



The Effect of a Combination of Autogenic and Benson Relaxation on Sleep Quality among Pregnant Women with Hypertension

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Abstract. Physical changes, such as changes in body habitus, and hormonal changes, including dramatic increases in estrogen and progesterone, are recognized contributors to sleep disturbance in pregnancy. The study aimed to examine the effect of combined Autogenic and Benson relaxation on sleep quality in pregnant women with hypertension. A quasi-experimental, pre-test, and post-test with a control group was applied in this study. Forty-six samples were recruited using a non-probability sampling such as consecutive sampling and assigned to the intervention group (n=23) and the control group (n=23). The intervention group did the relaxation two times per day for two weeks, then no intervention for the control group. Significant findings were analyzed using chi-square. There was a statistically significant difference between groups regarding daily sleep time, *Pittsburgh Sleep Quality Index* (PSQI) score, and sleep quality after the intervention. The results ($p < 0,05$) showed that the mean intervention group PSQI score decreased from indicating significant differences in the decline PSQI score between the intervention and the control group. It was found that combined autogenic, and Benson relaxation as one of the non-pharmacological interventions effectively improved participants' sleep quality. Instruct pregnant women about appropriate non-pharmacological interventions which have no side-effects to enhance the quality of sleep

Keyword: Benson relaxation, Autogenic relaxation, sleep quality, pregnancy-induced hypertension



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INTRODUCTION

Sleep disturbances are distinctly more common in pregnant than in non-pregnant women assessed from the general population. Elevated maternal blood pressure during pregnancy poses a high risk for both mother and fetus. Approximately 10% of pregnancies are affected by hypertension. Consequences of pregnancy-related hypertension include increased risk of *Placental abruption*, disseminated intravascular coagulation, cerebral hemorrhage, hepatic failure, and acute renal failure (1). Numerous studies demonstrate a secure link between sleep duration, quality or sleep-related breathing disorders, and blood pressure in non-pregnant adults; emerging studies suggest a similar relationship in the pregnant population (2). Sleep disturbances are prevalent among healthy nulliparous women and increase significantly during pregnancy (3).

Maternal Mortality Rate (MMR) is one of the essential indicators in determining community health status. MMR can also be used in monitoring deaths related to pregnancy, childbirth, and childbirth. In the world, MMR reaches 830 deaths at any time due to complications in pregnancy or during labor during 2015 (4). MMR in Indonesia is also still high. Based on the 2015 Intercensal Population Survey (SUPAS), Indonesian MMR was 305 per 100,000 live births (5). Maternal mortality in Indonesia continues to consider three leading causes of death: bleeding, hypertension in pregnancy (PIH), and infection (6). The maternal mortality rate in East Java in 2016 reached 91.00 per 100,000 live births. This figure increased from 2015, which reached 89.6 per 100,000 live births. The highest number of deaths in East Java is in Surabaya, with a total death of 37 cases (6). The most top cause of maternal mortality in 2016 was Pre Eclampsia / Eclampsia, which was 30.90% or as many as 165 people.

Maternal stress has been demonstrated to be an essential risk factor for adverse pregnancy and birth outcomes. It is associated with gestational hypertension and changes in various physiological systems, including the autonomic nervous and endocrine systems. In particular, increased stress reactivity during pregnancy is associated with increased risks of preterm birth and low birth weight. Activation of the sympathetic nervous system in PIH disrupts circadian rhythms and increases wakefulness after sleep onset at night, impairing sleep patterns (7). Therefore, a lifestyle that includes a routine and good quality sleep during pregnancy is essential in preventing perinatal abnormalities in women with lifestyle disease-like pathologies such as PIH (8). Proper sleep is a necessary process leading to psychological and physical health. High-quality sleep affects health and the process of recovery from illness (9).

OBJECTIVE

The study aimed at examining the effect of a combination of autogenic and Benson relaxation on sleep quality among pregnant women with hypertension

METHOD

This study used a pretest-posttest quasi-experimental design with a control group. The Samples of 46 pregnant women were divided into two groups, 23 intervention group was given training about combined autogenic and Benson relaxation. In comparison, 23 pregnant women control who receive standard intervention in the health service center or hospital. The sampling technique using Non-Probability Sampling type consecutive sampling. The Inclusion criteria: systolic blood pressure 140-160 mmHg, and diastolic blood pressure 90-110 mmHg, gestational age between 20-34 weeks, pregnant women with a single pregnancy. The Exclusion criteria: severe preeclampsia, Severe anxiety level, communication limitations.

Pittsburgh sleeps quality index (PSQI) was used to measure the quality and patterns of sleep in adults (10). It has seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction over the last month. The rating scores of the questionnaire from 0 to 21. The counts of more than five yield sensitivity and specificity of 89.6 and 86.5, respectively, in the general population.

The intervention in this study was a combination of autogenic and Benson relaxation. Autogenic relaxation focused on breathing and visualization scenes that make you feel relaxed then Benson relaxation focus on breathing and repeating the positive word. Objective measurement was performed before and after the intervention. The collected data were analyzed using MC-Nemar and chi-square test.

The research ethics committee approved the study of the Faculty of Nursing, Universitas Airlangga, and the hospital where it took place. All respondents were informed of the purpose of the study and consented for their participation in the study.

RESULTS

Characteristic of respondents

Table 1 showed the results of the characteristic of respondents consisted of age. Most respondents have ages 28-35 years old, as many as 21 respondents (51%). Aspects of education, the highest number of respondents are senior high school education as many as 25 respondents (61.1%). Job characteristics, most of them are 49 respondents (68.1%), housewives.

Table 1. Characteristic of respondents

Characteristics	K1 (Intervention group) n = 23		K2 (Control group) n=23		Mean ±SD	p
	F	%	F	%		
Age (years)						
21-27	7	30.34	6	26.08	K1 = 29.90± 5.794 K2 = 30.35± 5.878	K1 = 0.252 K2 = 0.408
28-35	11	47.82	10	43.47		
36-43	5	21.73	7	30.34		
Employment						
Housewife	15	65.21	11	47.83		
private employee	3	13.04	4	17.39		
Entrepreneur	5	21.73	8	34.78		
Education						
Junior high school	8	34.78	7	30.43		
Senior high school	11	47.83	13	56.52		
High school	4	17.39	3	13.04		
Gestational age (week)						
21-24	6	26.09	8	34.78	K1 = 27.10± 4.291 K2 = 28.60± 3.424	K1 = 0.065 K2= 0.300
25-30	9	39.13	10	43.48		
31-34	8	34.78	5	21.74		
Type of gestation						
Primigravida	5	21.74	4	17.39		
Multigravida	18	78.26	19	82.60		
Type of hypertension						
Chronic	5	21.74	4	17.39		
Gestational	3	13.04	6	26.09		
Preeclampsia	15	65.22	13	56.52		

Mean arterial pressure, mean±SD	K1 = 108.09± 1.905 K2 = 108.74± 1.839	K1 = 0.182 K2 = 0.167
Systolic, mean±SD	K1 = 141.39± 2.407 K2 = 142.17± 2.443	K1 = 0.123 K2 = 0.770
Diastole, mean±SD	K1 = 91.30± 2.494 K2 = 92.17± 2.443	K1 = 0.275 K2 = 0.770

The effect of health coaching based on Health Belief Model on preventing infection transmission pulmonary tuberculosis patients

Table 2 showed the effect of a combination of autogenic and Benson relaxation on sleep quality among pregnant women with hypertension. The results showed that patients in the intervention group before given combined autogenic and Benson relaxation mean intervention. There are eighteen respondents in poor and twelve respondents in good sleep quality. After the intervention, there are six respondents in poor sleep quality, and seventeen respondents in poor sleep quality. Statistics analysis shows that $p\text{-value} < 0.05$. It was indicated that there are differences between pre and post-test results. The Chi-square result shows a $p\text{-value} < 0.05$, so it means that there is an effect of combined autogenic and Benson relaxation on sleep quality in pregnant women with hypertension.

Table 2. The effect of health coaching based on Health Belief Model on preventing infection transmission pulmonary tuberculosis patients

Control group					Intervention Group				
		Post-test		Total			Post-test		Total
		Good	Poor				Good	Poor	
Pretest	Good	6 (100%)	0 (0%)	6 (100%)	Pre test	Good	5 (100%)	0 (0%)	5 (100%)
	Poor	2 (11.76%)	15 (88.23%)	17 (100%)		Poor	15 (83.33%)	3 (16.67%)	18 (100%)
	Total	8 (34.78%)	15 (65.21%)	23 (100%)		Total	17 (73.91 %)	6 (26.09%)	23 (100%)
P value Mc. Nemar test : control group 0,500; intervention group 0,000 ; p value chi square test : 0.011									

DISCUSSION

The results showed that the combined autogenic and Benson relaxation had been said to be a new and simple way to reduce sleep disturbance in pregnancy. This acts by breathing exercises and entering someone to relax the state combined by elements of religious beliefs espoused. Maternal psychosocial well-being positively influences pregnancy outcomes, fetal development, and neonatal adaptation (11). A wealth of evidence indicates that prenatal stress and, more specifically, pregnancy-related stress can directly influence fetal growth and length of gestation (12). The importance of good quality sleep and the negative impact of sleep disturbances are well established in the general population. Many publications exist on the associations between rest and a broad spectrum of medical conditions (13).

Chronic stress, anxiety, and depression during pregnancy can adversely affect obstetric, fetal, and neonatal outcomes. The perinatal period is one of the most sensitive developmental phases in an individual's life (as a fetus and parent). There is a lack of evidence of interventions during this period. Treatment options and evidence-based interventions for affected mothers should be readily available. Reductions in sleep duration and sleep quality activate the sympathetic nervous system, which would induce an increased risk for diabetes and elevated blood pressure. In addition, the sympathetic nervous system is activated by increases in

stress,9,32, and in women with pregnancy-related complications, situations may become more critical. Thus, identifying pregnant women at risk and instituting treatment early in pregnancy could improve obstetric and developmental outcomes for both the mother and her fetus (12). Women with sleep problems experienced longer labor duration and were more likely to undergo a cesarean section. Women should discuss sleep problems during the last months of pregnancy, and if present, a physician consultation may help reduce labor complications (14). Relaxation techniques should, therefore, be included in routine care for treating pregnant women experiencing distress

Given the potential adverse impact of sleep deprivation during pregnancy on maternal and fetal outcomes, the results of the present study displayed that the weak sleep quality group was significantly likely to have pregnancy-induced hypertension (PIH) and preeclampsia than the excellent sleep quality group. This can be attributed to sleep disorder breathing(SDB) being more common in the last trimester due to progesterone and estrogen throughout pregnancy. It was associated with vasomotor rhinitis, hyperemia, and edema of the nasal and pharyngeal mucosa. This condition leads to increasing airflow resistance and airway narrowing, eliciting or exacerbating SDB, and eventually aggravating PIH (15). Therefore, relaxation techniques should be included in routine care for treating pregnant women experiencing distress (12) because more significant subjective stress is associated with shorter sleep durations and progressively more inferior sleep quality (8). Relaxation classes can cause significant increases in the emotional comfort of pregnant women (16).

The present study revealed that there was a statistically significant effect of combined autogenic and Benson relaxation. This result relates to a study that highlighted the importance of Benson's relaxation technique in improving the sleep quality of the patients on hemodialysis. Benson's relaxation therapy also effective in reducing stress in primigravid mothers. Thus, educational sessions are recommended to be planned on this cost-effective and easy-to-use relaxation technique to improve hemodialysis patients' sleep quality (17). Further studies are needed to assess this technique's effectiveness in other groups of patients (18).

This research also in line with research about practice relaxation and guided imagery techniques during pregnancy, in addition, to both face to face classes and the healthcare program, as a natural and self-administered way of improving the birth experience. It is suggested that these recommendations be included in the official guidelines (19). The high inclusion rate and the frequent use of the CD by the intervention group indicate that women are interested in and willing to use this kind of self-administered intervention. Other research results state a study found that with a 60,7% pre-test PSQI scores, the pregnant women participating in the study had poor sleep quality. The four-week relaxation exercises improved subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, daytime dysfunction, and sleep quality of the pregnant women in the third trimester (20). Another essential aspect to consider in women's care during the pregnancy-puerperal cycle is the quality of information and care provided for both the physical and emotional elements. That should be ensured to the mothers and children. The perception of risk of death brings many feelings with different intensities (21)

CONCLUSION

Combined autogenic and Benson relaxation can increase sleep quality in pregnant women with hypertension. Based on the findings, The nurse can use this intervention to become one of the nursing independent responses because of natural and minimal risk for pregnant women. This research was limited to being carried out in the Surabaya city area. In the future, a full coverage area is needed to generalize the results of the study.

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