Original Article

Primigravid Patients' Cortisol Level And Anxiety Level Toward Childbirth With Pregnancy Exercises And Healing Touch

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Abstract

Pregnancy is one of women's natural processes. At the end of pregnancy, the mother will encounter a childbirth process started with uterine contractions and followed by pain which causes fear and anxiety. Prior to childbirth, Primigravid patients can take pregnancy exercises and healing touch as two of the antenatal care services to reduce anxiety. This study aims to determine the effect of pregnancy exercise and healing touch on cortisol levels and anxiety levels in Primigravid patients toward childbirth.

This is quasi-experimental type of research using a one-group pretest-posttest design. Observations were conducted on 30 primigravida pregnant women in the third trimester (28-35 weeks) of pregnancy. They were divided into 2 groups: 15 people in the pregnancy exercise group and another 15 people in the healing touch group. The research was conducted in January-December 2017 at BPM Dince Safrina Pekanbaru. The Purposive Sampling Technique was used for sample selection, and Shapiro-Wilk was used for the data normality test. Whereas, the test of cortisol level and level of anxiety in the pregnancy exercise and healing touch groups used a dependent T-test, and the test for cortisol levels and level of anxiety differences towards Primigravid patients between those in the pregnancy exercise group and those in healing touch group used independent T-test.

The research result showed differences in the Primigravid patient's cortisol levels and anxiety levels before and after pregnancy exercise prior to childbirth. It also came true before and after the healing touch. Whereas, other results showed no difference in Primigravid patients' cortisol levels and anxiety levels between those joining the healing touch and those with a pregnancy exercise program. Thus, pregnancy exercise and healing touch can work as alternative activities to reduce primigravida pregnant women's cortisol levels and anxiety levels, and eventually scale down potential pregnancy complications and childbirth.

Keywords: Pregnancy Exercises, Healing Touch, Cortisol Level, Anxiety Level among Primigravid patients

Introduction

During the process of normal childbirth, pregnant women will experience uterine contractions which normally cause pain. Almost 90% of women experience severe pain during childbirth. However, the pain grows stronger due to excessive anxiety and panic namely the fear-tension-pain concept or fear which causes anxiety and muscle stiffness so that pain shoots up (Prawirohardjo, 2010). Based on AKI Inter-Census Population Survey (SUPAS) results, 305/100,000 live births were identified in Indonesia in 2015, then decreased to 177/100,000 live births in 2017. Indonesia should devote hard efforts to reduce AKI to 70 / 100,000 live births, especially in relation to Sustainable Development Goals (SDGs) in 2030. Ninety percents of pregnant women's psychological conditions indicate fear and anxiety during childbirth. Based on some research in several countries dealing with antenatal care, during the second

and third trimesters of pregnancy (or 35 weeks), 24% of pregnant women in Sweden experienced anxiety, and 22% experience depression (Claesson et al., 2010), whereas in Minnesota 10% of pregnant women experienced anxiety (Kim et al., 2006), 29% in Bangladesh with 18% with depression (Nasreen et al., 2011). In addition, 34.5% of pregnant women in Pakistan experienced anxiety and 25% of them experienced depression (Ali et al., 2012; Niaz et al., 2004, 2004; Shagufta & Shams, 2019; Zhang et al., 2018). Whereas, in Indonesia, 33.93% of pregnant women experienced anxiety (Larasati & Wibowo, 2012). Thus, almost all pregnant primigravida women experience worry, anxiety, and fear during pregnancy, childbirth, and post-childbirth (Dewi, 2020; Diana & MAIL, 2019; Mansyur, 2014).

Without serious treatment, anxiety can have an impact on the mother's physical and psychological conditions which eventually influences the fetus. The mother suffering from anxiety or stress normally experiences the signals through the HPA (Hypothalamic-Pituitary-Adrenal) axis which can cause stress hormone release including Adreno Cortico Tropin Hormone (ACTH), cortisol, catecholamines-Endorphins, Growth Hormone (GH), prolactin and Luteinizing Hormone (LH) / Follicle Stimulating Hormone (FSH). The release of such stress hormones causes systemic vasoconstriction and vasa uteroplacental constriction which causes blood flow disruption to the uterus as well as disturbances to the fetus so that longer or prolonged childbirth first stage occurs (Simkin & Ancheta, 2005). Eight percent of the world's childbirth average length causes maternal death mostly due to increased plasma cortisol which decreases the mother's and fetus' immune response (Suliswati et al., 2005).

Fear and anxiety are psychological conditions normally experienced by pregnant women that require urgent consideration despite frequent abandonment. Normally, obstetricians, midwives—or people available with direct assistance during or before the childbirth process—play a pivotal role in overcoming such a problem. Midwives have to recognize pregnant women's anxiety disorders and take plenty of efforts to reduce them through insightful information about pregnancy, childbirth, and the effects of anxiety on pregnant women and the fetus. Pregnant women reasonably require emotional support so that they have adequate physical and mental preparation for themselves, especially during childbirth (Ali et al., 2012; Niaz et al., 2004, 2004; Shagufta & Shams, 2019; Zhang et al., 2018). Psychological changes and adaptations in the third trimester (known as the expecting period), mothers are impatiently expecting and normally worried about the baby's condition during and after childbirth, and thus the anxiety is growing. Toward childbirth, questions will arise in their minds as to whether the fetus will be born with normal and safe physical condition, whether something will happen during childbirth, and the way to push out the baby (Rukiyah, 2013). These questions generate anxiety and tension which continue to form a feedback loop that can increase overall emotional intensity.

Another factor having an impact on anxiety growth in Primigravid patients is their limited knowledge. This is not only due to their first-hand experience, but they also simply have insufficient knowledge about the childbirth process and even have no idea what will happen during childbirth. Moreover, they oftentimes obtain terrible stories about firsthand childbirth which obviously affects the Primigravid patients' thoughts of the horrifying childbirth experience (Sandhi & Lestari, 2021). Hence, to reduce anxiety prior to childbirth, relaxation techniques are required as part of antenatal care for pregnant women (Hamzehgardeshi et al., 2021; Hoyer et al., 2020).

Pregnancy exercise is a relaxation technique to prepare and train the muscles and ligaments in the pelvis for optimal use in normal childbirth. Pregnancy exercise consists of several relaxation techniques to stabilize pregnant women's emotions. Moreover, the movements can reduce anxiety and affect the Hypothalamus-Pituitary-Adrenal (HPA)'s action which results the hormone's decrease (Cunningham et al., 2014; Gregory et al., 2019; Simkin, 2018). Another way of relaxation technique toward childbirth is called the healing touch which came from ancient Eastern healing and was firstly introduced by Delores Krieger and Dora Kuntz in the early 1970s as a noninvasive nursing intervention (Kelly, 2004).

According to some research, healing touch can reduce the risk of cancer, and even patients with cancer can get better results through healing touch therapy. Therefore, such therapy needs further exploration as a non-traditional therapy and is worth trying to complement standard cancer therapy. Moreover, in this particular study, healing touch can obviously reduce cancer patients' pain and anxiety even with a very light touch on the body. The healing touch quantum was selected during this study as it is more efficient and has no side effects (Jackson et al., 2008). Through a simple concentration of energy onto the hands and touching, positive energy is transferred and the patient will surely feel better (Richard Gordon, 2011).

Larasati & Wibowo (2012) showed differences in each respondent's results; those with pregnancy exercise participation indicated no anxiety level rather than those with no pregnancy exercise experience—only mild anxiety indicated. Whereas, Wulandari (2006) indicated a difference in the anxiety level after treatment between those in the experimental group and those in the control group. The control group's anxiety level on the pretest and posttest was moderate anxiety, whereas, the experimental group's anxiety level decreased from moderate to low anxiety level after some pregnancy exercise participation.

Based on the data taken from City Health Office Pekanbaru 2020, the highest number of pregnant women visiting the Payung Sekaki Health Center was 2436 people. Payung Sekaki had 6 clinics throughout its working area, two of which were Sejahtera clinic and Bhakti clinic. In addition, the two clinics had 5 visitors (pregnant women) on average per day but never carried out pregnancy exercises. Thus, in relation to the problem background, questions arose in the study stating: "If Pregnancy Exercise and Healing Touch are conducted for Primigravida women at the 2 clinics, to what extent will the 2 therapies likely have effects on their Cortisol and Anxiety levels before birth?"

Literature Review

The Pregnancy Exercise and Healing Touch Mechanism for Cortisol and Anxiety Deficiency

The contraction of skeletal muscle fibers creates tension sensation as a result of complex interactions between the central nervous system and other nervous systems including muscles and the skeletal muscle system. The central nervous system involves the sympathetic nervous system and the parasympathetic nervous system, each of which originates from the brain and spinal cord. Several organs are affected by these two nervous systems (Conrad & Roth, 2007). Sympathetic and parasympathetic nervous systems show reciprocal work. the sympathetic nervous system's erotropic activation is also known as the fight or flight response indicating active organs during stress. This response requires direct energy and stimulates the liver to release more glucose to fuel the muscles (Conrad & Roth, 2007). Thus, the metabolism increases and the sympathetic nerves increase pulse rate, blood pressure, hyper-glycemia, dilated pupils, breath increase, and tensed muscles. Whereas, trophotropic is the parasympathetic nervous system activity which cause feelings to rest and physical improvement. This is a relaxation response which allows pulse rate decrease and blood pressure (Conrad & Roth, 2007). Hence, relaxation exercises lead to relaxed and calm feelings.

Hypothesis

- H1: Cortisol levels and anxiety levels disparity were identified before and after pregnancy exercises for Primigravid patients toward childbirth.
- H2: Cortisol levels and anxiety levels disparity were identified before and after the healing touch for Primigravid patients toward childbirth.

Research Method

The research was conducted at the midwife with independent practice (BPM) named Dince Safrina Pekanbaru in January–December 2021. Primigravid patients of trimester III were selected as group of population in the study. They frequently came to check their pregnancy at Bakti Clinic and Sejahtera Clinic. However, The respondents were limited to only 30 people in which 15 of them took part in the pregnancy exercise (pregnancy exercise group) and another 15 people took part in the healing touch (healing touch group), plus 5 added respondents in case of drop out during the therapy. Respondents were selected based on the following inclusion criteria: [1] Literate pregnant women and communicate well, [2] Pregnant women who frequently checked their pregnancies at Pratama Bakti Clinic and

Pratama Sejahtera Clinic locations [3] The respondents were Primigravid patients of trimester III (28-35 weeks), [4] Normal pregnancies and [5] Those never before have joined pregnancy exercise and healing touch. Whereas, the exclusion criteria were as what follows [1] Childbirth carried out through Cesarean section, and [2] Respondents with less than 10 time pregnancy exercise.



The independent variable [1] of pregnancy exercise is a set of movements that comprises several relaxation techniques carried out twice a week with a frequency of 10 exercises for \pm 30 minutes, namely in the third trimester of pregnancy (28-35 weeks. Furthermore, [2] Healing Touch is carried out to identify and correct energy imbalances by putting/rubbing hands on the respondent's body. The measuring instrument used for the independent variables was a guide with treatment as the measuring method, and the intervention group became the measurement results.

The dependent variable [1] of Cortisol level was examined in blood serum. The measuring tool used was a spectrophotometer with an Enzyme-Linked Immunosorbent Assay (ELISA) as the measurement method while the measurement results were μ g/dl and the scale used a ratio. Whereas, [2] The anxiety level was mothers' (trimester III: 28-35 weeks) feeling of uncertainty, discomfort/fear, and worry with the use of the HARS scale. The measuring tool used for anxiety level was a questionnaire, ways to measure using a set of scores for each questionnaire's answer, the measurement's results was a score of 0-56 with an interval scale.

The study used a quasy experiment research design with the "One Groups Pretest-Posttest Design". Such a research design that provided pretest before treatment and a posttest after treatment. Thus, an accurate results will likely be obtained due to both treatment comparison. The research design is described in the following image:

Variable	Pretest	Treatment	Postest
Pregnancy Exercise Group	01	Х	02
Healing touch Group	01	Х	02

Research Design

Notes:

01: Cortisol level and anxiety level before pregnancy exercise and healing touch therapy.

02: Cortisol levels and anxiety levels after pregnancy exercises and healing touch therapy.

X: Intervention (pregnancy exercise and healing touch 10 times, \pm 30 minutes each, and started in the third trimester of pregnancy (28-35 weeks).

The study used an observation sheet as the research tool which measured pregnant women's Cortisol levels as well as a questionnaire sheet to determine the anxiety level with HARS as a measuring scale. Blood serum was collected using some research tools such as a pair of gloves, one tourniquet, one 3 ml disposable syringe, one 5 cc vacuum blood tube (sterile blood collection tube), one band-aid, alcohol cotton, micropipette, 1½ mL serum cup, centrifuge, and mat. The research materials were as follows: Human Cortisol ELISA Kit reagent (for venous serum of primigravida women of trimester III) comprising Cortisol Antibody Coated Microwell Plate-Break Apart Wells, Cortisol Antibody-Horseradish Peroxidase (HRP), Conjugate Concentrate, Cortisol Calibrators, Controls, Wash Buffer Concentrate, Assay Buffer, TMB Substrate, and Stop Solution.

Data were collated from Sejahtera Clinic and Bhakti Clinic's register listing pregnant women of 28-35 week pregnancy with inclusion criteria of the study sample. Prior to the intervention, respondents got through the informed consent. Furthermore, an intervention was carried out for \pm 30 minutes in each group of pregnancy exercise and healing touch starting at pregnancy trimester III (28-35 weeks) using an observation sheet. After 10 times pregnancy exercises and healing touch, the anxiety level was eventually assessed using the HARS (Hamilton Anxiety Rating Scale), cortisol examination was also carried out. In addition, the same assessment was also conducted to identify the anxiety level in the healing touch group using the same tool with a cortisol examination.

Research sample serum was collected by the following methods: [1] Two ml blood sampling was taken in the median cubital vein using a 3 ml syringe, [2] The blood was then put into a vacuum blood tube until it overflowed from the syringe tube. The vacuum blood tube was then placed on the tube rack to let it stay still in the position and to avoid shocks. Blood samples can be stored for 2 hours in the room (25 0C) temperature (Elabscience Assay Procedure). [3] The centrifugation was conducted at Sejahtera Clinic and Bhakti Clinic for 15-20 minutes with a rotational speed of 3000 rpm. Furthermore, the serum samples were separated using a micropipette and put them serum into 1½ mL serum cups with each respondent's identity on. [4] The serum sample was then transferred using a cool box with gel ice to the Awall Bross Pekanbaru laboratory (within 24 hours to avoid damage), [5] Furthermore, the serum was stored in a -80 0C refrigerator (can last 6 months) to the examination day. [6] The cortisol levels were examined using the Human Cortisol ELISA Kit at the Awall Bross Laboratory in Pekanbaru after all serum samples were collected.

The cortisol level check-up procedure includes working protocols based on the Human Cortisol ELISA Kit, all reagents preparation, working standards for serum samples according to the work instructions, the kit and samples at the temperature of 18-25 0C before use, microplate all set up, 25 μ L of standard and sample to each well, 100 μ L of a conjugate solution to all wells, 1-hour room-incubation temperature and shaker at 200 rpm with 300 μ L/well wash buffer. Three repetitions were carried out following the solution removal in the plate and turning the plate over on the tissue paper to remove the remaining wash buffer solution. Furthermore, 150 μ L TMB Substrate was added followed

by a plate wrapped with aluminum foil to protect it from light then 15-minute incubation was conducted at room temperature. After the incubation, $50 \,\mu\text{L}$ of stop solution was added to all wells until the solution color changed from blue to yellow. Eventually, the plate should be read with a wavelength of 450nm to obtain Optical Density (OD) value and the sample concentration value was checked.

This study utilized the dependent T-test to determine the disparity of Primigravid patients' anxiety levels and cortisol levels between the pregnancy exercise and healing touch groups. Whereas, an independent T-test was utilized to identify the disparity of Primigravid patients' cortisol levels and anxiety levels between the pregnancy exercise group and the healing touch group.

Result

The following table shows research results of Primigravid patient's cortisol levels and anxiety levels before and after pregnancy exercise toward childbirth:

The Disparity of Primigravid Patients' Cortisol Level between Pregnancy Exercise Pretest and Posttest toward Childbirth

Variable	n	Mean (SD)	Median (Min-Maks)	р
Cortisol Level Before (µg/dl)	14	28,778 (19,423)	23,460 (9,533-80,142)	0.075
Cortisol Level After (µg/dl)	14	17,705 (5,915)	17,048 (8,242-32,051)	0,075

The table shows Primigravid patients' mean cortisol levels before and after the therapy indicating 23.460 μ g/dl and 17.705 μ g/dl. In addition, the results of the Dependent T-test showed the disparity of Primigravid patients' cortisol levels before and after pregnancy exercise toward childbirth (p=0.075).

The Disparity of Primigravid Patients' Anxiety Level between Pregnancy Exercise Pretest and Posttest toward Childbirth

Variable	n	Mean (SD)	р
Anxiety Level Before	14	28,43 (10,945)	0.000
Anxiety Level After	14	17,29 (3,089)	- 0.000

The table shows Primigravid patients' mean anxiety levels before and after pregnancy exercise indicating 28.43 and 17.29. The results of the Dependent T-test show the disparity of Primigravid patients' anxiety levels before and after pregnancy exercise toward childbirth (p=0.000). The following table shows the research results of Primigravid patients' cortisol levels and anxiety levels before and after the healing touch toward childbirth:

The Disparity of Primigravid Patients' Anxiety Level between Healing Touch Pretest and Posttest toward Childbirth

Variable	n	Mean (SD)	р
Cortisol Level Before (µg/dl)	14	34,877 (20,485)	0.009
Cortisol Level After (µg/dl)	14	17,469 (4,288)	

The table shows Primigravid patients' mean cortisol levels before and after the therapy indicating 34.877 μ g/dl and 17.469 μ g/dl. The results of the Dependent T-test show the disparity of Primigravid patients' cortisol levels before and after the healing touch toward childbirth (p=0.008).

Variable	n	Mean (SD)	р	
Anxiety Level Before	14	30,29 (15,554)	0.002	
Anxiety Level After	14	15,29 (9,539)		

The Disparity of Primigravid Patients' Anxiety Level between The Healing Touch Pretest and Posttest toward Childbirth

The table shows Primigravid patients' mean anxiety levels before and after the healing touch as indicated at 30.29 and 15.29 respectively. Whereas, Dependent T-test results show the disparity of the anxiety level before and after the healing touch toward childbirth (p=0.002). The research results show a disparity between Primigravid patients' cortisol levels and anxiety levels between the impacts of pregnancy exercise and healing touch as seen in the following table:

The Disparity of Primigravid Patients' Cortisol Level and Anxiety Level between Pregnancy Exercise and Healing Touch

Variable	n	р	
Cortisol Level (µg/dl)	28	0,904	
Anxiety Level	28	0,476	

The table shows the results of Independent T indicating no disparity of Primigravid patients' cortisol levels and anxiety levels with pregnancy exercises and healing touch (p=0.904 and p=0.476).

Discussion

The Disparity of Primigravid Patients' Cortisol Level and Anxiety Level between Pregnancy Exercise Pretest and Posttest toward Childbirth

The study has shown the disparity between each respondent's cortisol levels and anxiety levels. The pretest results of the pregnancy exercise group showed a higher mean value than that of the pregnancy exercise posttest. In addition, the results of the bivariate analysis with T Dependent confirmed the disparity before and after pregnancy exercise conducted at BPM Dince Safrina Pekanbaru 2017. Cortisol level deficiency occurred due to the exercise's positive impact on pregnant women of trimester III in which they experienced increased cortisol levels during their pregnancy. Cortisol level deficiency indicated an objective decrease in stress or anxiety. Thus, pregnant women experience a sense of calmness after the therapy (Zainuddin, 2009).

During the feeling of tension and anxiety, the sympathetic nervous system works, while the parasympathetic nervous system works during the feeling of relaxation. The sympathetic nervous system stimulates the body organs which apparently stimulate heart rate and respiration, narrows the peripheral blood vessels, and enlarges central blood vessels. Whereas, the parasympathetic nervous system decreases all functions raised by the sympathetic nervous system and increases all functions obtained from the sympathetic nervous system. Thus, relaxation can reduce tension and anxiety (Andriana, 2006). Research by Larasati & Wibowo (2012) showed that respondents with pregnancy exercise mostly had no anxiety. Otherwise, respondents with pregnancy exercise suffered from mild anxiety. Likewise, the research by Mintarsih (2012) confirmed pregnancy exercise's maximum effectiveness on primiparous postpartum patients' range of first-stage opening during childbirth. Furthermore, (Wahyuni, 2013) confirmed a significant relationship between pregnancy exercise and the childbirth process at RSIA Aisyiyah Klaten.

The disparity of Primigravid patients' anxiety levels before and after pregnancy exercise was identified due to the pregnancy exercise's relaxing physical effects such as both respiratory relaxation and muscle relaxation. The respondents felt calmness, relaxation, and comfort toward pregnancy's last weeks so that they could initiate useful endeavors for the baby.

The Disparity of Primigravid Patients' Cortisol Level and Anxiety Level between Healing Touch Pretest and Posttest toward Childbirth

The study's results indicated the disparity between each respondent's cortisol levels and anxiety levels before and after the healing touch in which the group before the healing touch had a higher mean value than those after the therapy. The bivariate analysis with T Dependent confirmed the disparity of the healing touch therapy conducted at BPM Dince Safrina Pekanbaru 2021.

Childbirth is a life phase with a major psychological impact, especially for primiparous women. The feelings of fear, anxiety, and decreased confidence come into this phase which will likely cause excessive stress (Gunter, 2018). Anxiety toward childbirth can stimulate the hypothalamus-pituitary-adrenal (HPA) under down-regulation control or a negative turning point. Hypersecretion of corticotropin-releasing factor (CRF) from the hypothalamus will induce adrenocorticotropin hormone (ACTH) release from the pituitary. ACTH interacts with receptors on adrenocortical cells and cortisol is released from the adrenal glands. Thus, it results in adrenal gland hypertrophy. The cortisol release into the circulation indicates a number of effects such as metabolic effects (glucose level raise). Cortisol-negative turning points to the hypothalamus, pituitary, and immune system occur during the increased plasma cortisol levels. Thus, HPA-axis and cortisol release by the adrenal cortex occurs continuously which causes frequently high plasma cortisol levels. The cortisol receptors become sensitive and will likely allow pro-inflammatory immune mediators increased activity and neurotransmitter transmission disturbances (Lindsay & Nieman, 2005).

Healing touch (HT) is a skin touch carried out with the most sensitive organ toward stimulation in the body. In addition, during the sensory receptor stimulation through touching, the tension effects were significantly reduced. Energy therapy is naturally based on more hidden power within the human body. We also have the energy field (energy field) residing in the energy in our body. This particular energy flow can be blocked or disrupted so that the energy does not flow properly. Energy flow deficiency can cause various physical symptoms or disorders. HT opens and smoothes the energy flow throughout the body. This balances the mind, body, and spirit, and therefore the body can heal itself. HT is a direct treatment by channeling energy through hand light touch to certain parts of the body. HT is normally conducted by nurses concerning psychological issues and biofield therapists. HT will affect the autonomic nervous system, change the heart rate's high frequency to low frequency, increase the parasympathetic nerves function and reduce the sympathetic nerves activity (Wardell & Weymouth, 2004).

The disparity of Primigravid patients' cortisol levels and anxiety levels between before and after the healing touch toward childbirth was identified as the healing touch was part of exercise therapy which can help Primigravid patients improve their physiological and psychological conditions. In addition, exercises during pregnancy will help mothers cope with stress and anxiety.

The Disparity of Primigravid Patients' Cortisol Level and Anxiety Level after Pregnancy Exercise and Healing Touch

With the Independent T-test, this study showed no disparity of primigravid patients' cortisol levels and anxiety levels between the pregnancy exercise and the healing touch. The study results have proven that pregnant women in trimester III experienced an increased hormone cortisol which means they suffer from stress or anxiety, and it is very dangerous, especially for their pregnancy and fetus' development. The stress release results in systemic vasoconstriction and constriction of the uteroplacental vasa and disrupts blood flow to the uterus which leads to fetal disturbances (Suliswati, 2004)

Hormone cortisol and other harmful substances caused by stress can come into placenta and affect fetus' development in the womb. Likewise, stress experienced by pregnant women can increase corticotrophin-releasing hormone (CRH) in the early stage of pregnancy. Sequential CRH can cause preterm birth. Evan (2002) suggested that women who suffer from stress and anxiety during trimester III of pregnancy will likely experience a potential risk of congenital abnormalities such as cleft palates close failure, cesarean section surgery, childbirth with device, preterm

births, childbirth of low birth weight baby (LBW). Furthermore, in the long term it leads to children's behavioral and emotional disorders.

In line with (Saifuddin, 2002) who argued that stress/anxiety can occur in primigravid patients due to their first-hand experiences especially out of overheard trauma of pregnancy and childbirth failure. Environment and social life can also cause primigravid patients' stress/anxiety as they can affect individuals' ways of thought (Yuliatun, 2011). In addition, unpleasant experiences with family, friends, or colleagues can also affect their mindset. Family or husband's moral support can create a sense of pleasure and calmness, and it can reduce pregnant women's anxiety. (Jones et al., 2001) also argued during anxiety and depression cortisol secretion increases. Moreover, during the trimester III, the mother's cortisol levels could triple (Jung et al., 2011), whereas basal levels of CRH, adrenocorticotropic hormone, and cortisol are high, the hypothalamic-pituitary-adrenal (HPA) axis of acute reactivity to stressful stimuli is dampened in the last stage of pregnancy (Kammerer et al., 2002).

Feinstein & Ashland (2012) also argued that for an individual with the feeling of fear, but then obtains taps on his acupoint, amygdala activity will likely decrease which means brainwave also decreases and participants' fight or flight response stops. Thus, the relaxation effect appears to neutralize emotional tension. This effect similarly works as stimulating acupuncture needles on one's meridian points in his body. It also comes true with innovative pregnancy exercises and healing touch functioning as effective alternatives for anxiety level reduction and cortisol level deficiency. Pregnancy exercise and healing touch comprise several movements, including breathing exercises to calm the mind and affect the hypothalamus-pituitary-adrenal (HPA) axis.

Conclusion

According to the Inter-Census Population Survey results (SUPAS) of AKI, there were 305/100,000 live births in 2015 in Indonesia and it decreased to 177/100,000 live births in 2017. Thus, Indonesia needs to work hard to reduce AKI in the Sustainable Development Goals (SDGs) program in 2030 which should be 70/100,000 live births. The survey has indicated positive results though beyond the Sustainable Development Goals in 2030. The results showed a disparity in cortisol levels and anxiety levels before and after pregnancy exercise for Primigravid patients toward childbirth. In addition, the disparity between Primigravid patients' cortisol levels and anxiety levels before and after pregnancy exercise and the healing touch toward childbirth was also identified. On the contrary, other results indicated no disparity between Primigravid patients' Cortisol levels and anxiety levels with pregnancy exercise and the healing touch. Hence, pregnancy exercise and healing touch become the alternative therapies to reduce cortisol levels and anxiety levels for pregnant women which will likely reduce potential complications during pregnancy and childbirth.

Research Ethical Consideration

All respondents were informed about the research; the objectives, the benefits as well as treatments. Under the respondents' agreement, they were requested to sign a consent letter. The question subjects dealt with Primigravid patients of trimester III as the research respondents and participated in the pregnancy exercise and the healing touch. Each respondent deserved to get information about the examination results and they can discontinue their participation as the research respondents at their disposal.

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