ORIGINAL ARTICLE

Effectivity of Mobile Health: Peer Educational, Emotional, and Relaxation (Peer) Therapy Toward Premenstrual Syndrome (PMS) at Teens in Pandemic

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ABSTRACT

Introduction: Premenstrual syndrome (PMS) is characterized by physical, psychological, and behavioral changes that occur during phase luteal in menctrual cycle which is around 23-48% at teens. The COVID-19 epidemic developed into a serious pandemic affecting and requiring physical and social distancing and global lockdown of public, social, and work life. So, it difficult for nurses to deliver direct intervention. A mobile health or using the internet is the most recommended during this pandemic. Therefore, appropriate interventions are needed that can reducing PMS in order to improve the quality of life. This study aimed to determine the effectiveness of Mobile Health: Peer Educational, Emotional and Relaxation Therapy (PEER-T) toward PMS at teens in Pandemic. **Methods:** This study used a quasi-experimental with a pre-post design and two groups. Respondents were adolescents with inclusion criteria, have regular menstrual cycles, met PMS criteria and were willing to be respondents. Samples were collected by google form with purposive sampling. The samples were 104 teens and 52 for each group. The experimental group was given PEER Therapy by online which consisted of 3 sessions, namely educational, emotional and relaxation sessions and followed up for two their menstrual cycles. The bivariat analysis used wilcoxon and Mann-Whitney Tests. **Results:** This study found that respondenst had mild and severe symptoms of PMS about 64% and 36 during covid-19 pandemic. There was a decreasing somatic symptoms in mean value at pre and post-test, 3.88 and 2.04 with standard deviation 0.45 and 0.432 (p 0.000, $p < 0.05$). Also found affective symtomps in experimental group had different in mean at pre and post was 8.54 dan 2.62 with standard deviation 0.582 and 0.571 (p 0.000, $p < 0.05$). Also, found that there was a significant difference in somatic and affective symptoms at pre and post test with Mann-Whitney Test (p 0.000 and 0.001, $p < 0.05$). **Conclusion:** *Peer Educational, Emotional,and Relaxatation Therapy* is a significant to reduce PMS at teens. So, a nurse can implementing this therapy for reduction PMS at teens in order to improve their quality of life.

Keywords: Mobile Health, Therapy, Premenstrual Syndrome, Teen, Pandemic

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INTRODUCTION

Premenstrual syndrome is a recurrent disorder that occurs in the luteal phase of the menstrual cycle which is characterized by physical, psychological and behavioral changes that can affect interpersonal relationships. The prevalence of PMS is reported to be 3–24% and severe PMS as much as 5–8%. Almost 30% of women suffering PMS in their reproductive age and affect as many as 90% in their menstruation periode. The cause of PMS is thought to be influenced by biological, psychological, environmental and social factors. Symptoms are often reported by teenagers such as are emotional symptoms such as irritability, depression, irritability, anxiety/tension, mood swings, while physical symptoms are tense breasts, bloated stomach, headaches and fatigue (1).

Adolescents with PMS affect their academic performance (60.1%), adolescents are a absent in school at least one day (43.5%) and 22% failed in ther exams. PMS also affects their productivity, such as homework (48.9%), social activities (19.45%),

friends/family relationships (19.1%), and difficulty to concentrating (60.4%)(2). Adolescents with PMS have lower learning or academic achievement than those without PMS. Only 10.3% of adolescents with PMS going to a doctor regarding the symptoms they experience, so early detection is needed so that treatment can be carried out. PMS treatment strategies are widely used, such as pharmacological and non-pharmacological approaches (3). Recently, the main intervention goals for PMS remained to manage symptoms and reduce their effects on daily activities. Currently a clinical research suggests a combination of pharmacotherapy and non-pharmacotherapeutic therapies, namely, cognitive and behavioral therapy, aerobic exercise, reflexology, light therapy, therapeutic massage, dietary changes and nutrition, to treat premenstrual symptoms(4).

The Corona virus (Covid-19) pandemic has had an impact on people's lives and daily lives. The Indonesian government has also implemented large-scale social restrictions to control the spread of the Covid-19 outbreak. This policy has changed people's daily lives, because all activities that were previously carried out outside the home have become only at home(5). In disaster or outbreak condition, every society is expected to be able to adapt to this new situation, although psychologically it is not easy. The results showed that the incidence of PMS and Premenstrual Dysphoric Disorder (PMDD) was significantly associated with Post Traumatic Stress Disorder (PTSD) after the eruption of Merapi. The prevalence of PMS/PMDD increased by 2 times compared to areas no disaster, namely 47.35% and 41.8%(2). This shows that Pandemic Condition will also have an impact on adolescents with PMS and their quality of life, but implementation about large-scale social restrictions in pandemic have an impact on decreasing medical visits to clinics or another health facilities. Currently, there are not many studies related to interventions for adolescent with PMS during the pandemic. This study was conducted to investigate the efficacy of mobile Health : Peer Educational, Emotional, and Relaxation (PEER) Therapy toward Premenstrual Syndrome (PMS) at Teens in Pandemic.

MATERIALS AND METHODS

Study design and sample

This research method is quasi-experimental with pre-post design with control group. Sample calculation using G*Power Software versi 3.1.9.2 with f-test, ANCOVA: Fixed effects, main effects and interactions, A priori: Compute required sample size-given α, power, and effect size with medium effect size f=0.25, α err prob = 0.05, power (1-β err prob) = 0.8, numerator df = 1, number of groups = 2, number of covariates = 1 (Cohen, 1988). The number of Samples are 104 respondents and divided in two groups, 52 for experimenal group and 52 for control group with collecting of data using accidental sampling. The inclusion criteria is adolescents with Premenstrual Syndrome (PMS) based on PSST screening, 18-21 years old, have a reguler menstruation cycle (21 – 35 hari), and willing to be a respondent.

Instruments

a. PSST (Premenstrual Symptoms Screening Tools)
The Premenstrual Syndrome Scale (PSST) is a 19-item instrument used to evaluate premenstrual symptoms. The first section (or domain) consists of 14 questions about several types of distress (mental, somatic, and behavioral). While the second domain contains five items to evaluate the impact of symptoms. Each item is rated on a four-point scale (0 = Not at all, 1 = Mild, 2 = Moderate, 3 = Severe). The degree of premenstrual syndrome was assessed from three categories (Mild = 0-13, Moderate = 14-26, Severe = 27-39). The PSST reliability test value of Cronbach's alpha coefficient was found to be 0.89 for the first domain, 0.91 for the second domain, and 0.93 overall. [6].

b. DRSP (Daily Record Of Severity Of Problems
DRSP to assessing the severity of symptoms and disturbances in phases in the menstrual cycle consists of psychological and physical symptoms (1= not at all, 2= Minimal, 3= Mild, 4= moderate, 5=severe, 6= ExtremeThe reliability test value of the DRSP is 0.8) [7].

Procedure

Previously, researchers had conducted a systematic review of the PEER Therapy protocol and the results of the synthesis were used as a reference in preparing Standard Operating Procedures (SOP) for PEER Therapy. To test the validity of the PEER Therapy SOP, researchers have conducted content validity with expert reviews. The results of this review are used as the final draft of the PEER Therapy SOP which is valid for use. There are 3 sessions, namely an educational session, an emotion management session and a relaxation session. Respondents be choosen based on inclusion and exclusion criteria. The first, researcher ask to respondent for informed consent by a google form.

After that, respondents joined in whatsapp group for control or experimental group. Each respondent ask to fullfill PSST quesstionaires form initial screening. For experimental group, respondents were given PEER Therapy during 2 weeks, namely an education session

by 2 times for the first week. And an emotional and relaxation sessions by 2 times for the second week. This therapy is carried out virtually using Mobile Health with Video Call, Zoom, google meeting or another applications that allow virtual face-to-face between researchers and respondents. In the education session, samples will be given e-booklets and educational therapy in peer groups or groups in the first week, the second and third sessions, namely emotional management and relaxation sessions, are carried out in the second week in peer groups by virtual.

Measurement of PMS was carried out before and after giving PEER Therapy. Measurement of PMS was carried out in the next premenstrual period to determine the impact of therapy on PMS using the Daily Record of Severity of Problems (DSRP) which was followed up for two months of their menstrual cycle. The control group in this study were adolescents who experienced PMS according to the inclusion criteria who were not given PEER therapy and measured PMS symptoms twice the same as the control group.

Data Analysis

Descriptive statistics were used to calculate the respondents characteristic and premenstrual symptoms variables. The wilcoxon and Mann-Whitney test as Bivariat analysis were used to knew different between pre and post test at control and experimental group. Also to evaluate intervention or peer educational, emotional and relaxation therapy toward premenstrual syndrome. Data were analyzed using IBM SPSS Statistics Base version 25.0.

Ethical Considerations

To conduct this study, the researcher first secured official approval from the school's administration and the appropriate institutional review board. Ethical approval for the study was obtained from KEPK STIKep PPNI Jawa Barat; this was done to ensure the respondents' safety. Results of investigation III/046/KEPK/STIKEP/PPNI/JABAR/V/2021 are in. Informed consent, nonmaleficence, confidentiality, objectivity, and justice were all upheld during the course of this investigation. Each respondent gave their informed consent. Respondents were assured that their identities and the privacy of their responses would be protected at all times during the research. A statistical outlier, and analysis of data using coding schemes designed to protect respondents' identities and personal information. There will be no negative effects on the health of the participants in this study.

RESULTS

Respondents's Characteristics

Table I showed that the characteristic of respondents in this study including class, age, menarche age, menstrual cycle, duration of menstruation, and PMS's severity or category.

Univariat Analysis

Premenstrual Syndrome (PMS) consist of two domain are somatic and affective symptoms. Distributon of somatic and affective symptoms as follow in table II.

Bivariat Analysis

For determination the differences in the level of somatic and PMS affective symptoms in the experimental and control groups before and after intervention was given, bivariate analysis was performed using the Wilcoxon and Mann-Whitney Test. The result was showed in table III.

To determine the effectiveness of psycho-educational intervention on somatic symptoms in PMS, the atistical test used was Mann-Withney. The result was showed in table IV.

Based on table III, the results showed that the level of Somatic Symptoms decreased in the mean in the pre and post-test of the experimental group, namely 3.88 and 2.04 with standard deviation 0.45 and 0.432 (p 0.000, $p < 0.05$). While, in Control group had no different of mean at pre and post test was 3.73 and 3.73 with standard deviation 0.533 and 0.533 with standard deviation 0.533 and 0.533 (p 1.000, $p>0.05$). Based on table III. Also found affective symtomps in experimental group had different in mean at pre and post was 8.54 dan 2.62 with standard deviation 0.582 and 0.571 (p 0.000, $p < 0.05$). while, in control group had no different of mean at pre and post test was 4.92 and 4.92 with standard deviation 0.492 and 0.492 (p 1.000, $p>0.05$). Based on the Wilcoxon Test showed that a significant difference found between at both groups for Somatic and affective symptoms in prementrual syndrome at teens. Also, found that there was a significant difference in somatic and affective symptoms at pre and post test with Mann Whitney Test (p 0.000 and 0.001, $p < 0.05$). Based on Table IV showed that Z value was -3.932 for somatic symptoms and -3.192 for affective symptoms. It showed that Peer Educational, Emotional and Relaxation Therapy helped reduction the somatic and affective symptomps of prementrual syndrome at teens in COVID-19 Pandemic.

DISCUSSION

Overviews of Respondents's Characteristic

There were no differences in the characteristics of respondents in the control and experimental groups in terms of age at menarche, menstrual cycle and PMS categories, indicating homogeneous criteria between the control and experimenatal groups. In the category of respondent's age, class and duration of menstruation, differences were found between the control and experimental groups but did not showed a heterogeneous picture of the respondents because there were no differences in theoretical concepts in terms of class, duration of menstruation and age

Table I : Distribution of Respondents's Characteristic (n=104)

Variables	Control Group (N=52)	Experimental Group (N=52)	p-value
Kelas			0.042*
X	40 (76.9)	50 (96.1)	
XI	12 (23.1)	2 (3.9)	
Age			0.031*
15 years	6 (11.5)	8 (15.4)	
16 years	26 (50)	40 (76.9)	
17 years	20 (38.5)	4 (7.7)	
Menarche Age			1.000
9-10 years	4 (7.7)	4 (7.7)	
11-13 years	38 (73.1)	38 (73.1)	
14-15 years	10 (19.2)	10 (19.2)	
Menstrual Cycle			0.310
26-28 days	28 (53.8)	34 (65.4)	
29-31 days	20 (38.5)	18 (34.6)	
32-34 days	4 (7.7)	0 (0)	
Duration of Menstruation			0.032*
4-6 days	22 (42.3)	8 (15.4)	
7-10 days	30 (57.7)	44 (84.6)	
PMS's Category			0.388
Mild	0 (0)	0 (0)	
Moderate	30 (57.7)	36 (69.2)	
Severe	22 (42.3)	16 (30.8)	

* = chi-square Test

of respondents. The age of the respondents in both groups was still in the adolescent category and the length of menstruation was still in the normal category.

The results showed that the majority of the respondents were 16 years old with an average age of menarche 11-13 years with a long period of menstruation. In the menstrual cycle, most of the respondents in the intervention group and the control group had a menstrual cycle of 26-28 days. In the distribution of data, the duration of menstruation is 7-10 days. The results of this study are in line with previous studies which stated that 68.2% for the age of menarche was 12 years with the length of menstruation experienced by the respondents was 1-8 days 95.3% [8]. This is in accordance with previous research stated that as many as 74% experienced menarche in the 11-13 year age range and 68% experienced 5-7 days of menstruation [9].

Results of the screening showed that most of the respondents experienced the severity of PMS in the moderate to severe category. This study is in line with previous research which states that 91.2% of girls have PMS where 47.8% are in the mild and moderate PMS category, while 43.4% are in the severe category. Only 8.8% of female students are without PMS(3)

Overviews of Premenstrual Syndrome at Teens

This study found that almost teens about 64% teens have mild symptoms and 36% have severe symtoms of premenstrual syndrome during covid-19 pandemic. Mood fluctuations and an unexpected feeling of sadness are the most common affective symptoms, whereas feelings of lethargy, exhaustion, and loss of energy are the most common physical symptoms. To combat the COVID-19 epidemic, people's everyday, health, and social habits must change. It's possible that the pupils' mental health, subjective experience, and behavior

Table II : Distribution of Premenstrual Syndrome (PMS) at Teens (n=104)

Variable	Experimental Group				Control Group			
	Mean		SD		Mean		SD	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Somatic Symptoms								
Felt lethargic, Fatigued or tired, and had lack of energy	4,12	1,42	0,326	0,504	3,50	3,73	0,812	0,533
Breast tenderness, breast swelling, bloating, weight gain, head ache, joint/muscle pain and other physical symptoms	3.04	1,0	0,824	0,000	3,58	3,96	0,504	0,344
Affective Symptoms								
Sunddenly feeling sad or tearful	5.54	2.80	0.508	0.90	5.58	4.46	0.504	1.355
Felt anxious	5.42	2.83	0.578	0.876	5.54	4.47	0.508	1.345
Had mood swings	5.53	2.65	0.485	0.864	5.31	4.49	0.471	1.323
Feel angry or irritable	5.08	2.61	0.272	0.932	4.96	4.44	0.445	1.353
Had difficulty concentrating	4.92	2.56	0.272	0.896	4.92	4.49	0.484	1.327
Had less interest in usual activities (work, school, friends, hobbies)	4.23	2.54	0.430	0.911	4.08	4.46	0.935	1.348
Had increased appetite or overate or had cravingfs for spesific foods	4.04	2.40	0.344	0.940	3.88	4.08	0.816	0.937
Insomnia or hypersomnia or had trouble getting to sleep or staying asleep	4.08	2.43	0.392	0.888	3.42	4.09	0.809	0.938
Felt overwhelmed or unable to cope or felt out of control	4.12	2.47	0.362	0.890	3.45	4.06	0.751	1.010

Tabel III : Somatic and affective Symptoms of Premenstrual Syndrome at Pre and Post Peer Educational, Emotional and Relaxation Therapy (n=104) with Wilcoxon Test

Groups	Mean		SD		*p-value*	Test
	Pre-Test	*Post-Test*	*Pre-Test*	*Post-Test*		
Somatic Symptoms						
Control Group	3.73	3.73	0.533	0.533	1.000	*Wilcoxon*
Experimental Group	3.88	2.04	0.445	0.431	0.000*	
Affective Symptoms						
Control Group	4.92	4.92	0.492	0.492	1.000	*Wilcoxon*
Experimental Group	8.54	2.62	0.582	0.571	0.000*	

*Significant value ($\alpha \leq 0.05$)

Table IV : Somatic and affective Symptoms of Premenstrual Syndrome at Pre and Post Peer Educational, Emotional and Relaxation Therapy (n=104) with Mann-Whitney Test

Domains	Z	p-value	Test
Somatic Symptoms	-3.932	0.000*	*Mann-Whitney*
Affective symptoms	-3.192	0,001*	*Mann-Whitney*

*Significant value (α ≤ 0.05)

will all suffer as a result of the widespread adoption of preventative measures taken in response to the COVID-19 pandemic (5).

More pupils will report being concerned about their emotional and physical health than they were before the outbreak. Compared to before the pandemic, participants in this study paid more attention to their physical symptoms (such as changes in smell, taste, cardiovascular functioning, breathing/respiration, and appetite/eating/drinking). As a result of the lockdown, students' work and free time activities suffered across the board. This included a decline in regular physical activity, as well as no changes in eating- or sleeping-related weight. Feeling challenges in both academic and social functioning (5).

Effectivity of Peer Educational, Emotional,and Relaxatation Therapy to Premenstrual Syndrome at Teens

The results showed that there was a decrease in somatic and affective symptoms level scores after being given Peer Educational, Emotional, and Relaxation Therapy (PEER) interventions. In this case, this is in line with previous research reported that psychoeducation can reduce the severity of PMS in adolescent girls who follow this session regularly [7].

This study is in line with previous studies which stated that psycho-educational administration was very effective with p<0.05 [8]. Likewise with previous studies which stated that there was a significant difference in scores between the control and experimental groups, with the total PMS score before and after the intervention. before being given the intervention in the experimental group 53.88 (17.33) and the control group 53.62 (16.07), the score after the intervention was given to the experimental group 41.52 (15.04) and control 54.55 (17.55) so that there was a significance of p 0.001 [7]. In this case, this is in line with research conducted by M Arbaby (2012) in his research observing that psychoeducation can reduce the severity of PMS in adolescent girls who follow this series regularly [7].

n emotional Management Therapy was given to reduce affective syndrome in PMS. An anger management was one of material which was delivered to respondents and also practiced by them. This management demonstrated significant improvements in anger coping and self-esteem at teens. Treatment of anger is effective as an intervention for pshycological symptoms (6).

The experimental group was given a training and educating about Relaxation therapies which could decrease PMS such as, a Progressive Muscle Relaxaion (PMR). Premenstrual syndrome can be mitigated with the use of PMR. help deal with physical symptoms like adolescent tiredness (7). PMR helps maintain harmony between the anterior and hypothalamic lobes. Muscle relaxation decreases sympathetic nervous system activity, protects against stress and anxiety, and promotes overall well-being. (8)

CONCLUSION

This study found that almost teens about 64% teens have mild symptoms and 36% have severe symtoms of premenstrual syndrome during covid-19 pandemic. The highest symptom are had mood swings and suddenly feel sad for affective symptom and feel of lethargic, tired or fatigue, or had lack of energy for somatic symptoms. Peer Educational, Emotional,and Relaxatation Therapy is a significant to reduce Premenstrual Syndrome at teens. So, a nurse can implementing this therapy as one of nonpharmacological therapy for reduction premenstrual syndrome at teens in order to improve their quality of life.

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