

**How to Cite:**

Wahyuni, S., Suryani, E., & Sumarni, S. (2022). Psychoeducation of Žikir decreases perceived stress and IL-6 level of Primigravida women. *International Journal of Health Sciences*, 6(S6), 3345–3353. <https://doi.org/10.53730/ijhs.v6nS6.10390>

## **Psychoeducation of Žikir decreases perceived stress and IL-6 level of Primigravida women**

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**Abstract**---Unstable emotions often occur during the pregnancy and place the pregnant women in a stress transition and tends to a vulnerable condition, which can increase proinflammatory cytokines so as to trigger preterm labor. The pregnancy period is a condition to get closer to God and make life more meaningful by using religious beliefs as a strong coping mechanism. This study aims to prove routine midwifery care plus psychoeducation Žikir further reduces perceived stress and the level of IL-6 Primigravida women compared to routine midwifery care. This study was an experimental study. A number of 37 participants as intervention group and a number of 38 participants as control group. The perceived stress obtained using Perceived Stress Scale and IL-6 levels measured using ELIZA kits in the third trimester of pregnancy. Statistical test using independent t test to compare delta score. The result showed mean difference between groups on the end of interventions, perceived stress 4.520 CI 95% (-7.687 – [-1.353]) and p value is 0.006. The difference of the IL-6 between groups 8.371 CI 95% (-11.361 – [-5.38]) and p value is less than 0.001. Conclusions: Routine mid-wifery care plus psychoeducation žikir has more decrease perceived stress and IL-6 levels in primigravida women.

**Keywords**---class, mother, influences.

**Introduction**

Difficulties in adapting women during pregnancy are stressful transitions. Stress can affect maternal immune function, maternal and fetal health during the

pregnancy period (Christian, 2012), uteroplacental insufficiency and cause preterm birth (Kota et al., 2013). The pregnancy period is a condition to get closer to the God and make life more meaningful by using religious strategy as a strong coping mechanism (Callister & Khalaf, 2010). The previous study results prove that the activity of religious life and spirituality during pregnancy is a protective factor against symptoms of postpartum depression and helps overcome stress at the start of becoming a mother (Mann, McKeown, Bacon, Vesselinov, & Bush, 2008). Paying attention to the condition of Indonesian society based on religion while the program for providing maternal health services in general is still related to physical health, medication, baby care and family planning (Kemenkes RI, 2015; Kemenkes RI, WHO, POGI, & IBI, 2013).

Some research on *zikir* has been done, with routine midwifery care (RMC) plus psychoeducation *zikir* (PŽ) to reduce stress and depression syndrome in primigravida women (Sri Wahyuni, Anies, Soejoenoes, Putra, & Syukur, 2018), further reduce cortisol levels and further increase IgG levels of primiparous women (Sri Wahyuni, Anies, Soejoenoes, Putra, et al., 2018), further reduce cortisol levels and further increase IgG levels of primiparous women (Sri Wahyuni, Anies, Soejoenoes, & Putra, 2018), relaxation training with *zikir* can reduce the anxiety of first pregnancy pregnant women (Maimunah, 2011). The previous studies have not evaluated the impact of using a religious coping on perceived stress and IL-6 levels as a marker of preterm labor risk. Preterm labor causes several complications in mothers and infants, namely preterm labor is the single direct cause in 35% of neonatal deaths (Blencowe et al., 2013), the emergence of long-term complications such as vision or hearing loss, lung disease, cardiovascular disease, delayed developmental progression nervous and behavioral deficiencies (Paules et al., 2017; Romero, Dey, & Fisher, 2014). The purpose of this study was to prove routine midwifery care (RMC) plus psychoeducation *zikir* (PŽ) further reduced perceived stress and IL-6 levels compared to RMC only.

### **Research design**

This research has been an experimental research with randomized pre – test post-test control group design. The intervention was the RMC plus PŽ, while the control group got the RMC only.

### **Population and sample research**

The subjects in this research were primigravida women at six Health Centers in Klaten District, which fulfilled the inclusion criteria with consecutive sampling technique. A total of 75 respondents completed a series of research, during July – September 2019.

### **Materials and research tools**

Perceived stress has been examined at the trimester (TM) III of pregnancy, used the Perceived Scale Stress (PSS)(Cohen, Kamarck, & Mermelstein, 1983) as indicator of perceived stress that measures the extent to which situations in a person's life are rated as stress, and also to measure stress during the third

trimester of pregnancy; comprised 10 items, each item was rated on a 5-point scale ranging from never (0) to almost (4). IL-6 levels were taken from the subject's blood and measured in the TM III of pregnancy, tested using the Enzyme-Linked Immuno Sorbant Assay (ELISA) method at the GAKY University laboratory Diponegoro University.

### **Collection / research stages**

Interventions had been given two times on the TM III of pregnancy, for 45-60 minutes of each intervention, using modules in the same sequence of activities, beginning with deep breathing relaxation activities, followed by read some of al-Qu'ran's letters, Sholawat Prophet Muhammad SAW, some Asmaul Husna, toyyibah sentence, Istighfar, Tauhid sentence and mention Allah's name and end with deep breath. The materials used in the study include the Psychoeducation Žikir (PŽ) module (Sri Wahyuni, Anies, Soejoenoes, & Putra, 2019). Interventions were conducted by researchers who were assisted by six midwife instructors, each of which was owned by a selected community health center that had been subjected to a perception equation and was given special training. Ethical permission was obtained from Research Ethics Committee at Health Politechnic of Surakarta. All respondents signed Informed Consent in Bahasa.

### **Data analysis**

Analysis of the variables of the perceived stress and IL-6 level in the intervention group and control group used Independent Sample t-Test.

### **Research Method**

Descriptive data in the intervention group showed pregnant women in the category of low risk age (73%), secondary educational category (90%), not working (81%), household income below regional minimum wage (RMW) (55%). In the control group obtained the characteristics of women in the category of low risk age (92%), secondary educational category (59%), not working (68%), household income below the RMW (67%). All data were obtained  $p > 0.05$ , so it can be concluded that the respondent's characteristic data in two groups was homogeneous.

The perceived stress was categorized into mild stress level if the PSS score 0 - 13, moderate stress if PSS score 14 - 26 and severe stress if score 27 - 40. The results showed that at end of intervention in group who got additional PŽ there were 18 (47%) respondents in moderate stress categories and 5 (13%) in heavy stress categories, whereas in the RMC group only there were 22 (59%) in moderate stress category and 10 (27%) respondents in the category of heavy stress, It can be concluded that the respondents in group who got additional PŽ were on low incidence of stress compare to the respondents in RMC group only.

Table 1  
Differences of The PSS scores and the IL-6 Level between Intervention and Control Groups

Variable	RMC+PŽ Mean±SD	RMC Mean±SD	Difference (Δ) (CI95%)	p value
Percieved stress	21.71±8.574	25.03±11.772	-	-
	17.24±7.280	21.76±6.465	4.520 (-7.687 - [-1.353])	0,006*
IL-6	12.20±9.333	15.57±9.431	-	-
	8.40±5.676	16.77±7.244	8.371 (-11.361 - [-5.38])	0,000*

\* Independent t test

The results showed the mean score of PSS in group who got additional PŽ was lower than the RMC group only. The PSS scores in the group who received additional PŽ were below the PSS score charts in the group receiving RMC only (figure 1).

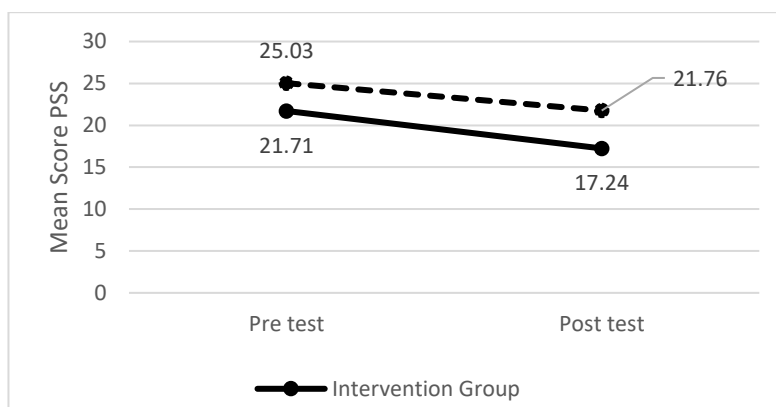


Figure 1. The PSS Score pre and post intervention between groups

Figure 2 shows a graph of the IL-6 levels in the RMC plus PŽ tends to decrease, while the PSS score graph in the RMC group only tends to increase.

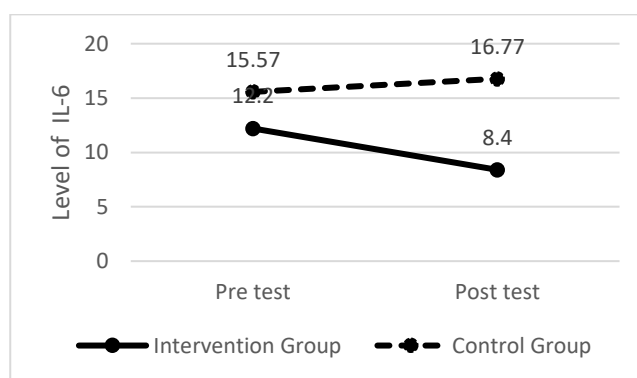


Figure 2. The IL-6 Level pre and post intervention between groups

The subjects were women who did not have experience in pregnancy and childbirth, and based on previous studies stated that primigravida women experienced changes for the first time; such as physical changes, fatigue and pain after childbirth and decreased hormones, changes in interpersonal relationships and work, worrying about the health and care of babies; so that mothers are more sensitive to emotional changes and trigger stress (Habel, Feeley, Hayton, Bell, & Zelkowitz, 2015; Hung, 2006; Lobel & Dunkel Schetter, 2014). Subjects were selected using some criteria. Previous research has shown that several conditions related to stress are work and family support (S Wahyuni, Murwati, & Supiati, 2014), premarital pregnancy, chronic illness in the family, marital problems, insufficient family income (Sutjahjo, Manderson, & Astbury, 2007).

The first study result is the RMC plus PZ reduces perceived stress of primigravida women compared to the RMC only. This result proved by the prevalence rate of perceived stress in the heavy category in the RMC plus PZ group is less than the perceived stress in the severe category in the RMC group only (Table 1). This shows that pregnant women are vulnerable to experience high perceived stress. Meanwhile, maternal and child health services are carried out referring to the maternal and child health book (MCH) including the period of pregnancy, childbirth, childbirth and newborns; includes health service provision programs that are still related to physical health, medication, baby care and family planning (Kemenkes RI, 2015). In addition, there have not included service provision and screening for psychological conditions, especially stress. The stress screening is needed as an effort to detect complications early, especially the psychological aspects of the pregnant women, so that if complications are found, it makes handling easier. The results of previous studies indicate there is a correlation between maternal stress levels and depressive symptoms (Liou, Wang, & Cheng, 2014).

This study used the PSS score as an indicator the perceived stress. Although the two groups did not experience a decrease in the mean PSS score, the mean PSS score in the RMC plus PZ group was smaller compared to the RMC group only. This is consistent with the results of previous research that relaxation training with *zikir* in pregnant women is proven to reduce anxiety and help individuals form perceptions about the belief that any stressor will be dealt with properly (Maimunah, 2011), interventions based on religious beliefs can help improve the mental health (Akbarzadeh, Mokhtaryan, Amooee, Moshfeghy, & Zare, 2015; Callister & Khalaf, 2010; Cheadle et al., 2015).

This study result shows that using spiritual coping is more effective on deal with stressor such as pregnancy that tends to occur stress. The previous study showed that this effect is moderated by coping sources such as social, spiritual and self-efficacy support (Christian, 2012), by an mechanism that psychoeducation *zikir* mediates the subject in accepting stressors through developing a source of confidence based on understanding the meaning and experience of doing thinking, so that it affects the formation of perception and manifests of patience, gratitude, *rida* and good at taking wisdom in changing pregnancy (Sri Wahyuni et al., 2019). Another study result showed the RMC plus PZ group experienced a significant decrease in the mean IL-6 levels compared to the RMC group only. There was a significant difference ( $p < 0.001$ ) of IL-6 levels before and after the

intervention between the two groups. Based on the results of the independent t-test analysis, it was concluded that there were differences in the mean difference in IL-6 levels before and after the intervention between the RMC plus PŽ group compared to the RMC group only (Table 1).

This result indicates that physical and psychological stress increase inflammation, pregnant women are vulnerable to changes in proinflammatory cytokines which significantly increase during the third trimester of pregnancy. In addition, common experiences in primigravida women are stressors that cause proinflammatory cytokine levels to increase (Kendall-Tackett, 2007). Proinflammatory cytokines have been found to interact with many pathophysiological domains that characterize depression, including neurotransmitter metabolism, neuroendocrine function, synaptic plasticity and behavior. Stress can trigger depression and can also encourage the inflammatory response through the pathways of the sympathetic and parasympathetic nervous system (Raison, Capuron, & Miller, 2006).

Based on previous study, the stress during pregnancy will cause the activation of the nervous system that stimulates the release of catecholamines, neurotransmitters and neuropeptides, activation of the endocrine system that will trigger the release of Corticotrophin Releasing Hormone (CRH), cortisol and other hormones and stimulate the release of cytokines as an inflammatory mediator (Coussons-Read, 2012), and is a factor in the occurrence of preterm birth (Carlo, Renzo, Tosto, & Giardina, 2018). In the third trimester of pregnancy, proinflammatory cytokine levels increase, and are the body's response in preparing for labor and as a protector in helping prevent infection (Kesrouani et al., 2016).

The result showed that the RMC plus PŽ group experienced a decrease in IL-6 levels during the pregnancy. In general, IL-6 levels decrease in pregnancy and there is suppression of the immune system in order to receive and maintain the results of conception so that there is no rejection until advanced gestational age, and therefore pregnant women are at risk of exposure to infections ((Faucette, Unger, Gonik, & Chen, 2015). The previous study showed that IL-6 cervico-vaginal levels may also be used as predictors of preterm labor (Czajka, 2004) but are not strong predictors (Coleman, Keelan, Mccowan, Townend, & Mitchell, 2001).

## **Conclusion**

Based on the results of research and discussion, it can be concluded that additional psychoeducation *zikir* on routine midwifery care reduces perceived stress and IL-6 levels compared to routine midwifery care only. An instrument for screening the spiritual aspects of perinatal mothers needs to be developed for the development of obstetric services, especially for emotional, spiritual and perceived stress conditions.

## Acknowledgement

The authors would like to thank to the pregnant women as participants and the midwives as facilitators in this research. There is no conflict of interest.

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