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The effectiveness of the Class of Pregnant Women and the Class of Pregnant Women plus Psychoeducation in Reducing Cortisol levels and Stress levels of Pregnant Women: A Systematic Review

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ABSTRACT
Pregnancy puts a mother in a condition that is prone to stress due to physical and psychological changes. Mothers with high stress levels are at risk of experiencing complications to the mother and baby during pregnancy, childbirth and the puerperium. Efforts are needed to prevent these complications by increasing maternal knowledge and preparing for childbirth through pregnant women classes *(KIH*).
This type of research is a systematic review with the method used is PRISMA. The literature studied ranged from 2015 to 2020. The criteria and keywords for the search for the main topics were; pregnant women, antenatal class, prenatal class, childbirth education, psyco-education, stress level of pregnant women, cortisol levels in pregnant.
KIH can reduce stress levels and cortisol levels of pregnant women. The addition of psychoeducation material in *KIH* helps pregnant women in a stressor state that is accepted into a state that can be changed.
The search results obtained 30 articles, but 5 were not full text so that we obtained 25 research articles. A total of 12 research articles compared *KIH* intervention with *KIH* plus psychoeducation. There were 13 articles that examined *KIH* with antenatal care. The results showed that *KIH* plus psychoeducation can reduce stress levels and cortisol levels and improve psychosocial well-being compared to standard *KIH* and antenatal care. Psychoeducation in research includes mindfulness, CST, MBCP, Health, especially midwives, in providing midwifery care to pregnant women, with a modification of the class of pregnant women according to the mother's needs without lowering existing standards in Indonesia.

Keywords: Pregnant Women Class, Psychoeducation, Cortisol Levels, Pregnant Women Stress Levels

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BACKGROUND

In everyday life there are always stressors. The stressor causes a disturbance in the balance of the body or soul, so we will try to restore it, this effort is called stress, which means adjustment.[1] Pregnancy puts the mother in a condition that is vulnerable to stress due to physical and psychological changes. Pregnant women who are not well prepared physically, psychologically, emotionally, financially, are more likely to experience stress, even though pregnancy and childbirth are physiological, in reality childbirth can pose risks, such as bleeding and other complications that can adversely affect the mother and baby.[2,3]

An epidemiological study concluded that mothers with high levels of stress during pregnancy are at risk of premature birth, low birth weight, prolonged labor duration, immune disorders, metabolic and obesity, and the occurrence of hypertension in pregnancy and postpartum depression.[4,5] The risk of preterm birth due to stress during pregnancy is 1.55 times that of a healthy pregnancy.[6] According to the Word Health Organization (WHO), about 12% of preterm births occur in poor and developing countries and 9% in developed countries. Indonesia is in the fifth rank of the largest number of premature births after India, China, Nigeria, Pakistan.[7]

Efforts that have been made to prevent complications in pregnancy and childbirth are by increasing the knowledge of the mother and preparing for delivery through the Class of Pregnant Women *(KIH).*[8] Several studies have concluded that participation in classes for pregnant women can reduce complications, stress, the potential for post partum depression as well as help in preparation for and reduce labor pain, but the implementation of conventional *KIH* only focuses on delivering material on pregnancy, childbirth to increase knowledge, has not yet reached the material for preparing mothers. pregnancy to identify sources of stressors, how to deal with them and increase self-service to deal with childbirth.[9–12]

Research in the *UK* shows that participation in pregnant women classes decreased by 14% in 2009 compared to the previous year.[13] This has prompted researchers to conduct several innovative studies on *KIH* to meet the needs of pregnant women. Some material innovations in psychoeducation-based *KIH* include coping skills training (CST) mindfulness based child birth and parenting (MBCP). This psychoeducation-based innovation can reduce stress levels, anxiety, cortisol levels and increase imonoglobulin G (IgG) during pregnancy.[14–17]

Research methods

This literature review uses articles from Google Scholar, Pubmed, Science Direct, Sage Pud, ProQuest, Gale, Ebsco Host published from 2015 to 2020. The inclusion criteria are full text articles, experimental research with randomized controlled trial design, quasy experiment. and pre experiment. The exclusion criteria were incomplete articles, duplicate journals, qualitative studies. The keywords used were pregnant women class, psychoeducation, cortisol levels, pregnan women stress levels.

Result

The results of the research database were 1035 articles, 10 articles that had similarities, 1013 articles that were irrelevant, 5 articles that were not full text. After using the inclusion and exclusion criteria there were 25 articles found that were suitable for this systematic review.

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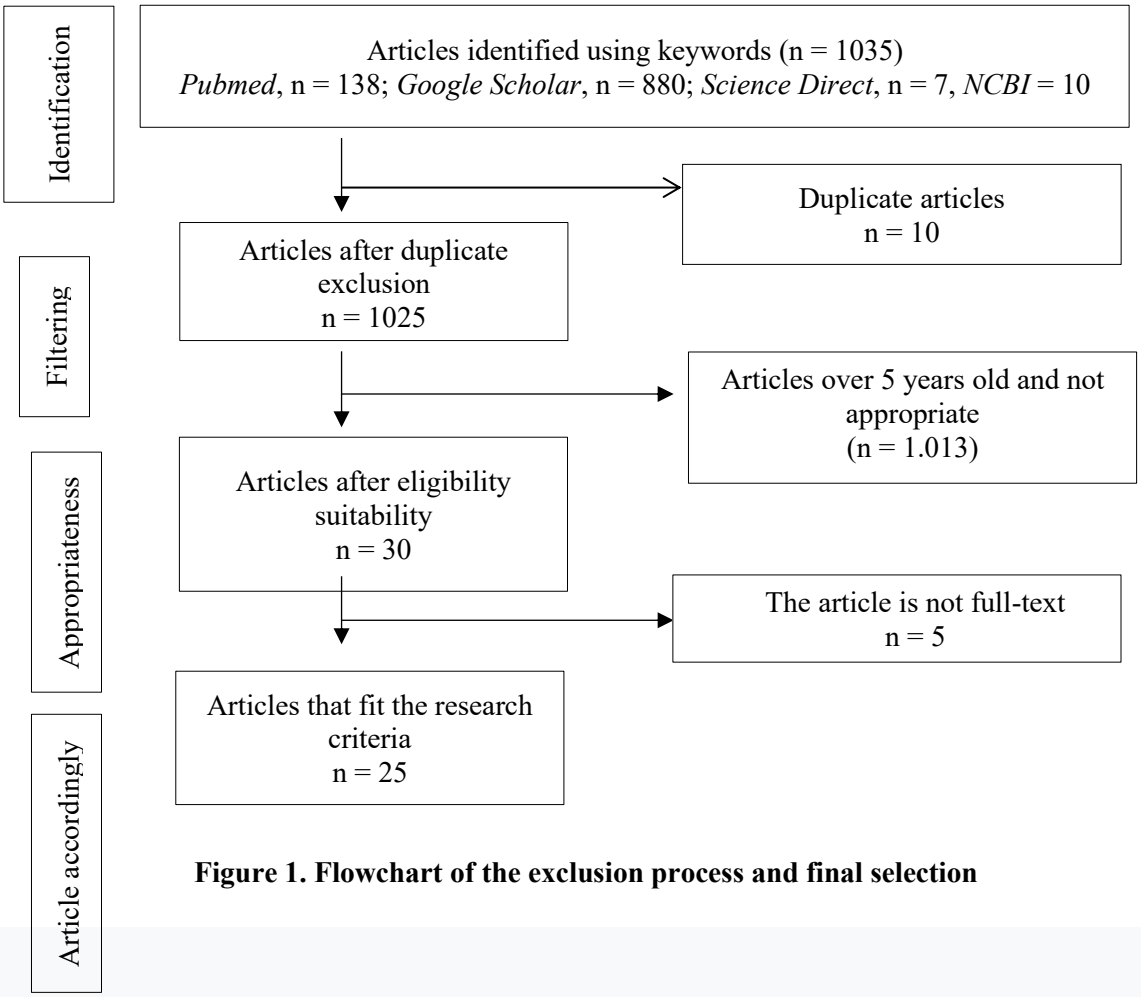

Figure 1. Flowchart of the exclusion process and final selection

Table .1 Journal Literature Analysis

No	Author / Title / Study design	Population	Intervention and comparison	Research result
KIH compared to KIH with psychoeducation				
1.	Runjati, dkk, The Effect of Antenatal Class Plus Coping Skill Training on the Level of Stress and Childbirth Self-Efficacy[18] A Randomized pre – post test control group design	Primigravida pregnant women as many as 62 people. Intervention group and contract @ 31 people. Gestational age 24 - 34 weeks.	Intervention: classes for pregnant women and coping skills training (CST) Control: standard class of pregnant women. The intervention was carried out for 4 weeks	There is a significant influence on the stress level with ρ value = 0.014 in the intervention group. The gain score of the KIH group - 0.13 + 0.44, while the KIH group plus CST was 2.45 + 3.167 with ρ value = 0.018.
2.	Runjati, Hardhono Susanto, Dian R.	Primigravida pregnant	Intervention: classes for pregnant women and	Class of pregnant women plus CST can reduce

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	Sawitri, Syarief Thaufik, The Impact of Antenatal Coping Skill Training (ACST) towards Cortisol and IgG Serum Level among Pregnant Women[15] A Randomized pre – post test control group design	women as many as 62 people. The intervention group was 31 pregnant women. The control group was 31 pregnant women. Gestational age 24 - 34 weeks.	coping skills training (CST) Control: standard class of pregnant women. The intervention was carried out for 4 weeks	cortisol levels with ρ value = 0.005. Pre vs post blood cortisol levels include: The control group was 290.47 + 84.91 vs 276.21 + 84.91. The intervention group was 314.83 + 126.87 vs 267.70+ 96.37. There was a decrease in IgG levels in the control group with ρ value = 0.001. The mean of IgG levels in the pre control group was 9.94 while the post decreased to 8.38.
3.	Gunilla Lönnberg, Effects of a mindfulness based childbirth and parenting program on pregnant women's perceived stress and risk of perinatal depression–Results from a randomized controlled trial[19] Pre- and post-test randomized controlled study	Primigravida pregnant women as many as 164 people. The intervention group was 75 people and the control group was 97 people. Gestational age 27 - 34 weeks.	Intervention: classes for pregnant women integrated into the practice of MBCP (mindfulness based child birth and parenting program) Control: standard class of pregnant women The intervention was carried out in 8 sessions, duration 135 minutes / session. Each group contains 8-14 participants.	The practice of MBCP in the pregnancy class significantly reduced the perceived stress (ρ value = 0.038) and depressive symptoms (ρ value = 0.004) and increased the positive state of mind (ρ value = 0.005). The pre vs post PSS scores include: Lamaze group is 26.97 + 7.53 vs 23.17+ 7.85. The MBCP group was 26.85 + 7.17 vs 20.78 + 6.54.
4.	Tracey Irving, Mindfulness in Antenatal Classes: A Quasi Experimental Pilot Study[20] Quasi Experimental Study	A total of 38 pregnant women and husbands. The intervention group consisted of 23 couples. The control group consisted of 15 couples. Third trimester of gestation.	Intervention: class of pregnant women plus weekly mindfulness intervention. Control: routine antenatal care. The intervention was carried out 2 hours / week for 6 weeks.	There was no effect of class intervention for pregnant women coupled with mindfulness on anxiety, stress and mindfulness.
5.	Ingunn Benediktsson, Sheila W McDonald, Monica Vekved, Deborah A McNeil, dkk, Comparing CenteringPregnancy®	A total of 825 pregnant women. The intervention group was 106	Intervention: CenteringPregnancy® method pregnant women class Control: standard class of pregnant women.	The CenteringPregnancy® method of pregnant women class can improve the psychosocial well-being of pregnant women compared to the class of pregnant women during pregnancy.

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	to standard prenatal care plus prenatal education.[21] Prospective cohort Study	pregnant women. The control group was 619 pregnant women. Gestational age less than 25 weeks.	The intervention class consists of 8-12 pregnant women (can be accompanied by a partner). The difference is that CenteringPregnancy® starts in TM I pregnancy, preceded by an antenatal examination and focuses on group discussion and is initiated by the pregnant mother's family, the place is determined by the group and the health worker only as a facilitator. The intervention was carried out within 120 minutes for 10 sessions. Measurements were carried out 3 times, namely baseline (<25 weeks), 34-36 weeks and 4 months postpartum (follow up).	However, after follow-up there was no effect. Measurement of psychosocial well-being by measuring the Edinburgh Postnatal Depression Scale (EPDS), State Trait Anxiety Inventory (STAI), Perceived Stress Scale (PSS), Medical Outcomes Study (MOS) Social Support Scale which is measured using a Likert scale. The low improvement in social aspects (*MOS*) (baseline compared to UK 34-36 weeks) in the intervention group was higher than the control group, namely 19.4% compared to 9.7% with ρ value = 0.004. The improvement in the EPDS aspect (baseline compared to UK 34-36 weeks) in the intervention group was higher than the control group, namely 25% compared to 14.6% with ρ value = 0.008. The improvement in the PSS aspect (baseline compared to *UK* 34-36 weeks) in the intervention group was higher than the control group, namely 31.4% compared to 22.5% with ρ value = 0.049. The improvement in the aspect of STAI (baseline compared to *UK* 34-36 weeks) in the intervention group was higher than the control group, namely 30.3% compared to 15.4% with ρ value = 0.001.
6.	Laura Eubanks Gambrel, Mindfulness-Based Relationship Education For Couples Expecting	A total of 33 couples (pregnant women and husbands).	Intervention: class of pregnant women with mindfulness material during pregnancy. Control: class of pregnant women who	Mindfulness education in fathers can increase marriage satisfaction, tranquility during pregnancy and preparation of the first child.

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	Their First Child—Part 1: A Randomized Mixed-Methods Program Evaluation[22] Random clinical trial with mixed method design (kuantitatif dan kualitatif)	The intervention group was 16 couples and the control group was 17 couples. Gestational age 12 - 34 weeks.	were not given intervention (but planned to be given intervention after completion of the study) The intervention was carried out with a duration of 120 minutes / week for 4 meetings (4 weeks). Each group contains 3 - 5 pairs.	The negative emotion variable did not decrease statistically after the intervention, but the father's DASS 21 score decreased from 23.20 to 12.27. The Depression Anxiety Stress Scale / DASS 21 consists of 21 questions with answers 0 - 3). Whereas in the sample of pregnant women, it was found that there was no effect of this variable intervention. In the sample of mothers, the pre vs post DASS scores included: The control group was 22.00 + 13.44 vs 20.71 + 12.75. The intervention group was 18.35 + 9.39 vs 17.76 + 9.02.
7.	Borja Romero Gonzaleza, Jose A. Puertas-Gonzaleza, Helen Strivens-Vilchez, Raquel Gonzalez-Perez, M. Isabel Peralta-Ramirez, Effects of cognitive behavioural therapy for stress management on stress and hair cortisol levels in pregnant women: A randomised controlled trial.[23] Randomised Controlled Trial	As many as 78 pregnant women. The intervention group was 39 pregnant women. The control group was 39 pregnant women. Gestational age 12-28 weeks.	Intervention: receiving *KIH* plus CBSM (Cognitive Behavioral Stress Management) Control: standard class of pregnant women. The intervention was carried out once / week with a duration of 90-120 minutes for 8 weeks. Measurements were made 2 times, namely pre and post test.	CBSM therapy can reduce stress levels of pregnant women using the PSS questionnaire method with ρ value = 0.001. The pre vs post PSS scores include: The control group was 26.12 + 2.78 vs 26.43 + 1.34. The intervention group was 26.72 + 7.41 vs 21.87+ 7.56. CBT therapy can reduce hair cortisol levels in pregnant women with ρ value = 0.005. Pre vs post hair cortisol levels include: The control group was 5.50 + 0.91 vs 5.62+ 0.86. The intervention group was 4.78 + 0.97 vs 4.47+ 0.94.
8.	Guido G. Urizar Jr, The SMART Moms Program: A Randomized Trial of the Impact of Stres Management on	Low income pregnant women as many as 100 people.	Intervention: KIH with CBSM (Cognitive Behavioral Stress Management) Control: standard class of pregnant women.	Pregnant women who received CBSM had lower stress levels throughout pregnancy and early post partum than the control group (ρ value = 0.020).

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	Perceived Stres and Cortisol in Low-Income Pregnant Women.[24] Randomized controlled trial	The intervention group was 55 pregnant women. The control group was 45 pregnant women. First trimester of gestation.	The intervention was carried out for 8 weeks. Measurements were made 4 times, namely the first trimester; after follow-up (FU), namely second trimester, FU2 trimsetr 2 and FU3 3 months after delivery.	Women who received CBSM showed a significant reduction in diurinal cortisol at 3 months postpartum compared to the control group (ρ value = 0.015).
9.	Tri Susilowati, Noor Pramono, Siti Fatimah Muis, Decreased Anxiety Levels, And Cortisol Levels Through Primigravida Coping Skills[25] Randomised Controlled Trial	64 primigravida pregnant women aged 20-30 years. The intervention and control groups each consisted of 38 pregnant women. Gestational age 13 - 36 weeks.	Intervention: copping skills in the form of relaxation exercises and dzikir. Control: no copping skill is given The intervention was carried out for a duration of 2 x 15 minutes / day by pregnant women with the monitoring of trained midwives / nurses.	Copping skills can reduce cortisol levels for pregnant women by ρ value 0.02. Pre vs post blood cortisol levels include: The control group was 135.80 + 53.40 vs 145.30 + 83.20. The intervention group was 190.50 + 84.10 vs 160.50 + 96.00.
10.	Anggorowati, Siti Muawaroh, Meidiana Dwidiyanti, Effects of 'STOP' Mindfulness on Decreasing Cortisol in Primigravida Mothers[26] Pre and post test quasi experiment design	Primigravida pregnant women as many as 60 people. Divided into two groups. @ 30 people. Second trimester of gestation.	Intervention: mindfulness STOP (Cognitive Behavioral therapy) method Control: without the STOP method. The intervention was carried out 3 times 60 minutes. Measurements were made 2 times, namely pre and post test.	Mindfulness 'STOP' method can reduce cortisol levels in the intervention group with ρ value = 0.003. Pre vs post blood cortisol levels include: The control group was 180.80 + 82.49 vs 179.63 + 84.03. The intervention group was 180.60 + 74.30 vs 152.50+ 74.08.
11.	Jocelyn Toohill, Jennifer Fenwick, Jenny Gamble, Debra K. Creedy, dkk, A Randomized Controlled Trial of a Psycho-Education Intervention by Midwives in Reducing Childbirth Fear in Pregnant Women.[27] Randomized Controlled Trial	Pregnant women with a gestation of more than 24 weeks. The intervention group: 101 pregnant women Control group: 97 pregnant women.	Intervention: classes of pregnant women coupled with telephone counseling conducted by trained midwives. The intervention given was in the form of BELIEF: Birth Emotions: Looking to Improve Expectant Fear. Control: standard hamul mothers class. Interventions were carried out for 2 times at	Research result : Pregnant women classes plus BELIEF psychoeducation can: a. Reducing fear before childbirth (Wijma Delivery Expectancy Scale / WDEQ) with ρ value = 0.001. b. Increase self-confidence before childbirth (Childbirth confidence / CBSEI) with ρ value = 0.002. The average change in WDEQ scores in the treatment group increased

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			24 and 34 weeks of gestation.	by 19.52 and in the control group increased by 9.28. The increase in the WDEQ score reflects a decrease in maternal fear before childbirth. The average change in the CBSEI score in the treatment group increased by 61.10 and in the control group increased by 19.70. The increase in the CBSEI score illustrates the increase in maternal confidence ahead of childbirth.
12.	Jennifer Fenwick, Jocelyn Toohill Effects of a midwife psycho-education intervention to reduce childbirth fear on women's birth outcomes and postpartum psychological wellbeing.[28] Randomised Control trial design	A total of 339 pregnant women. Treatment group: 170 pregnant women. Control group: 169 pregnant women.	Intervention: classes of pregnant women coupled with telephone counseling conducted by trained midwives. The intervention given was in the form of BELIEF: Birth Emotions: Looking to Improve Expectant Fear. Controls: standard care in health facilities in Australia Interventions were carried out for 2 times at 24 and 34 weeks of gestation.	Research result : Pregnant women classes plus BELIEF psychoeducation can: a. Reducing the incidence of emergency cesarean section with ρ value = 0.04. Reducing anxiety during childbirth and satisfaction in decision making with ρ value = 0.02.
KIH compared to without KIH				
13.	Seyhan Çankaya, Effects of Antenatal Education on Fear of Birth, Depression, Anxiety, Childbirth Self-Efficacy, and Mode of Delivery in Primiparous Pregnant Women: A Prospective Randomized Controlled Study[11] Pre- and post-test randomized controlled study	There were 112 primigravida pregnant women. The intervention group was 55 people and the control group was 57 people. Gestational age 20-32 weeks	Intervention: class of pregnant women Control: antenatal care according to the SOP in the hospital. The intervention was carried out 2 times / week for 2 weeks with a duration of (150 minutes / session).	class of pregnant women can reduce fear of birth, depression, anxiety, and stress symptoms as well as increase the self-efficacy of childbirth with ρ value <0.05. class of pregnant women can reduce postpartum trauma, depression, anxiety, and symptoms of postpartum stress with ρ value <0.001. The pre vs post DASS 21 scores include: The control group was 18.1 + 8 vs 20.10+ 4.6.

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				The intervention group was 18.3 + 9.3 vs 16.2+ 9.4.
14.	Gozde Gokce Isbir, The effects of antenatal education on fear of childbirth, maternal self-efficacy and post-traumatic stress disorder (PTSD) symptoms following childbirth: an experimental study[29] Quasy Experimental study	Primigravida pregnant women as many as 90 people. The intervention group was 44 people and the control group was 46 people. Gestational age 20 - 32 weeks.	Intervention: class of pregnant women Control: antenatal care according to the SOP in the hospital. The intervention was carried out with a duration of 16 hours divided into 240 minutes / week. Each session is divided into 150 minutes of material exposure, @ 45 minutes for warm-up and cool-down.	Class of pregnant women can reduce fear of childbirth, increase self-preparation for childbirth and reduce postpartum stress disorders with a value of ρ value <0.05.
15.	Rania El-Kurdy, Samia I Hassan, Nahed Fikry Hassan, Amina El-Nemer, Antenatal Education on Childbirth Self-Efficacy for Egyptian Primiparous Women: A Randomized Control Trial.[30] A randomized Control Trial Study	A total of 104 primigravida pregnant women. The intervention group was 52 people. Control group 52 people. Gestational age 32 - 34 weeks.	Intervention: class of pregnant women Control: examination according to the hospital's SPO. Intervention for 3 weeks with a duration of 90 minutes / week. The class is divided into 10 people / groups.	Pregnant women who attended the class of pregnant women had better Childbirth Self-Efficacy and lower levels of labor pain than the control group with a value of ρ value <0.001. A good level of Childbirth Self-Efficacy represents a reduction in stress levels
16.	Mozhgan Firouzbakht, Maryam Nikpour, Hajar Salmalian, Farideh Mohsenzadeh Ledari & Sorya Khafri, The Effect of Perinatal Education on Iranian Mothers' Stress and Labor Pain.[31] Clinical trial Study	A total of 195 pregnant women. The intervention group was 63 people. Control group 132 people. Gestational age 16 to 20 weeks.	Intervention: mother class. Control: routine antenatal care. The intervention was carried out with a duration of 1.5 hours / 3 weeks for 6 - 8 weeks. The study was followed up until delivery.	Class of pregnant women can reduce the stress level of pregnant women with ρ value = 0.002 The Hospital Anxiety and Depression Scale (HADS) scores of the control vs treatment group include: 16.79 + 4.86 vs 14.47+ 4.69 In addition, labor pain during the transition period (8-10cm opening) in the intervention group was lower than in the control group with ρ value = 0.03.
17.	Pınar Serçekuş, Hatice Başkale, Effects Of Antenatal Education On Fear Of Childbirth, Maternal Self-Efficacy And Parental Attachment[32]	A total of 63 pregnant women and husbands. The intervention group was 31	Interventions: antenatal care and pregnancy classes. Control: routine antenatal care. The intervention was carried out with a	Pregnancy classes can reduce fear of childbirth and increase readiness for labor but do not affect the bounding between parents and babies.

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	Quasi-Experimental Study	The control group consisted of 32 pregnant women. Gestational age 26-28 weeks.	duration of 120 minutes / week for 8 weeks. The class is divided into small groups, namely 6 - 8 pairs.	The measuring tool uses the Wijma Delivery Expectancy / Experience Questionnaire, the Childbirth Self-Efficacy Inventory, the Maternal Attachment Inventory and the Postnatal Paternal – Infant Attachment Questionnaire.
18.	Vibeke Koushede, Antenatal small-class education versus auditorium-based lectures to promote positif transitioning to parenthood – A Randomized trial[33] A Randomized Trial Study	A total of 1766 pregnant women were divided into 2, namely the intervention group 883 pregnant women and 883 control groups pregnant women.	Intervention: class of pregnant women in small groups, 3 times during pregnancy and 1 time after delivery (each session lasts 2.5 hours Control: large group education in the auditorium, carried out 2 times for 2 hours. Measurements were taken at pre, follow-up 1 (FU 1) at 37 weeks of gestation, FU 2 = 9 weeks postpartum and FU 3 = 6 months postpartum.	There was no difference between the intervention and control groups in the level of stress as evidenced by the value of the PSS (Perceived Stress Scale) questionnaire. However, at the third follow-up (6 months post partum), the intervention was proven to reduce the PSS value in the intervention group with ρ value = 0.04. At FU, the three DASS scores in the control and treatment groups include: 3.26+ 10.66 vs 3.19 + 10.19.
19.	Fariba Alaem1, Amir Jalali, Afshin Almasi, Alireza abdi and Mozhgan Khalili, Investigating the effect of group counseling on family stress and anxiety of primiparous mothers during delivery. [34] Quasi eksperimental Study	Primiparous family members (1 person from each husband and wife family) The intervention group consisted of 36 people The control group consisted of 36 people.	Intervention: a class of pregnant women with 6 cognitive counseling sessions held every week Control: no intervention	There was no significant difference between the mean scores of stress, anxiety, hidden anxiety and apparent anxiety before the intervention in the experimental and control groups, respectively. There are differences between the intervention group and the control group, namely in the intervention group, namely: PSS score with ρ value <0.001. The pre vs post PSS scores include: The control group was 25.98 + 5.75 vs 26.81 + 3.49. The intervention group was vs 24.72+ 5.31 vs 22.14 + 4.97
20.	Maryam Mehrabadi, Forough Mortazavi,	A total of 120 nulliparous	Intervention: class of pregnant women with 8	The results showed that in the intervention group the

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	Mohammad Hassan Rakhshani [35] Examining the Effect of Attending Childbirth Preparation Classes on Prepartum and Postpartum Maternal Mental Well-being Index single-blind clinical trial	mothers with gestational age of 20 -38 weeks. The intervention group consisted of 60 nulliparous pregnant women. The control group consisted of 60 nulliparous pregnant women.	sessions. Each session is 90 minutes long. Control: routine antenatal care. Measurements were taken 3 times, namely pre and post intervention and follow up (14 days after delivery).	World Health Organization-5 Well Being Index (WHO-5) score did not decrease and significantly increased at post-intervention and follow-up / positive conditions felt by respondents were maintained at post-intervention and follow-up. . In the control group there was a decrease in the score at follow-up with ρ value <0.048.
21.	Amanak Keziban, Sevil Ümran, Karacam Zekiye. The Impact Of Prenatal Education Based On The Roy Adaptation Model On Gestational Hypertension, Adaptation To Pregnancy And Pregnancy Outcomes[36] Quasi-experimental case-control study	132 pregnant women with gestational hypertension. Gestational age of more than 24 weeks. The intervention group: 68 pregnant women. Control group: 64 pregnant women.	Intervention: Roy Adaptation Model (RAM), namely education about the physiology of pregnancy, self-concept, role functions and interdependence domains. Control: routine maintenance. The intervention was carried out 4 times, namely 2 times at 20-24 weeks of gestation, 1 time at 30-34 weeks of gestation and 1 time after delivery on the first and second days.	The intervention in the form of an Adaptation Model (RAM) was able to control blood pressure in hypertensive pregnant women with ρ value <0.0001. RAM intervention was able to stimulate adaptation during pregnancy with hypertension so that the blood pressure intervention group was more controlled.
22.	Leila Hajipour, Zahra Mohtasham Amiri, Ali Montazeri, Behnaz Torkan, Monirosadat Hosseini Tabaghdehi The Effects of Prenatal Classes on the Quality of Life in Pregnant Women[37] Quasi-experimental study	100 pregnant women. Gestational age is at least 18 weeks. The intervention group consisted of 50 pregnant women. The control group consisted of 50 pregnant women.	Intervention: class of pregnant women as many as 8 sessions. Control: routine maintenance. Measurements were made before and after the intervention was completed.	The intervention in the form of a class of pregnant women for 8 sessions could not significantly improve the quality of life in the intervention group. However, the mean score in the control group after intervention is lower than before the intervention. So that the class of pregnant women can maintain the quality of life score in the intervention group.
23.	Okafor Orji Urenna, Yewande Ademuyiwa Iyabo	A total of 117 multigravida	Intervention: class of pregnant women.	Antenatal education program has a positive effect on knowledge of

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	Effect Of Antenatal Education On Knowledge And Utilization Of Facility Based Delivery Services Among Pregnant Women In Two Health Institutions In Alimosho, Lagos State[38] Quasi-experimental study	pregnant women. The intervention group: 62 people. The control group is 55 people.	Control: routine maintenance. Measurements were made before and after the intervention was completed and follow up.	pregnant women and the use of delivery services in health facilities. In the intervention group, there was an increase in the number of pregnant women with high post vs pre knowledge category, namely 7 mothers to 51 mothers. Meanwhile, there was an increase in the use of health facilities in the intervention group compared to the control group with ρ value <0.0001 (after the intervention) and follow-up (ρ value <0.013).
24.	Brixval Carina Sjöberg, Thygesen Lau Caspar Effect Of Antenatal Education In Small Classes Versus Standard Auditorium-Based Lectures On Use Of Pain Relief During Labour And Of Obstetric Interventions: Results From The Randomized NEWBORN trial[39] Randomised trial design	A total of 1,766 pregnant women during the months of August 2012 - May 2014. The intervention group: 883 pregnant women. Control group: 883 pregnant women.	The intervention given was in the form of classes of pregnant women (6 - 8 pregnant women / group). Control group: auditorium class of 250 pregnant women. The intervention was carried out 3 times for 2.5 hours / session.	Intervention in the form of classes of pregnant women did not affect the use of pain relievers during labor, eg epidurals and acupuncture. In addition, the intervention also did not affect the type of obstetric action (vacuum extraction, elective SC and emergency SC) in the patient.
25.	Yikar Seda Karaçay, Nazik Evşen Effects of prenatal education on complaints during pregnancy and on quality of life[40] quasi-experimental research with a control group	A total of 60 multigravida pregnant women. Intervention group: 30 people. Control group of 30 people.	Intervention: class of pregnant women. Control: routine maintenance. Interventions were carried out in the first trimester of pregnancy with the main material being anatomy and physiology during pregnancy. The second meeting is complaints and coping skills during pregnancy. Measurements were made in the II and III trimesters.	Intervention in the form of classes of pregnant women can improve the quality of life of pregnant women and reduce complaints during pregnancy by using the SCPEQL (Scale of Complaints during Pregnancy and their Effects on Quality of Life) questionnaire. There was a statistical difference between the control and intervention groups in the measurement of the second and third trimesters compared to before treatment (TM I) with ρ value <0.0001.

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Table 2 Analysis of Effect Size Variable Stress Level

No	Journal name	Gain Score pre post/PSS / DASS 21 value		Effect Size	Information
		Control group (Mean ± SD)	Intervention Group (Mean ± SD)		
1.	KIH Standard with KIH plus CST * (journal 1)	- 0,13± 0,44	2,45 ± 3,167	0,11	Very weak
2.	KIH standard with *mindfulness based childbirth and parenting program* (MBCP)* (journal 3)	3,8 ± 0,32	6,07 ± 0,63	4,54	Strong
3.	Standard *KIH* and *KIH* plus CBT (journal 7)	- 0,31 ± 1,44	4,85 ± 0,15	5,0	Strong
4.	Standard *KIH* with regular *ANC* * (journal 12)	- 2,00 ± 3,4	2,1 ± 0,1	9,1	Strong
4.	Standard *KIH* with regular ANC ** (journal 15)	16,79 ± 4,86	14,47± 4,69	0,48	Low

Information :

sign * = gain score

sign ** = stress measurement score

Table 3 Analysis of Effect Size Variable Body Cortisol Levels

No	Comparison	Gain Score pre – post / nilai PSS/ DASS 21		Effect Size	Information
		Control group (Mean±SD)	Intervention Group (Mean±SD)		
1.	Standard KIH with *KIH* plus CST * (journal 2)	14,26 ± 0,00	47,13 ± 30,50	1,5	Strong
2.	Standard *KIH* and *KIH* plus CBT (journal 7)	- 0,12 ± 0,05	0,31 ± 0,03	10,4	Strong
3.	*Copping skill dzikir** (journal 9)	-9,5 ± 29,8	30,0± 11,9	1,7	Strong
4.	Standard KIH with KIH minfulness * (journal 10)	1,17 ± 1,54	28,10± 0,22	24,48	Strong

Information :

sign * = gain score

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DISCUSSIONS

The impact of a pregnant woman's socioeconomic status on her stress levels

The Perceived Stress Scale (PSS) and Depressions Anxiety Stress Scale (DASS) are used to assess the level of stress experienced by pregnant women. The findings of the journal literature review show that 87 percent (24 articles) claim that the standard class of pregnant women and the class of pregnant women plus psycho-educational material will minimize the level of stress experienced by measuring the Perceived Stress Scale (PSS) and Depressions Anxiety Stress Scale.[19,21]

When compared to mothers who did not attend the pregnant women's class, the systematic review found that attendance in the mother class could significantly reduce the stress level of pregnant women, with an effect size of 9.1. [11]Fear is caused by a lack of understanding about childbirth and inaccurate facts about childbirth. Through presenting knowledge regarding births and correcting misconceptions about births, successful antenatal education reduces anxiety· 11Fear is caused by a lack of understanding about childbirth and inaccurate facts about childbirth. Through presenting knowledge regarding births and correcting misconceptions about births, successful antenatal education reduces anxiety..[29–31,40]

Understanding tension, recognizing stressors, stress control with breathing exercises, avoiding bad actions and feelings, and constructing better thoughts are all topics discussed in the psychoeducation material provided to pregnant women in training.[41]

One of the developments in the Class of Pregnant Women (KIH) is the use of psycho-educational materials like Coping Skill Training (CST) and Mindfulness to engage mothers in cognitive and behavioral processes that enable them to feel stress in a positive way, Accept mindfulness and be able to handle current pressure in a constructive way by using available resources or according to each individual's capacity to cope with stress. Psychoeducation has been shown to minimize stress, cortisol levels, and increase infant care and growth in groups of pregnant and post-partum mothers.

Even though it can provide a better classroom environment for pregnant women, research with psychoeducation intervention in the form of mindfulness has not been able to reduce stress levels. Mindfulness, meditation, and yoga are among the concepts of mindfulness taught to pregnant women, as are stress reduction, tolerance or acceptance, and community discussion. Accept labor in a relaxed and conscious manner. The lack of independent practice for pregnant women outside the class of pregnant women was found to be the cause of mindfulness's ineffectiveness in reducing stress levels in pregnant women in this article.

The findings of the systematic review also show that prenatal classes combined with psychoeducation can increase pregnant women's physical and psychological well-being as well as the well-being of their babies up to the postpartum era. Using the BELIEF method, certified midwives provide psychoeducation. (Birth Emotions: Looking to Improve Expectant Fear) method can increase self-confidence and reduce fear before childbirth.[26]

Pregnant women's psychosocial well-being may be improved by classes using the Centering Pregnancy model. The effect of a pregnant woman's social status on cortisol levels. Cortisol is a hormone that is formed as a result of the body's stress response. During pregnancy and the postpartum period, the stress hormone cortisol has been linked to an increased risk of health problems.[42] Cortisol is a major marker of biological stress response that is produced by the hypothalamic-pituitary-adrenal (HPA) axis and released by the adrenal glands.[43]

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During pregnancy, there are changes in the control of the HPA axis and cortisol secretion, with cortisol levels rising during the pregnancy and thus playing an important role in fetal organ growth. [44] While elevated cortisol levels are normal throughout pregnancy, some research indicates that higher maternal cortisol levels are linked to better delivery outcomes. Preterm delivery is becoming more common, as is the need for resuscitation assistance at birth and damage to the baby's brain cells.[42]

During pregnancy, cortisol control is critical for both the mother and the fetal glucose metabolism for growth and development. 45 Cortisol control is affected by social factors such as interpersonal relationships, as well as human attributes such as psychological stress and emotional well-being. In intimate marriages, married couples have the same behavior patterns from time to time. This type of physiological "connection" could indicate a partner's ability to alter and control one another. In terms of cortisol's significance for fetal health and development, Although the relationship between partners' cortisol levels during pregnancy can play a significant role in maternal glucocorticoid control, few studies with small samples have looked into the relationship between partners' cortisol levels during pregnancy.[46]

According to the findings of the journal literature review, there are three research papers linked to the class of pregnant women who also receive psychoeducation with varying cortisol levels. The article concludes that providing psychoeducation material to a group of pregnant women is more effective in lowering serum cortisol levels than providing material determined by the government to a group of pregnant women.

Based on the researchers' analysis, the decrease in cortisol levels in the intervention group was due to a change in response to the hypothalamus. Conditions that are not as expected by pregnant women will be considered as stressors on the hypothalamus. The stress that is received by the hypothalamus causes the *HPA* shaft to be disrupted, causing the production of cortisol in response to pressure in the body. Interventions carried out in the form of adding skills/coping skills against stress, feeling of accepting the situation and providing correct knowledge so that correcting wrong thinking patterns (cognitive) can help mothers change the stressor received into a state that can be controlled, so that body stress will decrease and decrease. to cortisol levels. Analysis of the effect size obtained a value of more than 1, so it can be concluded that *KIH* which is integrated with psychoeducation strongly reduces the body's cortisol levels.

CONCLUSION

For the next researcher to conduct research with variations in the class model of pregnant women with the goal of increasing the awareness of partners in dealing with pregnancy, emergency readiness, and support for maternal mental health, for stakeholders to apply additional psychoeducation content to the class of pregnant women, and for staff to conduct research with variations in the class model of pregnant women with the goal of pregnant women and husbands to increase the knowledge of partners in dealing with pregnancy, emergency readiness, and support for maternal mental health. Health, especially midwives, in providing midwifery care to pregnant women, with a modification of the class of pregnant women according to the mother's needs without lowering existing standards in Indonesia.

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