



“Sehati” health education to improve physical and psychological adaptation of the postpartum women having pre-eclampsia[☆]



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Abstract

Objective: This study aimed to determine the influence of “Sehati” Health Education on physical and psychological adaptation of pre-eclamptic postpartum women.

Method: We used a quasi-experimental pre- and post-test with control group study design. We recruited 60 postpartum mothers in Banyumas and Purbalingga, Indonesia, selected with consecutive sampling. “Sehati” health education and home visits were provided for the intervention group. Data were collected using the Postpartum Specific Anxiety Scale (PSAS) and Multidimensional Scale of Perceived Social Support (MSPSS) questionnaires.

Results: There were significant differences in physical and psychological adaptation before and after the health education ($p=0.039$; $p=0.007$, respectively) in the intervention group. There were also significant physiological and psychological adaptation differences between groups after the intervention ($p=0.018$; $p=0.004$). The results of logistic regression analysis demonstrated that “Sehati” health education had a dominant effect on postpartum physiological adaptation with an OR score: 5.114 (95% CI: 1.498–17.465) and on postpartum psychological adaptation with an OR score: 6.671 (95% CI: 1.890–19.043).

Conclusion: “Sehati” health education influenced the physiological and psychological adaptability of pre-eclamptic postpartum women. It could be provided as a nursing intervention to assist postpartum women with pre-eclampsia.

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Introduction

The maternal mortality rate throughout the globe had decreased by 45% from 1990 to 2013, from 380 deaths per 100,000 live births to 210 deaths per 100,000 live births.¹ Southeast Asia also experienced a significant reduction in mortality rates at 64%.¹ The decreasing trend is occurring in Indonesia as well, where the rate of 359 deaths per 100,000 live births in 2012 dropped to 305 deaths per 100,000 live births in 2015.² The causes of maternal death in Indonesia are not much different from most of other nations; i.e. obstetrical bleeding 30.3%, gestational hypertension 27.1% and maternal sepsis 7.3% in 2013.²

Pre-eclampsia is a condition that happens during pregnancy at the age of more than 20 weeks to 12 weeks postpartum with the symptoms of hypertension and internal organ function changes seen in the kidneys, liver, nervous system and heart.³ Complications found in the postpartum period associated with pre-eclampsia are accounted for by 15.9% eclampsia, 5.9% pulmonary edema, 3.9% endomyometritis, 1.3% thromboembolism, and maternal death which is less than 1%.⁴ Long-term complications can still occur in women with a history of pre-eclampsia. For example, hypertension can arise after 14.1 years of postpartum; ischemic heart disease can occur after 11.7 years of postpartum; stroke can manifest itself after 10.4 years of postpartum; and venous thromboembolism takes place after 4.7 years of postpartum.⁵ Women with a history of pre-eclampsia are not only prone of having physiological problems, but also of experiencing psychological changes. The psychological quality of life is significantly decreased in women with a history of pre-eclampsia.⁶

The health education for the postpartum women is one of many nursing interventions. One of the roles of nurses in the care of patients with pre-eclampsia is to provide health education about the disease, the risk of cardiovascular disease, and to give emotional support to patients and families.⁷ Nurses are expected to provide interventions that can reduce the risk of long-term complications resulting from pre-eclampsia.⁸ The focus of care provision in the postpartum period with high risk of long-term complication according to Lu et al.,⁹ is the assessment of the risk of diseases in the future, pregnancy plan counseling, psychosocial interventions (social support, social care, and depression screening), nutritional counseling, treating the residual symptoms of pre-eclampsia, and integrated health service coordination. Research with intervention in the form of health education has been carried out by Aba and Kömürçü¹⁰ who reported differences in the scores of postpartum adaptation ability during the first week after intervention between the intervention group and the control group ($p=0.017$). Against this backdrop, we conducted the present research to answer the research question of: How is the effect of "Sehati" health education on the physiological and psychological adaptability of postpartum women with pre-eclampsia?

Method

The design used in this study was a quasi experimental pre–post test with control group design which investigated

the effect of "Sehati" health education on the adaptation ability of the postpartum women with pre-eclampsia. The population in this study were postpartum mothers with pre-eclampsia. The sampling method used was consecutive sampling with the following inclusion criteria: have received Magnesium Sulfate therapy, physically healthy, resident of the Banyumas or Purbalingga region, and have given birth to babies with a normal or low birth weight. Participants were selected with consecutive sampling. We recruited 60 participants and assigned 30 of those living in Banyumas area into the intervention group and 30 from the Purbalingga area into the control group. The study was conducted in March and June 2018.

The tools used consisted of the demographics of participants, observation sheets to assess the ability of postpartum physiological adaptation, Postpartum Specific Anxiety Scale (PSAS) questionnaire, and Multidimensional Scale of Perceived Social Support questionnaire (MSPSS) (Indonesian version). Validity and reliability tests have been carried out resulting in Cronbach's α score 0.990 for PSAS and 0.938 for MSPSS.

The research procedure began with an explanation of the research to seek the informed consent of the participants and was continued by carrying out the postnatal examination (including examinations of blood pressure, lochea, breast milk expression, and urine protein). Then, the participants completed the questionnaire. The participants were given "Sehati" health education on the second day of postpartum at the hospital and on the fifth day of postpartum at the participants' homes. Data collection was carried out by enumerators with a kappa coefficient score of 0.952 and the provision of health education was carried out by researchers.

"Sehati" health education material consisted of understanding pre-eclampsia, complications of pre-eclampsia, danger signs of pre-eclampsia, pre-eclampsia treatment at home, nutrition and lifestyle recommendation for patients with pre-eclampsia, relaxation techniques to reduce tension, how to breastfeed a baby properly, breastfeeding problems and ways to overcome them, and kangaroo methods. In the seventh day of postpartum, participants had the post-test and physical examination at their homes. Participants were also asked to complete a self-monitoring sheet to monitor their activities.

This study was initially conducted at the hospitals and continued with the home visits. This research was approved by the Ethics Committee of the Faculty of Nursing, Universitas Indonesia with reference number: 103/UN2.F12.D/HKP.02.04/2018.

Results

The results include the demographics of participants, postpartum physiological and psychological adaptation abilities before and after the delivery of "Sehati" health education, differences in postpartum physiological and psychological adaptation abilities between the intervention group and the control group, and the factors which facilitate physiological and psychological adaptation.

As shown in Table 1, the mean age of participants was 31.37 years (SD 6.803) in the intervention group and 33.20

Table 1 The demographics of participants and homogeneity test in the control group and intervention group (n = 60).

| Variables | Intervention group | | | | Control group | | | | p value |
|------------------|--------------------|-------|----|------|---------------|-------|----|------|---------|
| | Mean | SD | f | % | Mean | SD | f | % | |
| Age | 31.37 | 6.805 | | | 33.20 | 5.370 | | | 0.843 |
| <i>Income</i> | | | | | | | | | |
| <Min. wage rates | | | 11 | 36.7 | | | 14 | 46.7 | 0.510 |
| >Min. wage rates | | | 19 | 63.3 | | | 16 | 53.3 | |

Table 2 Differences of physiological and psychological adaptation ability on pre-eclamptic postpartum women before and after “Sehati” health education in the intervention group (n = 30).

| Variables | Before | | After | | p value |
|---|--------|------|-------|------|---------|
| | n | % | n | % | |
| <i>Physiological adaptation ability</i> | | | | | |
| Good | 14 | 46 | 22 | 73.3 | 0.039* |
| Poor | 16 | 53.3 | 8 | 26.7 | |
| <i>Psychological adaptation ability</i> | | | | | |
| Good | 13 | 43.3 | 24 | 80 | 0.007* |
| Poor | 17 | 56.7 | 6 | 20 | |

* p < 0.05.

Table 3 Differences in physiological and psychological adaptation ability on pre-eclamptic postpartum women between intervention group and control group after “Sehati” health education (n = 60).

| Variables | Intervention | | Control | | OR | p value |
|---|--------------|------|---------|------|-------|---------|
| | n | % | n | % | | |
| <i>Physiological adaptation ability</i> | | | | | | |
| Good | 22 | 73.3 | 13 | 44.3 | 3.596 | 0.018* |
| Poor | 8 | 26.7 | 17 | 56.7 | | |
| <i>Psychological adaptation ability</i> | | | | | | |
| Good | 24 | 80 | 12 | 40 | 6.000 | 0.007* |
| Poor | 6 | 20 | 18 | 60 | | |

* p < 0.05.

years (SD 5.370) in the control group. The results of the homogeneity test of age and income characteristics between the intervention group and the control group were homogeneous or equivalent.

Table 2 shows the differences between physiological and psychological adaptation abilities in the intervention group before and after “Sehati” health education. From the data obtained, the physiological adaptation ability of the participants in the intervention group indicated positive results, as before the intervention the score percentage was 46% and after the intervention it was found to be 73.3%. Also, the proportion of participants who already had good psychological adaptability before intervention was 43.3% while after the intervention, the figure rose to 80% of the participants. The results of McNemar statistic test concluded that there were differences in the postpartum women’s physiological and psychological adaptation ability before and after “Sehati” health education (p = 0.039; p = 0.007).

Table 3 shows the significant differences in postpartum women’s psychological and physiological adaptabilities between the intervention group and the control group after “Sehati” health education (p = 0.018; p = 0.004).

Furthermore, this study analyzed the most influential factor of “Sehati” health education on pre-eclamptic postpartum women’s physiological adaptability with an OR score of 5.114 (95% CI: 1.498–17.465). This means that pre-eclamptic postpartum mothers who received “Sehati” health education have good physiological adaptation abilities and scored 5.114 compared to pre-eclamptic postpartum mothers who did not receive “Sehati” health education (Table 4). “Sehati” health education was also the most influential factor on the ability of pre-eclamptic postpartum women’s psychological adaptation with an OR score of 6.671 (95% CI: 1.890–19.043).

Table 4 The dominant factors which influence physiological and psychological adaptation ability on pre-eclamptic postpartum women ($n=30$).

| Variables | B | SE | Wald | Sig | Exp(B) | 95% CI | |
|---------------------------------|--------|-------|-------|-------|--------|--------|--------|
| | | | | | | Lower | Upper |
| <i>Physiological adaptation</i> | | | | | | | |
| Type of Childbirth & Delivery | -1.598 | 0.637 | 6.295 | 0.012 | 0.202 | 0.058 | 0.705 |
| “Sehati” Intervention | 0.627 | 0.627 | 6.784 | 0.009 | 5.114 | 1.498 | 17.465 |
| Constant | -0.520 | 0.453 | 1.316 | 0.251 | 0.595 | | |
| <i>Psychological adaptation</i> | | | | | | | |
| “Sehati” Interv. | 1.792 | 0.589 | 9.246 | 0.002 | 6.671 | 1.890 | 19.043 |
| Social Support | 0.559 | 0.601 | 0.867 | 0.352 | 1.749 | | |
| Constant | -1.386 | 0.456 | 9.225 | 0.002 | 0.250 | | |

Discussion

“Sehati” health education influences the physiological and psychological adaptability in pre-eclamptic postpartum women. This was highlighted by the differences in pre-eclamptic postpartum women’s physiological and psychological adaptation abilities in the intervention group before and after the intervention, and between groups after the intervention. Therefore, it can be concluded that the null hypothesis is rejected. This result agrees with previous research which involved 70 mothers in Turkey and conducted by Aba and Kömürçü.¹⁰ They reported that there were differences in the scores of postpartum adaptation ability in the first week between the intervention group and the control group after the health education with $p=0.17$. Health education has also been proven effective in improving the mother’s and child’s health, especially in the terms of breastfeeding, family planning and infant health.¹¹

This research result is also in agreement with the findings of Budiati et al.¹² which showed that the a health education intervention resulted in significant differences in breast milk production between the intervention group and the control group. Furthermore, oxytocin massage given in Budiati’s study made the mothers calmer and less anxious. It is known that oxytocin is a hormone that plays an important part in the production of breast milk and the breast milk production will cease if the mother is stressed. The release of the oxytocin hormone is also related to the massage given by the family, especially given from the husband to the mother. From the self-monitoring of participants in this study, it was found that participants received back massage as much as 73.3% by the seventh day postpartum.

The scope of “Sehati” health education encompasses physical and psychological interventions in which education is given by nurses to patients and their families. This aims to empower women and their families to be more aware about the health of pre-eclamptic postpartum mothers as further complications of pre-eclampsia can be avoided. This is in line with a research conducted by Phillips and Boyd⁷ where nurses took the key role in providing health education for pre-eclamptic postpartum mothers in order to improve mothers’ and child’s health through comprehensive interventions by encouraging patients and their families. Suplee et al.¹³ in their qualitative research mentioned that health

education provided by nurses, which covered the symptoms and dangers of diseases during the puerperium phase was necessary.

Blood pressure in the adaptation component changed before and after the intervention. This could be related to health education materials about pre-eclampsia care at home that suggested the pre-eclamptic postpartum patients to consume nutritious food such as meat, eggs and nuts. In addition, pre-eclamptic postpartum patients were advised to continue to mobilize as usual and to take regular naps. By implementing the “Sehati” health education, the postpartum mothers’ blood pressure improved by the seventh day. This is in line with similar research which found that napping could decrease the blood pressure levels in patients with hypertension.¹⁴

Research by Pinem et al.¹⁵ found that the exercise could reduce the incidence of urinary incontinence during the postpartum period. The component of pre-eclamptic postpartum women’s physiological adaptability is the protein level in urine. Urine protein or proteinuria during pregnancy are typical symptoms of pre-eclampsia, but the presence of protein in urine during the postpartum period is one of the physiological changes within that period. The presence of protein in urine during the postpartum period is related to the autolysis process that happens in the uterus, and it should return to normal within six weeks.¹⁶

In this study, the ability of self-care of mothers who had undergone Caesarean section was influenced by the demographics of the participants and their cultural values. Hence, nurses are expected to use a cultural approach to facilitate mothers’ capability in implementing self-care and caring their babies.¹⁷

The “Sehati” health education program actively involves families in its implementation. This is because the family is a part of the microsystem which is the most influential environment to the mother in achieving maternal roles.¹⁸ Families can provide social support to improve the status of maternal health information.¹⁹ The implementation of “Sehati” health education was carried out in two periods: on the second postpartum day when patients were still being treated in the healthcare facilities and on the fifth day when the patients were allowed back to their homes. The provision of health education in the maternal surroundings then becomes the responsibility of the nurses who strive to

improve the quality of the patient's health.⁷ The provision of family-centered education is also necessary to improve maternal health.²⁰

This study also conducted home visits to enable pre-eclamptic postpartum mothers to provide health education on the fifth day of postpartum. Home visits were necessary to monitor pre-eclamptic postpartum mothers' in terms of physical and mental health. Dhariwal and Lynde²¹ state that pre-eclamptic postpartum women's blood pressure will decrease on the second day of postpartum, but it can also increase again during the third to sixth day of postpartum. Home visits to postpartum mothers are also needed with a focus on assessing the risk of further diseases, providing consultation on further pregnancies, providing psychosocial interventions as well as nutritional education and assessment of pre-eclampsia symptoms and dangers.⁹

In "Sehati" health education, social support is provided by the husband through back massage for the mother. The function of this massage on the mother's back is to stimulate the release of oxytocin. Tactile stimulation of the skin can stimulate the release of oxytocin which itself can increase social motivation and reduce stress in physiological activities.²² The husband's warm skin contact can also increase the level of oxytocin and lower blood pressure.²³ This is also in line with a research conducted by Light et al.²³ that hugging can increase the levels of oxytocin and also reduce blood pressure.

"Sehati" health education also employs a relaxation technique to reduce tension and anxiety during the postpartum period. Pre-eclamptic postpartum mothers were advised to perform relaxation techniques through deep breathing in certain positions one or two times per day for approximately 15–20 min. This is also in line with a research by Kim and Kim²⁴ who found that relaxation therapy was effective in treating anxiety disorders.

In pre-eclamptic postpartum women's psychological adaptation ability which manifests as postpartum anxiety, the provision of "Sehati" health education becomes the most dominant factor affecting the anxiety, accompanied by social support factors. This is in line with a study conducted by Navarrete et al.,²⁵ in Mexico which states that lack of social and spousal support is associated with a higher occurrence of postpartum anxiety. The intervention which has been proven to reduce the risk of postpartum anxiety has been carried out by Tohotoa et al.²⁶ who states that providing education to the husband can reduce anxiety that occurs in the postpartum period.

Limitations of this study are in the sampling technique. This study used a consecutive sampling method that is less generalizable, while a simple randomized sampling technique may yield better results. The methodology of this research with a qualitative mixed-method is also recommended for further research to produce richer data about the physical and psychological adaptation abilities of pre-eclamptic postpartum women.

Based on the results of this study and its discussion, it can be concluded that "Sehati" health education influences the physiological and psychological adaptability of pre-eclamptic postpartum mothers. It is necessary for pre-eclamptic postpartum mothers to receive a comprehensive

health education that can improve postpartum physiological and psychological adaptability. Hence, it needs to be developed going forward in order to create better health education packages that can improve maternal health.

Conflict of interests

The authors declare no conflict of interest.

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