STRADA Jurnal Ilmiah Kesehatan
DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

Self-Empowerment, Affirmation and Relaxation Training Against Stress Levels and Cortisol Levels in Pregnant Women: Systematic Literature Review

Hasriyanti Romadhoni F*, Supriyana, Runjati
Poltekkes Kemenkes Semarang, Indonesia
** Correspondent Author: hasriyantiromadhoni02@gmail.com*

ABSTRACT

The incidence of stress in pregnancy in the world is 14-54%. The incidence of stress in pregnant women in Indonesia reaches 55.6%. Changes in the psychological condition of pregnant women greatly affect the condition of the fetus during childbirth and postpartum. The government's efforts to prevent stress complications through the pregnant women class (KIH) have not been maximized so it is necessary to equip mothers with a psychological approach where several studies have shown that self-empowerment, affirmation, and relaxation interventions can potentially reduce stress and the hormone cortisol during pregnancy.

Systematic Literature Review research using the PRISMA method. The period studied is from 2016-2020. The criteria and keywords used in the search were empowerment of stress pregnancy, stress relaxation, affirmation stress pregnancy, empowerment relaxation on cortisol pregnancy, antenatal class.

All the search results carried out were 25 articles related to the research. Literature review analysis shows that three interventions (self-empowerment, affirmation, and relaxation) have the potential to reduce levels of stress and the hormone cortisol, but it is seen from the significance value of each intervention and the effect size which proves that stress management during pregnancy is more effective using the Self-empowerment method during pregnancy was compared with the other two methods with the ES value on the stress parameter of the very strong category (ES = 2.38, 0.85 and 0.82) while the cortisol hormone levels were very strong (ES = 2.25 and 1.98), which means that it can reduce stress during pregnancy and the impact it will have on the mother and the fetus. It was concluded that the intervention (self-empowerment, affirmation, and relaxation) was proven to reduce stress scores and the hormone cortisol in pregnant women.

Keywords: Self-Empowerment, Affirmation, Relaxation, The Stress Of Pregnant Women, Cortisol Hormone

Received February 8, 2021; Revised February 15, 2021; Accepted March 3, 2021

STRADA Jurnal Ilmiah Kesehatan
DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

BACKGROUND

Stress in pregnancy is a phenomenon that is often experienced by primigravida mothers which are triggered by prejudice and worries that will befall them. Psychological changes that occur in pregnant women are influenced by various things such as internal and external stressors, family support for substance abuse, and partner abuse.[1]

Stress in pregnant women is a common occurrence where 78% experience low to moderate antenatal psychosocial stress and 6% experience high-level stress.[2] The incidence of stress in pregnancy in the world is 14-54%. Based on the results of a preliminary study conducted on 28 primigravida pregnant women who were in the working area of the Mlonggo Public Health Center using the PSS-10 questionnaire, it was found that most pregnant women experienced moderate stress as much as 64.2% and 35.71% experienced mild stress.

Physical, emotional, and social changes in pregnancy can be stressors, and support childbirth including physical changes, appearance, interpersonal relationships, occupation, infant health and how to care for the baby after birth, medical conditions during pregnancy, complications, or distress.[3]

Increased anxiety or stress results in increased adrenal and non-adrenaline hormones or epinephrine and norepinephrine which cause biochemical dysregulation so that pregnant women experience physical tension.[4] Stress conditions will stimulate the sympathetic system to continue its stimulus to the adrenal medulla to release catecholamines (Norepineferin, epinephrine, and dopamine) into the blood flow.[5] At the same time the hypothalamic corticotropin release system stimulates the anterior pituitary gland to release adrenocorticotropin hormone (ACTH) then ACTH stimulates the adrenal cortex to secrete steroid hormones, especially cortisol.[6] Inflammation involving the hormones cortisol and prostaglandins.[7]

Pregnancy stress experienced by pregnant women during pregnancy has a negative impact on the baby where the condition of pregnant women is at risk of premature birth and low birth weight (LBW).[8] While mothers during pregnancy experience stress will cause hyperemesis gravidarum, preeclampsia, eclampsia, if not treated immediately, will cause depression until the puerperium.[9,10]

One of the conventional efforts that have been made to prevent stress complications during pregnancy is through the implementation of pregnant women classes (KIH) with the aim of increasing the knowledge of pregnant women about pregnancy, childbirth, postpartum, and baby care.[11] Preparing mothers to face pregnancy, childbirth, and childbirth in coping to face these periods are still not fulfilled.[12,13]

The combined method of the three techniques abbreviated as Self-EAR was adopted from the Thitipitchayanant K study where in the form of the Mp3 program given to postpartum blues mothers with effective results increasing postpartum blues scores (0.002 <0.5) and *allopregnanolone* levels (0.001 <0, 05).[14]

The government's efforts to overcome the vulnerability of pregnant women to stress by implementing classes of pregnant women, but the program regarding the controversy of the results of research on KIH, it is necessary to equip pregnant women with coping methods and psychological approaches to dealing with stress during pregnancy with coping skills carried out by three methods. Self-empowerment, affirmation and relaxation training in the class of pregnant women according to those that have been applied in dealing with stress during pregnancy so that they can be applied.

Based on the description above, with the advantages of Self-empowerment, Affirmation and Relaxation Training methods in reducing stress levels and the hormone

DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

cortisol, the authors conducted a literature study entitled "Self-empowerment, Affirmation and Relaxation Training on Stress Levels and Cortisol Levels in Pregnant Women (literature study)."

METHODS

Search strategy

Search for articles for this research was carried out by searching the MEDLINE, ABI / Inform Complete, Academic Search Complete, IEEE Xplore, Garuda, DOAJ, ACM Digital Library, Elsevier (SCOPUS), Emerald, ScienceDirect, ProQuist databases from 2016 - 2020 with diagrams. PRISMA. The search results for the article used 4 keywords, namely: empowerment of stress pregnancy, stress relaxation, affirmation stress pregnancy, empowerment relaxation on cortisol pregnancy, antenatal class and keyword synonyms related to empowerment, affirmation, relaxation training.

Data Extraction

The author extracts the research articles obtained to be adjusted based on inclusion and exclusion criteria and detects duplication of research articles.

RESULT

The results of 25 articles analyzed with self-empowerment, affirmation and relaxation interventions had a significant decrease in stress levels and the hormone cortisol, but there were 3 articles that were seen statistically from the mean and standard deviation there were 3 articles that were ineffective.

Table 1.Summary of Selected Studies

No	Author's, year	Research Methods	Research result	Effect Size	
Self-Empowerment of stress scores and cortisol levels				**Stress**	**cortisol**
1	Jorge Mario Garzon-Rey (2018)	Empowerment session. Once a week, a session run by a physiotherapist and nurse. For 2-4 weeks	The psychometric stress measurement showed a 17.8% reduction in stress according to the total scalability score, and a 41.9% reduction in stress between the test results before and according to the empowerment session with a P value of = 0.001.	-	-
2	Hend Abdullah El Sayed (2018)	Empowerment with Centering pregnancy	The pregnancy-centered empowerment score of the pregnancy group was significantly higher than that of the individual prenatal care group (54.32 ± 3.28 versus 40.13 ± 7.74, p≤0.0001)	2.38	-
3	Runjati (2017)	Pregnant women class and coping skill training (CST) for 4 weeks	There was a significant effect on stress levels with p = 0.014 between groups. Increased association self-efficacy but statistically insignificant with mean and standard deviation of 2.484 and 12.727 respectively with p value = 0.579 between groups.	0.10	-
4	Akram Aslani (2017)	Stress management group training with 4 sessions of 90 minutes / week	The stress score in the intervention group decreased significantly with p = 0.002 compared to the control group	0.85	-
5	Karen Matvienko-Sikar (2016)	Positive psychology with online awareness and gratitude for 4 weeks a week for 3 weeks	The intervention participants showed a significant reduction in prenatal stress scores in comparison to the control group (p = 0.04). In the subjects a reduction in wake-up time (p = 0.004) and nighttime cortisol (p> 0.001) measurements were observed for the intervention participants.	0.67	2.25
6	Shohreh Ayoubi (2017)	Physiological postpartum training was	The average score before and after the intervention measuring 1 and 7.4 respectively can also ignore the	1.01	-

DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

		given 8 training sessions for 90 minutes	training can reduce stress in pregnancy by (p <0.01) namely p = 0.000		
7	Zahra Akbaria (2018)	Receive pregnancy mental health training with 4 sessions	After being given the intervention there was a change in stress, anxiety and depression scores for 2 weeks with a value (F = 5.84, p = 0.004),) F = 14.76, p <0.001) and (F = 11.98, p <0.001) For groups with partners and pregnant women alone, there was no significant difference in the decline in depression scores (p = 0.140).	0.69	-
8	Borja Romero-Gonzale (2020)	Stress management with cognitive behavioral therapy is done 8 times week	The results of the intervention group showed a decrease in stress levels (p = 0.001) and cortisol levels (p = 0.006) in the hair of pregnant women.	0.82	1.98
9	Yi-Jing Tsai (2018)	Web-based antenatal care and education during the trimester II	The experimental group reported significantly lower pregnancy stress (F = 12.9, P 0.001) than the control group t = 5.9, P 0.514).	0.43	-
Affirmation of stress scores and cortisol levels					
10	Rommiyatun Zainiyah(2018)	Relaxation affirmative technique for 1 week	The results showed that six hemodialysis patients who received positive affirmation intervention and vibration dzikir stabilization experienced a decrease in anxiety, while one patient experienced an increase in anxiety with a value (p = 0.001).	1.23	-
11	Annisa Septy Nurcahayani (2020)	Belly breathing and positive affirmations	The results showed a significant change in stress levels with a value (p = 0.000) and cortisol levels also showed the same results (p = 0.000).	2.37	0.13
12	Anette Wemer (2020)	Antenatal training with self-hypnosis	At baseline and at 2 hours after delivery, a higher cortisol concentration was found in the hypnosis group compared to the other two groups (hypnosis versus relaxation p = 0.002 and p = 0.03, hypnosis versus usual care p = 0.08 and 0, 05). Conclusion Antenatal hypnosis training can increase cortisol release in labor without long-term consequences.	-	0.21
13	Jia-Yuan Zhang (2018)	Mindfulness-based stress reduction (MBSR) 8 weeks every day for 90 minutes	The intervention group showed a reduction in prenatal stress and anxiety scores in Chinese pregnant women by a score (p = 0.004).	1.30	-
14	Putu sintya Ardila Arsa (2018)	RIMA therapy (autogenic relaxation, movement, affirmation) duration of 10 minutes for 7 weeks 2 times	There was a significant difference in giving RIMA therapy (autogenic relaxation, movement, affirmation) in reducing anxiety values p = 0.004 (p <0.05) and cortisol levels p = 0.00 (p <0.005) compared to the control group.	-	0.14
15	Faisal Amir (2018)	Dzikir and relaxation with a duration of 10-15 minutes for 6 weeks	Zikir and relaxation significantly improved the perception of stress with a value (p = 0.001) <0.05 and decreased cortisol levels with p = 0.024 <0.05. Zikir and relaxation improve the perception of stress so that the hypothalamic pituitary adrenal (HPA) produces a balanced level of the hormone cortisol.	-	-
Relaxation of stress scores and cortisol levels					
16	Saeideh Nasiri (2018)	Progressive muscle relaxation and guided imagery every day for 20 minutes	The intervention group had a significant difference in scores for stress, anxiety and depression at different times (p <0.05), while in the control group there was no difference.	0.14	-
17	Simi Paramban (2016)	Benson relaxation therapy for 20 minutes for 15 days	Primigravida mothers who underwent Benson relaxation therapy had a significant decrease in post-test stress scores (p <0.01) compared to the control group.	-	-

DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

18	Ayten Arıöz Düzgün (2017)	Relaxation exercises	There were significant differences in the intervention group (p <0.001) compared to the control group with the conclusion that relaxation exercises were effective in reducing anxiety and dealing with stress in pregnant women.	1.16	-
19	Farzaneh Soltani (2019)	Relaxation exercises, 8 diving sessions 2 times a week	Research shows that relaxation exercises can increase and reduce positive emotions and negative emotions (p <0.001) in pregnant women	1.69	-
20	Guido G. Urizar Jr (2019)	Cognitive behavioral stress management (CBSM), which is a combination of cognitive coping training and relaxation)	Women who received the CBSM intervention had lower levels of perceived stress during pregnancy (p = 0.02) and early postpartum compared with women in the control group (p = 0.020).	0.56	1.78
21	Suman Dabas (2019)	The relaxation technique in the form of audio lasts 30 minutes for 10 days	Significant reductions were observed in maternal stress (2.9 ± 0.5 vs 3.6 ± 0.6) (p = 0.001) and anxiety scores (19.8 ± 6.7 vs 28.18 ± 11.7) (p. ≤0.05)	1.26	-
22	Saira Waqqar (2017)	Combination of relaxation exercises (Mitchell physiological relaxation and breathing) 6 times a day for 6 weeks	It shows that as many as 88% of women report a decrease in stress levels during the 1st stage of sexual intercourse. The combination relaxation exercise intervention group with a value (p = 0.003) was more helpful in reducing stress during labor compared to breathing exercises with a value of p <0.05.	0.83	-
23	Magdalena Ptak (2019)	Exercise the pelvic floor muscles and muscles of the transverse abdominis muscles for 12 weeks	Conservative treatment based on intervention (pelvic muscle training and transverse abdominis muscle) gave significantly better results compared to the control group with a value (p <0.001)	0.92	-
24	Lois C. Howland(2017)	Guided imagery (RGI) relaxation for 8 weeks	The application of the RGI intervention correlated with lower cortisol levels (r ¼, 38), stress levels (r ¼ 0.43) value (p = 0.11) and depression (r ¼ 0.41) with the conclusion that RGI can reduce mental and physiological stress and increased responsiveness in mothers and premature infants.	-	-
25	Francisca N.Ogba (2019)	Music therapy with relaxation	The findings indicated a significant increase in stress management in the intervention group (p = 0.000) compared to the control group (p = 0.418).	0.62	-

DISCUSSION

The welfare of the mother during pregnancy is very important to optimize the growth and development of the fetus, both physically and psychologically. Stress during pregnancy has a negative impact on the growth and development of the fetus and results in disturbed health during pregnancy.

DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

Self-Empowerment, Affirmation and Relaxation is one of several coping skill methods in handling and psychological approaches in dealing with stress during pregnancy. Stress coping skills greatly influence pregnancy and birth outcomes by trying to minimize the negative effects of stress. Empowerment during pregnancy increases skills and knowledge in dealing with problems that occur with critical thinking skills and making efforts to overcome health problems at hand. While positive affirmations can neutralize negative emotions and negative thoughts during pregnancy if done repeatedly, relaxation interventions can relax muscles and improve the emotional state of mothers who experience stress during pregnancy. So the similarities in self-empowerment, affirmation and relaxation interventions both have benefits in overcoming negative emotions in the form of stress during pregnancy, while the difference is in the techniques used to deal with stress during pregnancy in pregnant women who experience stress.

The relationship between increased anxiety on stress results in increased adrenaline and non-adrenaline hormones or ephinephirin and norepinephrine which cause biochemical dysregulation so that pregnant women experience physical tension. Releasing Hormone (CRH) which will cause the release of Adreno Cortiicotropin Hormone (ACTH) in the pituitary. The release of ACTH causes stimulation of the adrenal cortex which in turn releases the hormone cortisol. Under normal circumstances, cortisol is released in very small amounts throughout the day, but under stressful conditions, cortisol levels will increase drastically and can even increase 20 times. High cortisol levels cannot inhibit the secretion of CRH and ACTH because glucocorticoid receptors decrease during stress.[4] maternal cortisol will increase 2-4 times than usual.[15] Stress can stimulate the hypothalamus to produce Corticotropic Releasing Hormone (CRH) which will cause the release of Adreno Cortiicotropin Hormone (ACTH) in the pituitary. The release of ACTH causes stimulation of the adrenal cortex which in turn releases the hormone cortisol. Under normal circumstances, cortisol is released in very small amounts throughout the day, but under stressful conditions, cortisol levels will increase drastically and can even increase 20 times. High cortisol levels cannot inhibit the secretion of CRH and ACTH because glucocorticoid receptors decrease during stress.[16]

Cortisol levels increase progressively during pregnancy from 25 weeks' gestation. The HPA of pregnant women and the placenta produces cortisol during maturation and delivery. However, increased maternal cortisol due to prenatal stress can affect placental cortisol production. Increased cortisol levels in the mother are bad for the fetus. Thus reducing suboptimal elevated cortisol levels and maintaining optimal cortisol function during pregnancy has the potential to benefit both mother and fetus.[17,18]

The measuring instruments used in the measurement of stress and the hormone cortisol are also variously analyzed using psychometric tests and analysis of heart rate variability (HRV) as a marker of stress, PSS, DASS, Pregnancy Stress Rating Scale (PSRS), hair cortisol, saliva cortisol and blood cortisol.

The government's conventional efforts that have been made to overcome the impact of stress that occurs during pregnancy are through the implementation of classes for pregnant women (KIH), where the aim of KIH is to increase knowledge about pregnancy, childbirth, postpartum and baby care, but only focuses more on delivering material and practice. Meanwhile, in preparing pregnant women for pregnancy, childbirth and postpartum, the emotional and psychological aspects of coping in coping with these periods are still not fulfilled.[11–13,19] Self-empowerment, affirmation and relaxation in the class of pregnant women according to those that have been applied in dealing with stress during pregnancy.

DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

The study that analyzed the Self-Empowerment intervention on stress levels and the hormone cortisol from 9 articles analyzed, only 2 measured all parameters. A study conducted by Karen and Borja showed that self-empowerment interventions with positive psychology with awareness during 4 meetings over 3 weeks were statistically and clinically significant in reducing stress and the hormone cortisol measured in pregnant women. Likewise, Borja's research also has statistical significance in changes in stress and the hormone cortisol for pregnant women by providing stress management empowerment cognitive behavioral therapy is carried out 8 times per week. ES analysis in Karen and Borja's research with stress level parameters showed that the ES values (0.67 and 0.82) were classified as strong and very strong, while the cortisol hormone parameters had ES values (2.25 and 1.98) in the very strong category.[20,21]

The affirmation intervention on stress levels and the hormone cortisol in pregnant women has incomplete data, because of the 6 studies only one study measured all parameters. Annisa in her study showed significant changes in stress and cortisol levels between groups as well as before and after the intervention in the abdominal breathing technique group + positive affirmations for 4 weeks with 4 hook meetings effective in reducing stress and cortisol scores in pregnant women. ES analysis on the stress level parameter showed a very high category with (ES = 2.37) different from the hormone cortisol having a lower ES value with a very low category (ES = 0.13).[22]

Relaxation intervention to stress levels and cortisol levels in pregnant women from 10 studies analyzed 2 studies that measured all parameters to be analyzed. Guido's research had significant changes between groups and before and after the intervention by providing training in combination cognitive coping + relaxation. The ES analysis on stress parameters was in the medium category with (ES = 0.56), while the cortisol parameter got a very strong category with a value (ES = 1.78) .96 While the study conducted by Lois was statistically no change with guided imagery relaxation intervention for 8 week.[23]

All studies with self-empowerment, affirmation and relaxation interventions on stress levels and cortisol levels in pregnant women from 25 analyzed articles concluded that the three interventions (self-empowerment, affirmation and relaxation) were seen from the significance value of each. -Each intervention and effect size where the handling of pregnancy stress is more effective using the self-empowerment method of pregnant women during pregnancy compared to the other two methods with the ES value on the stress parameter from the very strong category (ES = 2.38, 0.85 and 0.82) while the cortisol hormone levels are very strong. the value is very strong (ES = 2.25 and 1.98) meaning that it can reduce stress during pregnancy and the impact it will have on the mother and the fetus.

The conclusion of the researchers from the description of self-empowerment, affirmation and relaxation interventions to increase stress and the hormone cortisol during pregnancy is more effective with a self-empowerment program for cognitive behavioral therapy stress management interventions that is carried out 8 times per week with ES values respectively (0.82 and 1.98) where by providing knowledge, skills and motivation of pregnant women through active participation in self-care, identifying problems and finding solutions, taking and evaluating actions that have been done independently can overcome stress levels and cortisol levels during pregnancy to preparation for delivery.

CONCLUSION

Of all the search results conducted, there were 25 articles related to research. A literature review analysis of three interventions (self-empowerment, affirmation and relaxation) has

DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

been shown to have the potential to reduce stress levels and the hormone cortisol in pregnant women.

REFERENCES

1. Dewi, V.N.L., Sunarsih T. Asuhan Kehamilan untuk Kebidanan. In jakarta: Salemba Medika; 2011.
2. Woods SM, Melville JL, Guo Y, Fan M, Gavin A. Psychososial stress during pregnancy. NIH Public Access. Am J Obstet Gynecol. 2011;202(1):1–14.
3. Dunkel Schetter C. Psychological Science on Pregnancy: Stress Processes, Biopsychosocial Models, and Emerging Research Issues. Annu Rev Psychol. 2011;62(1):531–58.
4. Rusmita E. Pengaruh Senam Hamil Yoga Selama Kehamilan terhadap Kesiapan Fisik dan Psikologis dalam Menghadapi Persalinan pada Ibu Hamil Trimester III di RSIA Limijati Bandung. Tesis dari Univ Indones Depok. 2011;
5. Harris A, Seckl J. Glucocorticoids, prenatal stress and the programming of disease. Horm Behav [Internet]. 2011;59(3):279–89. Available from: http://dx.doi.org/10.1016/j.yhbeh.2010.06.007
6. Fazio E, Medica P, Ferlazzo A. Seasonal patterns of circulating Î^2-endorphin, adrenocorticotropic hormone and cortisol levels in pregnant and barren mares. Bulg J Vet Med. 2009;12(2):125–35.
7. Manuscript A. Traite de la Folie des Femmes Enceintes, des Nouvelles Accouches et des Nourrices. 2011;35(6):820–32.
8. Schetter CD, Tanner L, Angeles L. Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. 2012;25(2):141–8.
9. Chen PJ, Yang L, Chou CC, Li CC, Chang YC, Liaw JJ. Effects of prenatal yoga on women's stress and immune function across pregnancy: A randomized controlled trial. Complement Ther Med [Internet]. 2017;31:109–17. Available from: http://dx.doi.org/10.1016/j.ctim.2017.03.003
10. Corbijn van Willenswaard K, Lynn F, McNeill J, McQueen K, Dennis CL, Lobel M, et al. Music interventions to reduce stress and anxiety in pregnancy: A systematic review and meta-analysis. BMC Psychiatry. 2017;17(1):1–9.
11. Kemenkes R. Pedoman Pelaksanaan Kelas Ibu hamil. 2011. 4–12 p.
12. Spiby H, Slade P, Escott D, Henderson B, Fraser RB. Selected coping strategies in labor: An investigation of women's experiences. Birth. 2003;30(3):189–94.
13. Brixval CS, Axelsen SF, Lauemøller SG, Andersen SK, Due P, Koushede V. The effect of antenatal education in small classes on obstetric and psycho-social outcomes - a systematic review. Syst Rev. 2015;4(1):2–5.
14. Thitipitchayanant K, Somrongthong R, Kumar R, Kanchanakharn N. Effectiveness of self-empowerment-affirmation-relaxation(Self-EAR) program for postpartum blues mothers: A randomize controlled trial. Pakistan J Med Sci. 2018;34(6):1488–93.
15. Kane HS, Dunkel Schetter C, Glynn LM, Hobel CJ, Sandman CA. Pregnancy Anxiety and Prenatal Cortisol Trajectories Heidi. 2008;64(12):2391–404.
16. Sherwood L. Fisiologi Manusia Dari Sel ke Sistem (B. U. Pendit, H. O. Ong, A. A. Mahode, & D. Ramadhani, Eds.). jakarta: EGC; 2014. ed. 8.
17. de Weerth C BJ. Physiological stress reactivity in human pregnancy— a review. Neurosci Biobehav. 2005;29(2):295–312.
18. Cheng CY, Pickler RH. Maternal psychological well-being and salivary cortisol in late pregnancy and early post-partum. Stress Heal. 2010;26(3):215–24.

DOI: 10.30994/sjik.v10i1.636
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 335-343

19. Parr M. A new approach to parent education. Br J Midwifery. 1998;6(3):160–5.
20. Matvienko-Sikar K, Dockray S. Effects of a novel positive psychological intervention on prenatal stress and well-being: A pilot randomised controlled trial. Women and Birth [Internet]. 2017;30(2):e111–8. Available from: http://dx.doi.org/10.1016/j.wombi.2016.10.003
21. Romero-Gonzalez B, Puertas-Gonzalez JA, Strivens-Vilchez H, Gonzalez-Perez R, Peralta-Ramirez MI. Effects of cognitive-behavioural therapy for stress management on stress and hair cortisol levels in pregnant women: A randomised controlled trial. J Psychosom Res. 2020;135.
22. Nurcahyani A, Runjati R, Nugraheni S. Giving Belly Breathing Technique and Positive Affirmation of Stress and Cortisol Hormone Levels in Third Trimester Pregnant Women. 2020;
23. Howland LC, Jallo N, Connelly CD, Pickler RH. Feasibility of a Relaxation Guided Imagery Intervention to Reduce Maternal Stress in the NICU. JOGNN - J Obstet Gynecol Neonatal Nurs [Internet]. 2017;46(4):532–43. Available from: http://dx.doi.org/10.1016/j.jogn.2017.03.004