

Effects of Yoga Relaxation on Anxiety Levels among Pregnant Women

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ABSTRACT

Background: Self-reported maternal mood symptoms during pregnancy have been related to poor birth outcomes, including low birth weight, increased risk of premature delivery, and pre-eclampsia among pregnant women. A non-pharmacological method is needed to overcome mood symptoms such as anxiety during pregnancy.

Purpose: This study aimed to evaluate the effects of yoga relaxation on anxiety levels among pregnant women at the third trimester.

Methods: This study employed a quasi-experimental research design and involved 30 pregnant women at the third trimester who were equally divided into two groups. The levels of anxiety were measured by using Hamilton Anxiety Rating Scale (HARS). Data were analysed using the independent t-test and the paired sample t-test.

Results: The results showed that there was a significant difference in the anxiety levels before and after the intervention in the experimental group ($t=7.56, p=0.005$), and there was a significant difference in the anxiety levels after the intervention between the experimental and control group ($t=-9.289, p=0.005$).

Conclusion: Yoga relaxation had an effect on reducing anxiety levels among pregnant women at the third trimester. It is expected that pregnant women use yoga relaxation to decrease anxiety.

Keywords: Anxiety; pregnant women; yoga relaxation

BACKGROUND

Maternal anxiety usually occurs in pregnancy, especially at the third trimester. Pregnant women respond differently to identical stressful stimuli, depending on personality traits, previous experience, genetic factors, and social support. Furthermore, normal pregnancy is associated with physical alterations, hormonal changes, and anxiety toward labor or fetal outcome, and all of which potentially worsen the stress response (Barber & Starkey, 2015). The interaction among all these factors allows evidence-based stress research with difficult and complicated pregnant women.

Anxiety and stress have some effects on the body that may progress into chronic conditions if left untreated. Psychological stress has been linked to deleterious effects on the immune system, while anxiety has been linked to coronary heart disease, decreased quality of life, and suicidal behavior (Olatunji, Cisler & Tolin, 2007; Roest, Martens, de Jonge, & Denollet., 2010; Segerstrom & Miller, 2004). Furthermore, anxiety in pregnancy has been associated with an increase in obstetric complications including

stillbirth, low birth weight infants, postnatal specialist care for the infant and susceptibility to more adverse neurodevelopmental outcomes including behavioural, emotional and cognitive problems (Bonari, Pinto, Ahn, Einarson, Steiner, & Koren, 2004; Glover, 2011; Talge, Neal, & Glover, 2007).

One of the midwifery care performed to reduce anxiety toward labor is physical exercise, such as meditation or prenatal yoga or yoga relaxation. Prenatal yoga or yoga relaxation is one of the solutions that support the process of pregnancy even until delivery. Yoga during pregnancy also contributes to a reduction in pain of labor and improved adequacy of childbirth (Jahdi et al., 2017). Yoga techniques aim to build and retain a healthy balance between all aspects of body and mind. During pregnancy, prenatal yoga or yoga relaxation will focus its attention on the rhythm of the breath, giving priority to comfort and safety in practice so that it provides many benefits (Bribiescas, 2013).

Some studies demonstrated the significant effects of yoga relaxation technique on reducing anxiety levels. A study showed that yoga could be used as a treatment for Obsessive Compulsive Disorder (OCD) (Javnbakht, Kenari, & Ghasemi, 2009). When it was used as an adjuvant to drugs, yoga led to the better improvement of symptoms. In addition, Khalsa's review of papers over the past three decades concluded that Yoga demonstrated efficacy for psychopathological (e.g., depression, anxiety), cardiovascular (e.g., hypertension, heart disease), respiratory (e.g., asthma) diseases and diabetes (Jeter, Slutsky, Singh, & Khalsa, 2015). Furthermore, yoga also was found as a relaxation technique to reduce labor complication (Rakhshani, Nagarathna, Mhaskar, Mhaskar, Thomas, & Gunasheela, 2012). A study conducted by Nerendran (2005) found that from 169 pregnant women, 14% pregnant women who did not practice yoga experience premature births compared to 29% pregnant women who practiced yoga. Also, the results found that relaxation during pregnancy could reduce the incidence of premature birth and other labor complications.

Beside the advantages of yoga relaxation which were reported in the previous studies, some limitations were acknowledged such as a lack of control group, non-randomization, lack of exclusion criteria, or large standard deviations associated with the data (Banerjee et al., 2007; Rao et al., 2009). Based on the data in Rumah Puspa Clinic in Jakarta, Indonesia in 2016, it was found that more than 64% of pregnant women frequently faced anxiety at the third trimester. Yoga was found to be as effective as relaxation in reducing stress, anxiety and improving health status (Smith, Hancock, Blake-Mortimer, & Eckert, 2007). Helpful psychological interventions during pregnancy are rare and expensive, and usually only available for a small percentage of those suffering or deemed to be at risk. Thus, the implementation of yoga relaxation to overcome anxiety among pregnant women is needed.

PURPOSE

This study aimed to evaluate the effects of yoga relaxation on anxiety levels among pregnant women at the third trimester.

METHODS

This study used a quasi-experimental research design. Rumah Puspa Clinic and Aulia Assokabah Clinic in Bekasi Regency, West Java, Indonesia were selected as the study sites because they had prenatal yoga program and were accessible. This study was conducted from June 25 to July 16 in 2017. The ethical clearance was gained from Universitas Nasional (Letter No. 249/D/FIKES/V/2017) and was approved by the clinics where the study took place. The population was 78 pregnant women at the third trimester who attended the yoga relaxation program in Rumah Puspa Clinic during the study period without any documented psychological disorders or specialists' recommendation for taking this therapy. Thirty-five participants were needed to reach the minimum sample size using the Yamane Taro formula (Singh & Masuku, 2014). However, only 15 pregnant women agreed to participate in the study. Thus, 15 women in Rumah Puspa Clinic were purposively selected and assigned into the experimental group. At the same time, 15 pregnant women in Aulia Assokabah clinic were randomly selected and assigned into the control group. Data were collected using the Hamilton Anxiety Rating Scale (HARS) to assess the anxiety levels.

Yoga relaxation treatment was given two times for two weeks with a duration of 90 minutes. All pregnant women did the yoga exercise led by a yoga instructor. The yoga instructor performed a 9-step *Suryanamaskar* movement modified with other movements. The literal meaning of *Suryanamaskar* (a group of yogic Asanas) is a salutation to the sun (Sinha, Ray, Pathak, & Selvamurthy, 2004). *Suryanamaskar* is a group of yogic exercise which consists of a set of twelve postures which are performed rhythmically with controlled breathing. The entire yogic exercise consisted of *Hatha Yogic Asanas*, *Pranayama* and meditation. This sequence of *Asanas* was developed in the much later period as compared to the other *Hatha Yogic Asanas*. It is an effective way to stretching many muscles and performing movements at many joints of the body. The control group received routine care in the form of antenatal care and health education around the preparation before delivery without yoga relaxation. The time range between the pre-test and post-test was two weeks.

Data were analyzed by the descriptive and inferential statistics. The paired sample t-test was used to analyse the difference of anxiety between pre and post intervention within the experimental group. Additionally, the independent t-test was used to analyse the difference of anxiety post-intervention between the experimental and control group.

RESULTS

Demographic characteristics

Table 1 shows that the mean age of respondents was 29.13. Additionally, the majority of the respondents graduated from senior high school and were multiparas.

Table 1. Demographic characteristics of the participants (N=30)

Characteristics	M (SD)	n	%
Age	29.13 (5.58)		
Education levels			
Junior high school		7	23.3

Characteristics	M (SD)	n	%
Senior high school		19	63.3
University		4	13.3
Parity			
Primipara		14	46.7
Multipara		16	53.3

The levels of anxiety pre and post-test in the experiment group

The result showed that the majority of respondents in the experimental group had a low level of anxiety before the intervention (40%), and the majority of the respondents had no anxiety after the intervention (86.7%) (Table 2).

Table 2. The levels of anxiety pre and post-test in the experimental group

Anxiety level	Pre-test		Post-test	
	f	%	f	%
No anxiety	3	20	13	86.7
Low	6	40	2	13.3
Middle	3	20	0	0
High	3	20	0	0
Total	15	100	15	100

The levels of anxiety pre and post-test in the control group

The result showed that the majority of respondents in the control group had a medium level of anxiety in the pre-test (46.7%) and the majority of the respondents had a medium level of anxiety in the post-test (60%) (Table 3).

Table 3. The levels of anxiety pre and post-test in the control group

Anxiety level	Pre-test		Post-test	
	f	%	f	%
No anxiety	0	0	0	0
Low	4	26.7	2	13.3
Medium	7	46.7	9	60
High	4	26.7	4	26.7
Total	15	100	15	100

The difference of levels of anxiety pre and post-intervention in the experimental group

Table 4 shows that there is a difference of anxiety levels before and after intervention within experiment group ($t = -7.56$, $p = .005$).

Table 4. The difference in the levels of anxiety between pre and post intervention in the experimental group

	M	SD	95% Confidence		t	p
			Lower	Upper		
Pre-post anxiety level	9.87	5.05	7.06	12.67	-7.56	0.005

The difference in the anxiety levels post-intervention between the experimental and control group

The result showed that there is a difference in the anxiety levels between the experimental and control group after the intervention ($t = -9.83, p = 0.005$) (Table 5). It can be concluded that there was an effect of yoga relaxation on the levels of anxiety among pregnant women at the third trimester.

Table 5. The difference in the anxiety levels post-intervention between the experimental and control group

	Levene's Test		Mean difference	95% Confidence		t	p
	F	Sig		Lower	Upper		
Anxiety level post intervention	0.014	0.907	-15.4	-18.61	12.20	-9.83	0.005

DISCUSSION

The levels of anxiety among the respondents in the experimental group

The results showed that the majority of respondents had a low level of anxiety before the intervention and the majority of the respondents had no anxiety after the intervention. These results indicate that there is a significant change in anxiety levels between before and after yoga relaxation.

Pregnant women experience significant changes in physiological and psychological functions that often cause anxiety disorders (Glynn, Schetter, Hobel, & Sandman, 2008). Anxiety experienced by pregnant women is due to increased progesterone hormone during pregnancy. In addition, an increase in adrenaline hormone leads to physical tension that causes tired, angry, anxious, difficult to concentrate and hesitate. It is also assumed that anxiety in pregnant women will increase at the third trimester (Bastani, Hidarnia, Kazemnejad, Vafaei & Kashanian, 2005).

The result of this study was similar to a previous study which found that normal pregnant women in the face of childbearing are most likely to have mild anxiety and moderate anxiety (Celedonia, 2010). Additionally, Bannet (2004) found that anxiety in the third trimester of pregnancy is more severe than the first trimester. It was revealed that when the women were at the third trimester of pregnancy, the physical changes have reached the peak, and the psychological perception is also increasing such as excessive anxiety before the delivery process.

The levels of anxiety pre and post intervention in the control group

The results of this study showed that the majority of respondents both before and after the intervention had a medium level of anxiety. There were no respondents who had no anxiety either before or after the intervention.

This result is supported by a previous study which found that from 158 respondents, 52.5% of pregnant women experienced anxiety (Astria, Nurbaeti, Rosidati, 2012). In addition, another study also found that a substantial number of pregnant women screened in obstetrics settings had significant symptoms of anxiety (Marcus, Flynn, Blow, & Barry, 2003). This indicates that the level of anxiety during pregnancy at the third trimester of pregnancy is still high.

This study found that the level of anxiety in the control group did not change significantly because the control group only received routine care in the form of antenatal care and health education about preparation before delivery and not given information about the handling of anxiety, including the yoga relaxation. There is a tendency that pregnant women feel anxious because of difficulties to adapt to pregnancy and insufficient information. Pregnancy causes discomfort and anxiety due to physical and psychological changes (Hawari, 2010). Pieter and Lubis (2010) also found that pregnant women will experience forms of psychological changes such as emotional changes, tend to be lazy, sensitive, easily jealous, ask for more attention, feelings of discomfort, depression, stress, and anxiety.

The difference in the levels of anxiety pre and post-intervention in the experimental group

The results of the study showed that there were differences in the anxiety levels before and after the intervention in the experimental group. Yoga relaxation in this study was given two times for two weeks with a duration of 1.5 hours. The participants were reported to experience a significant change between the pre-test and post-test. This happened because the yoga relaxation instructor also performed a 9-step *Suryanamaskar* movement modified with other movements. *Suryanamaskar* has positive physiological benefits as evidenced by improvement of pulmonary function, respiratory pressures, hand grip strength, and endurance, and resting cardiovascular parameters (Bhavanani, Udupa, & Madanmohan, 2011). Also, yoga reduces perceived stress and improves adaptive autonomic response to stress in healthy pregnant women (Satyapriya, Nagendra, Nagarathna, & Padmalatha, 2009).

The results of this study were in accordance with a study conducted by Aprilia and Ritchmond (2014) which found that the movement of 9-step *Suryanamaskar* conducted for 30-60 minutes per day will optimize the relaxation movement of yoga. The results of this study were supported by another study such as Gupta, Khera, Vempati, Sharma, and Bijlani (2006) which found that yoga exercise is a physical treatment in which *bermayata* can provide psychological effects that help to reduce anxiety due to the relaxing effect. In addition, another study found that participation in a two-month yoga class can lead to significant reduction in perceived levels of anxiety in women who suffer from anxiety disorders (Javnbakht, Kenari, & Ghasemi, 2009). Chen, Yang, Chou, Li, Chang, and Liaw (2017) revealed that prenatal yoga reduced the stress hormone and enhance the immune

biomarker Ig A during pregnancy. Its outcome variables were biological markers of both salivary cortisol and Ig A and were sensitive enough to detect the immediate and long-term effects of prenatal yoga. The study evidence recommends that practicing yoga positively influences pregnant women's health. It is suggested for pregnant women to practice yoga relaxation during pregnancy to overcome their anxiety to prevent labor complications.

The difference in the anxiety levels post-intervention between the experimental and control group

The results showed that there is a difference in the anxiety levels between the experimental and control groups after the intervention, meaning that there was an effect of yoga relaxation on the levels of anxiety among pregnant women at the third trimester. This result indicates that the changes in anxiety levels in the experimental group were due to the intervention.

This study is supported by the previous study which found that the element in yoga could reduce anxiety if one relaxes on his body (Kirkwood, Ramps, Tuffrey, Richardson, & Pilkington, 2005). According to Sun, Hung, Chang, and Kuo (2010), one way to overcome anxiety and discomfort of pregnancy is practicing yoga relaxation. In addition, prenatal exercise is safe and beneficial for the fetus. The maternal exercise was associated with reduced odds of macrosomia (abnormally large babies) and was not associated with neonatal complications or adverse childhood outcomes (Davenport et al., 2018).

Yoga is one solution that helps the process of pregnancy and childbirth. Yoga is a kind of bodywork, mind and mental that really help pregnant women flex muscles and joints and soothe the mind, especially during the third trimester. Prenatal yoga or yoga relaxation has five ways of physical exercise of yoga (*asanas*), breathing (*pranayama*), position (*nidra*), meditation (*dhyana*) and deep relaxation that can be used to help to smooth pregnancy and childbirth naturally and help to ensure the baby is born in good health (Curtis, Weinrib, & Katz, 2012). Also, building a positive way of thinking about childbirth is one of the treatments given in the prenatal yoga or relaxation of yoga in the deep stage of relaxation. Thus, it is expected that the anxiety and tension in labor will decrease and even disappear. Therefore, the women can develop a sense of courage to face the physiological process that every woman will pass by (childbirth).

CONCLUSION

The study revealed that there was an effect of yoga relaxation on the anxiety levels among pregnant women at the third trimester. This study provides evidence that Yoga relaxation has an effect on reducing the anxiety levels among pregnant women. It is expected that nurses and midwives in Indonesia could enhance the health education regarding psychological intervention such as yoga relaxation for pregnant women to overcome anxiety. It is also suggested that pregnant women practice yoga relaxation. Future research is needed to conduct the yoga relaxation using the specific instrument such as Anxiety Scale for Pregnancy (ASP) to enhance the validity. Clinical outcomes are also needed to be measured as the effect of anxiety disorders such as vital signs.

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