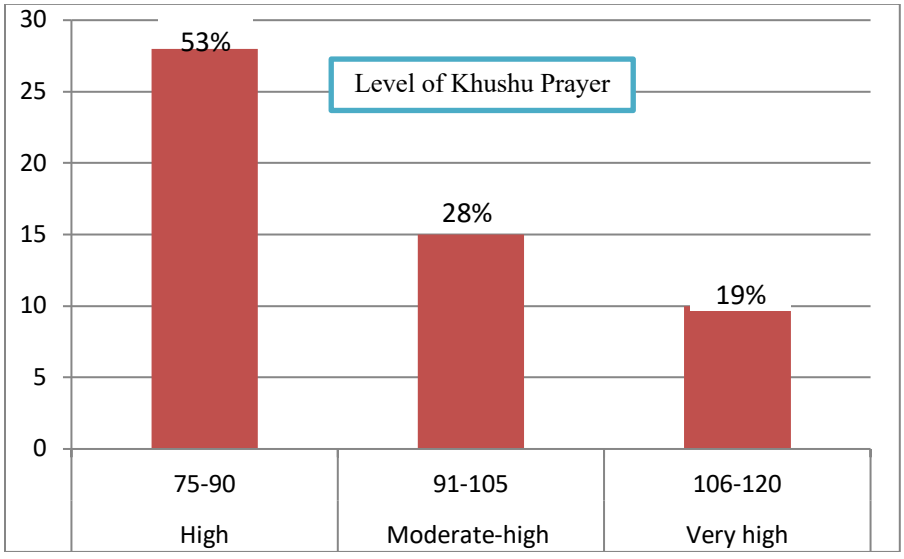

Figure 1. Level of khushu prayer following the Questionnaire of Khushu Prayer after receiving the intervention program (N = 53)

The reduction of fatigue in this study is congruent with previous research employing spiritual-mindfulness based programs. Fatigue was significantly reduced in breast cancer patients following a six-week spiritual therapy [11]. Similarly, another study found that fatigue decreased during twelve sessions of meditation therapy for patients with stage I-III breast cancer who were undergoing six weeks of radiation therapy [14]. However, in the present study the duration of the intervention program was shorter (3 weeks). Likewise, study conducted among 30 breast cancer patients undergoing chemotherapy revealed that practicing Islamic prayer was beneficial in reducing cancer related fatigue after participating a three-week the intervention program [10].

The results of this study confirms that Islamic mindfulness based program effectively reduces fatigue in breast cancer patients that might be influenced by the structure and specification of the program which is designed using Islamic principles as a core practice. The Islamic prayer and *dhikr* meditation were incorporated through nurses' caring action, as effective physical-spiritual care to be the main path for reducing fatigue.

Prayer is an act of worshiping with physical body movements as well as a silent *Quranic* recitation, involving supplication and faith, in turn, enhancing the level of calmness, connection to God, as well as cultivating mindfulness [21]. In addition, *dhikr* meditation can improve mindfulness through faith and resignation, also increasing the condition of relaxation. Activities of prayer can improve adaptation holistically because there are energy conservation techniques in its implementation. The concept of energy conservation occurs during prayer activities and includes increasing energy, as well as structural, personal and social integration [28].

Islamic caring has been proved to bring good health outcomes by providing education related to disease and treatment, and incorporating healing strategies [29]. Interaction between nurses and patients through caring, love, empathy, and compassion integrated with Islamic teaching helped to boost the healing effect. A compassionate interaction between a nurse and her clients and the integration of prayer and *dhikr* meditation as a part of the caring practice in Islam, help improve and facilitate the balance of the body, mind, and spirit [29].

The caring with Islamic religious practice helps the patients feel secure, safe, and confident with no feeling of loneliness. With the power of caring incorporating Islam, the intervention program can effectively help to reduce fatigue. It is also believed that the connection to *Allah* can produce inner strength or spiritual energy [30] and ultimately minimize the symptoms of fatigue [10, 31].

Findings of the current study that contribute to new knowledge in nursing, such as the synergy effect of Islamic mindfulness-based practice namely *khushu* prayer and *dhikr* meditation, and caring can lead to reducing fatigue of women with advanced cancer undergoing chemotherapy and help to restore harmony in life. However, the program may be more effective for small to moderate fatigue levels.

Some limitations of the study were discovered. The researcher could not directly observe the practices of the program in the participants' homes, such as, properly engaging in the prayer and breath *dhikr* meditation. However, phone calls were used to discuss the program, and ensure participants in the experimental group to follow the program accordingly adding to the individual training in prayer and *dhikr* meditation provided at the first meeting. Also, the participants were asked to self-report their daily practice at home to ensure the adequacy of the practice.

The results suggest that the Islamic caring mindfulness-based program is beneficial to Indonesian women with breast cancer undergoing chemotherapy. Professional oncology nurses can easily implement this program to women with this condition who are receiving chemotherapy by ensuring the correctness of their spiritual practice through caring approach. Therefore, the Islamic cultural context should be included in the application of complementary modalities across all cancer treatments or terminal disease.

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