

Anxiety Level Assessment to Primigravidae Women (28-40 week) with Hamilton Anxiety Rating Scale (HARS) Method

Ruqaiyah^{1,2}, Nusratuddin Abdullah³, Mochammad Hatta⁴, Nasrudin A Mappeware⁵, Ayatullah Harun², Fatmawati Amir², Alfina Baharuddin⁶

¹ Research in Postgraduate Progrsam, Medical Faculty, Hasanuddin University, Indonesia, ²Lecturer in Akbid Pelamonia Kesdam VII/Wirabuana, Indonesia, ³ Professor Obgyn in, Medical Faculty, Hasanuddin University, Indonesia, ⁴Professor Microbiology Department, of Medical Faculty, Hasanuddin University, Indonesia, ⁵Assistant Professor Obgyn in Medical Faculty, University Moslem Of Indonesia, ⁶Research Environmental health Departement of public health, University Moslem Of Indonesia

Abstract

Background: the prevalence of pregnancy anxiety varies in the different trimesters of pregnancy with high levels in the first and third trimesters. Anxiety in pregnancy is a strong predictor of poor birth processes and infant outcomes.

Methods: This study uses quantitative research with quasi experimental / quasi experimental approaches and one group design pre and post test design with group control. This research will use the Hamilton Anxiety Rating Scale (HARS) method.

Results: There is a significant difference ($p = 0.004 < \alpha$) the average level of anxiety in the control group before (16.5 ± 0.80) and after observation (18.17 ± 1.03) this means that Yoga exercises can reduce anxiety levels in third trimester pregnant women. In the control group ($n = 12$) there was no negative rank anxiety level which meant that there was no person with an anxiety level before greater than after. Furthermore, a positive rank indicates 10 which means there are 10 pregnant women with anxiety levels after being higher than before or in other words there are 10 pregnant women who have increased anxiety in the third trimester.

Conclusion: There is a significant difference ($p = 0.004 < \alpha$) the average level of anxiety in the control group before (16.5 ± 0.80) and after observation (18.17 ± 1.03), so it can be concluded that prenatal yoga reduces anxiety levels before and after treatment.

Keywords: Anxiety, Method HARS, Primigravida, Yoga

Introduction

The period of pregnancy starts from the end of the menstrual period until the birth of the baby, around 266-280 days or 37-40 weeks¹, which consists of three trimesters. Stress and anxiety during pregnancy have been linked to premature babies and low birth weight, possibly through fetuses exposed to glucocorticoids. Anxiety is an uncertain feeling that results from anticipating a state of danger. Someone will feel anxious when faced with change and the need to take different actions. Anxiety is

a condition when someone experiences uneasy feelings of concern and worry because of a threat to a person's value or security pattern^{2,3}. Anxiety as a concern that is not clear and spread, and associated with uncertain feelings. This emotional state basically has no specific object, is experienced subjectively and communicated interpersonal^{4,5}

A prospective study among 160 Iranian third trimester pregnant women, shows a significant relationship between general anxiety and fear of childbirth. Nulliparous women reported higher levels of anxiety at 28 and 38 weeks multiparous gestational age^{6,7}. Studies among 660 low-risk pregnant women

Corresponding author:
alfina.baharuddin@umi.ac.id

in the third trimester revealed a significant relationship between childbirth fears and general anxiety and higher scores of childbirth fear in nulliparous women compared to multiparous women^{8,9,10}.

Yoga has several advantages because it is more affordable, can be learned and practiced using digital video discs (DVD). Yoga is a comprehensive system between physical (asanas), breathing exercises (pranayama), concentration and meditation (dharana and dhyana) and contemplative practice¹¹. Yoga can also be interpreted as a holistic approach in the form of physical, mental and spiritual. Physiologically, yoga exercises will reverse the effects of stress involving the parasympathetic part of the central nervous system.^{12,13}

Several studies have proven the benefits of yoga in pregnancy. Hope to mediate the reduction in abnormal activity of the maternal sympathetic adrenal medullary system (SAM) and hypothalamic pituitary adrenocortical axis (HPA-axis)^{14,15}. Several studies have reported positive effects of yoga on depression and anxiety positive effects of yoga on the well-being of pregnant women and reducing stress, anxiety and reducing labor pain, the effect of yoga in overcoming discomfort in pregnant women reducing pain during labor^{16,17}

In this study, the Hamilton Anxiety Rating Scale (HARS) method will be used to measure anxiety levels so that overall anxiety levels are known. The HARS scale has been proven to have a high enough validity and reliability to measure anxiety in trial clinical studies of 0.93 and 0.97. This condition indicates that the measurement of anxiety using the HARS scale will obtain valid and reliable results^{18,19}. Therefore most interested researchers look at anxiety levels of pregnant women and the effects of yoga exercises on third trimester pregnant women.

MATERIALS AND METHODS

This study used quasi experimental / quasi experimental approaches and one group design pre and post test design with group control. In this study the researchers' treatment or intervention was prenatal Yoga exercises in third trimester pregnant women (UK 28-40 weeks),

The sample in this study were 11 respondents who will be intervened. Calculation of sample size needs to be considered the existence of a sample drop out then corrected by 10% the number of samples as many as

12x2 = 24 respondent.

Result

Table 1 Test results for normality of age data

Group	p-value	distribusi
Control	0.038	Tidak normal
Treatment	0.417	Normal

In Table 1 based on Shapiro-Wilk test results obtained that the age data in the control group showed a p-value = 0.038, this value is smaller than the significance level $\alpha = 0.05$ which means the control group is not normally distributed. While the age data in the treatment group showed a p-value = 0.417

Tabel 2 The Age characteristic

Group	rerata ± stan.dev.	p-value
Control	22.83 ± 2.86	0.177
Treatment	24.50± 3.37	

Based on Table 2 the Mann-Whitney test results in pregnant women showed no significant difference ($p = 0.177 > \alpha$) between the control group and the treatment group. In the control group the mean ± stan.dev value was 22.83 ± 2.86 years. While the mean value ± stan.dev in the treatment group was 24.50 ± 3.37 years.

Table 3 The Result Anxiety Scale Before And After Yoga Treatment

Group observation	Before Rerata ± SD	After Rerata ± SD	p-value
Control	16.5±0.80	18.17±1.03	0.004
Treatment Yoga	16.5±0.67	11.75±3.49	0.002

In Table 3 explains that there is a significant difference ($p = 0.004 < \alpha$) the average level of anxiety in the control group before observation (16.5 ± 0.80) with observations after (18.17 ± 1.03) Yoga exercises can reduce anxiety levels in third trimester pregnant women.

Tabel 4 The result comparison Anxiety before and After in group observation

Group observation	Post-pre	N	Rank rerata	Jmh rank
Control	Rank negative	0a	.00	0.00
	Rank positif	10b	5.50	55
	Seri	2c		
	Total	12		
Treatment Yoga	Rank negative	12d	6.50	78
	Rank positif	0e	.00	0.00
	Seri	0f		
	Total	12		

In Table 4 the explains that there is a significant difference ($p = 0.004 < \alpha$) the average level of anxiety in the control group before observation (16.5 ± 0.80) with observations after (18.17 ± 1.03) Yoga exercises can reduce anxiety levels in the third trimester pregnant women.

Discussion

There is now plenty of evidence to suggest that in utero experience is an important determinant of fetal outcomes, One factor that has been widely studied in this regard is the adverse effect of maternal prenatal pressure on birth outcomes. The term 'prenatal pressure' is often used to collectively refer to negative psychological well-being, and includes stress, anxiety, and depression. The prevalence of prenatal distress is estimated at 31%, 28% and 12% respectively for stress, anxiety and depression^{20,21}.

Based on the results of data analysis in shows that there are significant differences ($p = 0.004 < \alpha$) the average level of anxiety in the control group before observation (16.5 ± 0.80) with observations after (18.17 ± 1.03). The average anxiety level after, it appears, is greater than the average anxiety level before. So this means that in the control group anxiety levels of third trimester pregnant women will be a significant increase.

In the treatment group showed a significant difference ($p = 0.002 < \alpha$) the average level of anxiety before being treated (16.5 ± 0.67) and after being treated (11.75 ± 3.49). The average anxiety level after the value is smaller than the average anxiety level before. This means that in the treatment group the anxiety level of trimester III pregnant women experienced a significant

decrease. In other words there is the effect of Yoga exercise treatment on the anxiety level of trimester III pregnant women, namely Yoga exercises can reduce the anxiety level of trimester III pregnant women. So the first minor hypothesis has been proven, namely prenatal Yoga exercises affect the level of anxiety in primigravida trimester III.

Prenatal yoga interventions in the treatment group and in the control group only did standard antenatal exercises, exercises were carried out in an integrated manner 1 hour / day in the 20-36 week gestational age range, the results showed respondents in the yoga group experienced a 15.65% reduction in anxiety, while in the control group that only did standard antenatal exercises with anxiety increased by 13.76%, so it can be concluded that regular integrated yoga exercises were more effective than antenatal exercises in reducing anxiety^{22,23}.

The effect of yoga 20 minutes per day for 12 weeks, compared with social support therapy, the results showed a decrease in anxiety levels in each group. So it can be recommended that yoga can be an effective intervention to reduce anxiety. Increased vagal activity after yoga can explain the observed effect. In another yoga study, prenatal stress decreased 32% in the yoga group and vagal activity increased in the yoga group from baseline by 64% in the 20th week of pregnancy and 150% in the

36th week, indicating increased relaxation. Increased vagal activity indicates that stress related to pregnancy can be significantly reduced by yoga^{4,18}.

Prenatal yoga reduces anxiety in pregnant women. A number of successful preventive intervention efforts targeting psychosocial and physiological risk factors for perinatal depression have utilized mind-body practices, which embody the idea that the mind interacts with the body to influence physical function, improve symptoms, and improve health⁷. Yoga has sparked a special interest because of its increased acceptance in the Western world and more evidence of its relationship with increased influence, decreased depressive symptoms and reduced cortisol in nonpregnant populations, and currently remembers the many benefits of yoga on psychophysiology so that the requester extends into pregnancy^{24,25}.

Stress during pregnancy is a unique condition, which requires physical, mental and social adaptation. Animal experiments and human studies have shown that prenatal maternal stress is associated with an increased risk of spontaneous abortion, preterm labor, fetal malformations, and asymmetrical growth retardation. Evidence of long-term functional impairment in offspring after prenatal exposure to stress is limited. Retrospective study. two prospective studies support this effect. on behavioral development with attention deficits, anxiety and disturbed social behavior.

Relationship between maternal psychological health (trait anxiety, perceived stress, and depressive symptoms) during pregnancy or postpartum and baby's visual, language, motor, and overall cognitive development. Results no significant negative consequences on cognitive development in infants from maternal anxiety, antepartum and postpartum depression symptoms, and stress^{4,26}.

Prenatal depression contributes to the incidence of prematurity, developmental delay, behavior problems in childhood and adolescence, highlighting the need for prenatal intervention. Pharmacological and non pharmacological therapy. Non-pharmacological therapy, in the form of massage and yoga therapy can be used as an alternative therapy that is also very effective^{6,14,18}. For example, moderate pressure massage therapy has been shown to reduce prenatal depression and prematurity. Yoga has the advantage of being more affordable, can be learned and practiced using DVDs.

In yoga pregnancy exercise movements contained relaxation effects that can stabilize the emotions of pregnant women, because the yoga movement focuses attention on the rhythm of breathing, prioritizing comfort and safety in practice so as to provide many benefits Yoga practice is a physical treatment that can also provide psychological effects because it provides a relaxing effect on a person's body and affects several psychological aspects of people who do it, so it is said to help reduce anxiety^{10,16,27}

Conclusion

There was a significant difference ($p = 0.004 < \alpha$) the average level of anxiety in the control group before (16.5 ± 0.80) and after observation (18.17 ± 1.03), while the treatment group showed a significant difference ($p = 0.002 < \alpha$) the mean level anxiety before being treated (16.5 ± 0.67) with after being treated (11.75 ± 3.49), it can be concluded that prenatal yoga reduces the level of anxiety before and after treatment.

Source of Funding - Self-funding

Conflict of Interest- None of the authors has competing interests

Ethical Clearance- This research was approved by the Research Ethics Commission of the Faculty of Medicine, Hasanuddin University Makassar, (No. 839/UN4.6.4.5.31//PP36/2019), and all research subjects gave written informed consent.

References

1. Prawirohardjo, S. Ilmu Kebidanan. Jakarta: Yayasan Bina Pustaka Sarwono, 2008
2. Priharyanti Wulandari, Dwi Retnaningsih, Euis Aliyah. Pengaruh prenatal yoga terhadap tingkat kecemasan pada ibu primigravida Trimester II dan III di Studio Qita Yoga Kecamatan Semarang Selatan Indonesia. P- ISSN: 2086-3071, E-ISSN: 2443-0900. Volume 9, Nomor 1, Januari 2018
3. Qi, X.R., Kamphuis, W., Wang, S., Wang, Q., Lucassen, P.J., Zhou, J.N., Swaab, D.F., Aberrant stress hormone receptor balance in the human prefrontal cortex and hypothalamic paraventricular nucleus of depressed patients. *Psychoneuroendocrinology*, 2013, 38, 863–870.
4. Reeder, Martin, Koniak-Griffin. Keperawatan Maternitas Kesehatan Wanita, Bayi dan Keluarga. Alih bahasa Yati Afiyati, dkk. Edisi 18. Jakarta:

- EGC, 2012
5. New Hope, World Health Organization, Geneva, 2001.
 6. Stuard G.W. Buku Saku Keperawatan Jiwa. edisi 5. EGC. Jakarta, 2006.
 7. Sapolsky, R.M., Romero, L.M., Munck, A.U., How do glucocorticoids influence stress responses? Integrating permissive, suppressive, stimulatory, and preparative actions. *Endocr.* 2000, Rev. 21, 55–89.
 8. Reynolds PD, Ruan Y, Smith DF, Scammell JG, Glucocorticoid resistance in the squirrel monkey is associated with overexpression of the immunophilin FKBP51. *J Clin Endocrinol Metab*, 1999, 84(2):663–669.
 9. Saifuddin. Pelayanan Kesehatan Maternal & Neonatal. Jakarta : Yayasan Bina Pustaka Sarwono Prawirohardjo, 2006.
 10. Sakai, K., Yamada, M., Horiba, N., Wakui, M., Demura, H., Suda, T., The genomic organization of the human corticotropin- releasing factor type-1 receptor. *Gene*, 1998. 219, 125—130
 11. Sarah A. Keim, Julie L. Daniels, Nancy Dole d , Amy H. Herring, Anna Maria Siega-Riz , Peter C. Scheidt. A prospective study of maternal anxiety, perceived stress, and depressive symptoms in relation to infant cognitive development .*Early Human Development* 87 (2011) 373–380
 12. Reynolds, P.D., Roveda, K.P., Tucker, J.A., Moore, C.M., Valentine, D.L., Scammell, J.G., Glucocorticoid-resistant B-lymphoblast cell line derived from the Bolivian squirrel monkey (*Saimiri boliviensis boliviensis*). 1998, *Lab. Anim. Sci.* 48 (4), 364–370.
 13. Qirong Wan, Kai Gao, Han Rong, Min Wu, Huiling Wang, Xiaoping Wang, Gaohua Wanga,, Zhongchun Liua. Histone modifications of the *Crhr1* gene in a rat model of depression following chronic stress. *Behavioural Brain Research* , 271 (2014) 1–6
 14. Zou Y, Fan F, Ma A, Yue Y, Mao W, Ma X. Hormonal changes and somatopsychologic manifestations in the first trimester of pregnancy and post partum. *International Journal of Gynaecology and Obstetrics* 2009;105:46–9.
 15. World Health Organization, The World Health Report: Mental Health: New Understanding,
 16. Stuart & Laraia. Buku Saku Keperawatan Jiwa, Edisi 5. Jakarta: EGC , 2005
 17. Smeltzer SC, Bare BG. *Textbook of medical surgical nursing*. Ed Philadelphia; Lippincott William& Willkin. 2004. hal. 56-7
 18. Yim IS, Glynn LM, Dunkel-Schetter C, Hobel CJ, Chiciz-DeMet A, Sandman CA. Risk of postpartum depressive symptoms with elevated corticotropinreleasing hormone in human pregnancy. *Arch Gen Psychiatry* 2009;66(2): 162e9. <http://dx.doi.org/10.1001/archgenpsychiatry.2008.533>.
 19. Yonne Astria, Irma Nurbaeti, Catur Rosidati. Hubungan karakteristik ibu hamil trimester III dengan kecemasan dalam menghadapi persalinan di poliklinik kebidanan dan kandungan Rumah Sakit X Jakarta. Volume 10 No. XIX Oktober 2008 – Februari 2009 Hal 38
 20. Smith, S.M., Vale, W.W. The role of the hypothalamic-pituitary-adrenal axis in neuroendocrine responses to stress. *Dial. Clin. Neurosci.* 2006, 8, 383–395.
 21. Soha Fassaie, John McAloon. Maternal distress, HPA activity, and antenatal interventions: A systematic Review *Psychoneuroendocrinology* 2020, 112, 104477
 22. Koolhaas, J.M., De Boer, S.F., De Rutter, A.J., Meerlo, P., Sgoifo, A.. Social stress in rats and mice. *Acta Physiol. Scand. Suppl.* 1997, 640, 69e72,
 23. Inda, C., Armando, N.G., Dos Santos Claro, P.A., Silberstein, S., 2017. *Endocrinology and the brain: Corticotropin-releasing hormone signaling*. *Endocrine Connections* 6,
 24. Indra R. Hubungan kadar IL-6 serum pada kehamilan preterm dengan terjadinya persalinan (Tesis). Padang: Bag/SMF Obstetri dan Gynekologi FK Andalas BLU RS. Dr. M. Djamil. 2006.
 25. Sun YC, Hung YC, Chang Y, Kuo SC. Effects of a prenatal yoga programme on the discomforts of pregnancy and maternal childbirth self-efficacy in Taiwan. *Midwifery* 2010;26:31e6.
 26. Riggs DL, Roberts PJ, Chirillo SC, Cheung-Flynn J, Prapapanich V, Ratajczak T, et al. The Hsp90- binding peptidylprolyl isomerase FKBP52 potentiates glucocorticoid signaling in vivo. *The EMBO Journal*. 2003; 22:1158–67. [PubMed: 12606580]

27. Irwan Supriyanto, Toru Sasada, Masaaki Fukutake, Migiwa Asano, Yasuhiro Ueno, Yasushi Nagasaki, Osamu Shirakawa, Akitoyo Hishimoto. Association of FKBP5 gene haplotypes with completed suicide in the Japanese population. *Progress in Neuro-Psychopharmacology & Biological Psychiatry* 35 (2011) 252–256