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The Relationship of Pregnancy Massage to the Rate of Anxiety Depression and Stress in Pregnant Women

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Abstract---The objective of this systematic review is to compare the methods and results of various studies that provide types of intervention in the form of pregnancy massages with outcomes in the form of levels of anxiety, stress, or depression. A total of 463 articles were found through the Proquest database, 535 articles in the Pubmed database, 1,030 articles in the Google Scholar database, and 36 articles in Clinicalkey For Nursing Elsevier, which were then screened based on the titles of 61 potential articles. The next stage is an analysis through a review of the abstract which results in 4 articles being reviewed. Research from El-Hosary, Abbas Soliman, & El-Homosy (2016) emphasizes full body massage for pregnant women for 10 massages with a duration of 10-20 minutes which has an impact on decreasing anxiety. Research from Khojasteh, Rezaee, Safarzadeh, & Sahlabadi (2016) emphasized full body massage for pregnant women for 6 massages with a duration of 20 minutes and was able to reduce the average anxiety score. The research of Chen et al. (2017) emphasized massage with lavender oil aromatherapy to pregnant women for 20 weeks with a duration of 70 minutes of massage per week and got the results of reducing stress and increasing endurance in pregnant women. Research from Fogarty, McInerney, Stuart, & Hay (2019) emphasized full body massage for pregnant women and found that there was a decrease in stress levels, pain, and an increase in sleep quality in pregnant women. The conclusion shows that the longer the intervention using massage with aromatherapy oil, the longer duration of the massage and its continuous implementation will reduce the level of anxiety more significantly.

Keywords---anxiety, depression, massages therapy, massages, pregnancy massage, pregnant woman, stress.

Introduction

The current maternal and infant mortality rates in Indonesia are still quite high, although there has been a decline from year to year. Based on the 2015 IDHS data, it is known that the maternal mortality rate reached 305 per 100,000 live births and the infant mortality rate based on the 2017 IHDS data was 24 per 1,000 live births (Indonesian Health Profile, 2017). One of the important factors to reduce maternal and infant mortality is improving maternal health before and during pregnancy. Pregnancy is a natural process experienced by women and becomes an important event in their lives. During pregnancy, women experience changes both physically, psychologically, and socially which can become a new stressor for them (Sianipar et al., 2017; Inchingolo et al., 2020; Ashokka et al., 2020). Stress is a process in which environmental demands exceed the ability or resources of the individual to cope

with it which results in psychological changes (perceived stress) (Wahyuni, 2018). The ability to deal with these psychological changes depends on age, education, maturity, personality, previous experience of pregnancy and childbirth, and socioeconomic conditions. The feelings of anxiety that can trigger stress often accompany pregnancy, especially in the first pregnancy. The peak of anxiety is when a pregnant woman enters the final trimester where anxiety is caused by the mother's thoughts about pain and pain during childbirth (Sianipar et al., 2017; Mulyani et al., 2017).

The occurrence of the phenomenon of anxiety in pregnant women can be proven by various studies that have been done previously, where based on research by Sianipar et al. (2017), proved that of 60 pregnant women whose anxiety level was measured, it was found that 13.3% of pregnant women experienced high levels of anxiety severe and 85% of pregnant women experience a moderate level of anxiety. The results of a similar study by Said et al. (2015), regarding anxiety in primigravida pregnant women showed that of 40 pregnant women whose anxiety levels were measured, 47.5% of pregnant women experienced anxiety disorders. Continuous anxiety can cause anxiety disorders. lead to more serious mental disorders.

Serious mental disorders in the form of stress can lead to depression in pregnant women. This is supported by the research of Wahyuni (2018), which found that there is a strong correlation between perceived stress and depression syndrome in primigravida pregnant women. The results of the research at the Kalijudan Public Health Center in Surabaya City showed that from a total of 38 pregnant women who were interviewed and measured the degree of depression using the EPDS questionnaire, 55.3% of the mothers experienced depression. Depression experienced by pregnant women can be risky for themselves and the baby they are carrying. Babies born to mothers who experience depression that is not treated properly can have a risk of being born prematurely, babies born with low birth weight, and can affect development. This can happen because pregnant women who are depressed have a 4.05 times risk of developing hypertension compared to pregnant women who do not experience depression. The presence of hypertension causes pregnancy in the mother to be categorized as a high-risk pregnancy (Genatha, 2018; Kumar & Somani, 2020). Reduction of anxiety and stress in pregnant women can be done by using several psychological methods. Methods that are often used for the smoothness and health of pregnant women are pregnancy exercise, establishing closeness with family members, seeking information related to pregnancy, and the relaxation process. Relaxation technique is a form of handling anxiety by inviting and taking the client to rest or relax, with the assumption that resting the muscles can help reduce psychological stress (Purnama, 2015; LaMontagne et al., 2001).

One of the relaxation techniques to reduce tension or stress is pregnancy massage or prenatal massage. Prenatal massage is a massage given to pregnant women that can stimulate the body to release endorphins compounds that can relieve pain and also cause a sense of comfort (Rismawan, 2014). If this prenatal massage is carried out regularly, it will provide the benefit of reducing stress because it has a profound effect on the physiological or somatic, and emotional reactions experienced by pregnant women (Wati, 2018). In line with research conducted by Rismawan (2014), proved that after an endorphin massage was performed on five pregnant women for 10-15 minutes, four of them experienced a decrease in anxiety in dealing with childbirth. This is because pregnant women experience relaxation and comfort which affects the decrease in anxiety levels. Similarly, research conducted by Urtnowska et al. (2017), found that massage during pregnancy, namely from the second trimester, can provide several benefits in preventing musculoskeletal disorders and skin problems commonly experienced by pregnant women.

Different results were obtained by Resmaniasih (2018), in her research which compared the quality of sleep between second-trimester pregnant women who received prenatal massage and those who did not receive prenatal massage. The results of the study showed that there was no difference in the average sleep quality of pregnant women who received the intervention or those who did not. Likewise, the research conducted by Fitrianiingsih & Prianti (2017), where this study compared two massage methods, namely deep back massage, and endorphins massage. This study proves that deep back massage is more effective in reducing pain intensity in pregnant women than endorphins massage. Based on this explanation, it can be seen that there are various research results related to the pregnancy massage method and the outcomes obtained (Field et al., 2009; Field et al., 2006). This difference, of course, must be explored further through a systematic review so that it can be a guide for the author in implementing interventions.

Materials and Methods

Research design and search strategy

This research was conducted with the design/article review method to carry out this systematic review, the databases used as search sources were Medline (PubMed), Proquest, and Google Scholar. Article searches are articles that have been reviewed by reviewers from 2014 to 2019. The reason for choosing this article is because the author has found a review conducted by [Smith et al. \(2018\)](#), entitled The Effect of Complementary Medicines and Therapies on Maternal Anxiety and Depression in Pregnancy.

This review analyzes a therapeutic program that can reduce anxiety, stress, and depression in pregnant women, where one of the techniques discussed is massage techniques for pregnant women ([Hernandez-Reif et al., 2004](#); [Hernandez-Reif et al., 2007](#)). The conclusions obtained from this review are acupuncture, massage, and light therapy techniques can reduce the level of depression in pregnant women. In the massage therapy intervention, it is known that massage techniques can reduce the level of depression on the first day of massage. The decrease in a depression on the first day of massage therapy intervention occurred in 149 pregnant women from 1,092 research subjects. The search strategy carried out must include the population, study design, context, predictor variables, and outcome variable.

Types of research

The four articles discussed in this review are included in the type of randomized control trial.

Inclusion and exclusion criteria

The articles that meet the criteria in this review are articles published in English and have been reviewed by a group of reviewers. The article must also meet the following inclusion criteria:

- 1) The study was conducted on a group of pregnant women in the antenatal stage
- 2) The research focus is on mental health.
- 3) This is a community trial study with pregnancy massage intervention
- 4) The intervention program discussed has been completed
- 5) The research was conducted between 2014 and 2019

While the exclusion criteria used were if the intervention was carried out to reduce or treat certain diseases in pregnant women.

Selection process

The selection process for the articles discussed begins with screening the titles and abstracts according to the inclusion and exclusion criteria set and then screening the complete articles according to the criteria.

Data extraction

The relevant data based on author, time of publication, study design, population, and a sample of the study that met the criteria were extracted in detail in the summary table. Information on the characteristics of the research is summarized in the table that is included in the results of this review.

The framework used in this review is as follows:

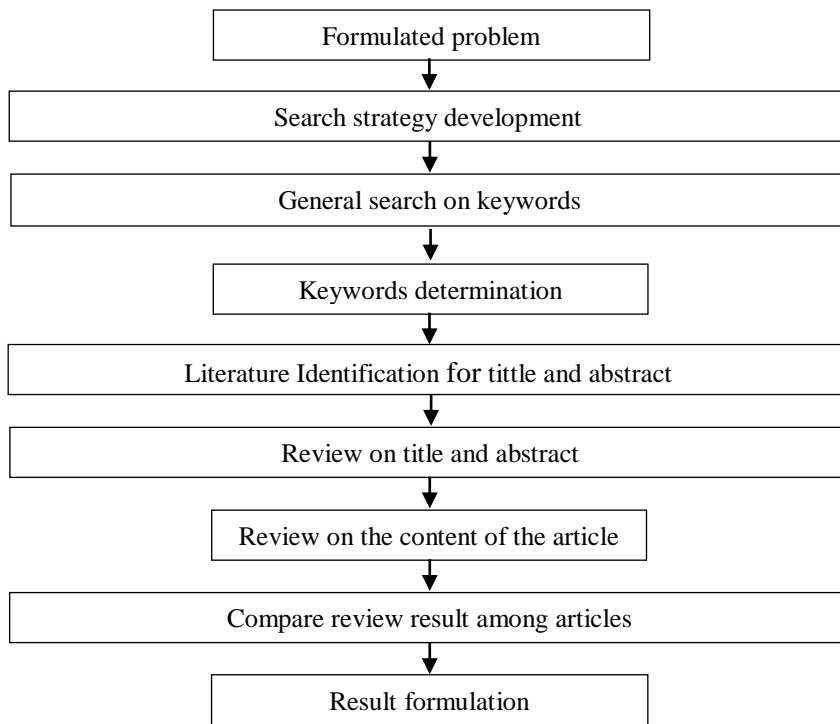


Figure 1. Research flow

Based on the search activities that have been carried out, it can be described with the following chart:

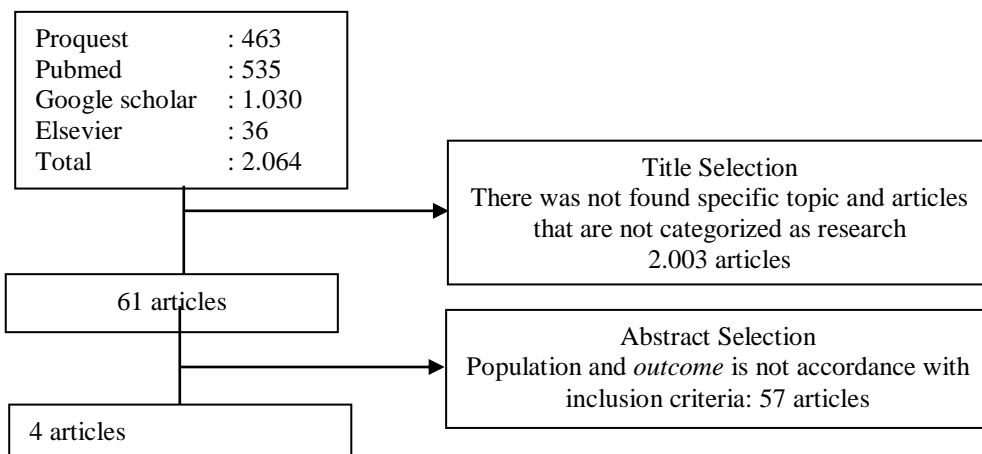


Figure 2. Search flow

Results and Discussions

A total of 463 articles were found through the Proquest database, 535 articles in the Pubmed database, 1,030 articles in the Google Scholar database, and 36 articles in Clinicalkey For Nursing Elsevier. After screening based on the title of as many as potential articles for further analysis. Furthermore, the analysis carried out through a review of the abstract resulted in the article being reviewed and presented in Appendix 1.

Research target

The selected articles are articles in which the implementation of the intervention is carried out on pregnant women who are still in the process of pregnancy. There is no age limit or some pregnancies and the sample size is also different in each study. The sample size in the research of [El-Hosary et al. \(2016\)](#), is 150 pregnant women with healthy pregnancies at 14 weeks to 33 weeks of gestation. In the research of [Khojasteh et al. \(2016\)](#), the number of samples involved in the study was 75 nulliparous pregnant women whose pregnancies were in good health and who came to the health center in Zahedan Iran. Research conducted by [Chen et al. \(2017\)](#), involved 52 healthy pregnant women who carried out pregnancy control at a clinic in the Taipei area. In a study conducted by [Fogarty et al. \(2019\)](#), the number of samples involved was 97 pregnant women and 4 postpartum mothers in Sydney and Melbourne.

Intervention program

The intervention program implemented in the article is a massage intervention for pregnant women which is used to reduce anxiety or stress levels in pregnant women. The difference in each intervention can be seen from the duration of the massage, massage technique, and the addition of aromatherapy to the oil used for massage. In the research of [El-Hosary et al. \(2016\)](#), dividing 150 samples of pregnant women into two groups, the first group was given full body pregnancy massages intervention and the second group was the control group who was not given massage. Each group consisted of 75 pregnant women whose level of anxiety was measured before and after the intervention using an anxiety questionnaire from Benjamin J. Sadoek, M.D (1996) and Book rags, INC (2001). Full body pregnancy massages are carried out twice a week with a massage duration of 10-20 minutes for five weeks so that there are a total of 10 massages. The massage consists of head and neck massage, back, arms, hands, calves, and feet.

The research of [Khojasteh et al. \(2016\)](#), divided the sample into three groups. The first group was given intervention in the form of massage therapy, the second group was given intervention in the form of guided images, and the third group was a control. Each group consisted of 15 pregnant women whose level of anxiety was measured before and after the intervention. The massage intervention given was a massage on the head and neck, back, arms, and legs given by the researchers for 20 minutes. The massage is done once a week for six weeks so there are a total of 6 massages. Research [Chen et al. \(2017\)](#), was to compare the decrease in stress levels between the group that was given aromatherapy massage intervention with the group without aromatherapy massage. The intervention group consisted of 24 pregnant women and the control group consisted of 28 pregnant women. The intervention group received 70 minutes of aromatherapy massage with 2% lavender essential oil every week for 20 weeks while the control group received only routine prenatal care. In both groups, participants' salivary cortisol and immunoglobulin A (IgA) levels were collected before and after the intervention. In the study of [Fogarty et al. \(2019\)](#), the intervention has given way in the form of massage which aims to reduce pain, reduce stress and improve sleep quality. Massage is given to the entire body area, namely the back, neck, arms, hands, calves, and feet. Pregnant women were measured levels of stress, pain, and sleep quality during pre and post-massage using a VAS (Visual Analog Scales) questionnaire. The study was conducted for 1 week where participants received massage therapy once for 60 minutes and 29 participants came and took massage therapy more than once.

Research outcome

Outcomes measured in each study in the article lead to a decrease in anxiety and stress levels in pregnant women. In the research of [El-Hosary et al. \(2016\)](#), with the intervention of Pregnancy massages full body for 10 massages with a duration of 10-20 minutes each time the massage showed that there were differences in anxiety levels between the intervention group and the control group. The level of anxiety in the intervention group between before massage and after the massage is known to have decreased anxiety scores from 12.87 to 3.82. The conclusion given by the researcher is that massage therapy during pregnancy is very effective in reducing anxiety, discomfort during pregnancy and improving the quality of sleep of pregnant women.

The research of [Khojasteh et al. \(2016\)](#), with massage intervention for pregnant women and guided pictures, obtained significant stress reduction occur in the intervention group compared to the control group. There was no significant difference between the massage intervention group and the guided picture intervention group in reducing anxiety, which means that both interventions were effective in reducing anxiety levels. The massage was able to reduce the average anxiety score from 32.36 ± 7.187 to 21.88 ± 6.966 and guided pictures decreased anxiety scores from 30.36 ± 7.046 to 21.20 ± 5.43 . The conclusion given by the researcher is that massage for pregnant women is

effective in reducing anxiety for all pregnant women, while the use of guided images is more effective for mothers with higher education levels.

The research of [Chen et al. \(2017\)](#), aims at measuring the effectiveness of aromatherapy massage to reduce stress levels and increase antibodies in pregnant women. The results of this study showed that pregnant women in the intervention group had lower salivary cortisol levels and higher IgA levels immediately after aromatherapy massage than those in the control group who did not receive massage treatment. IgA pregnant women before the intervention were 16 rose to 32 after the intervention. The conclusion is given by the researchers that aromatherapy massage can significantly reduce stress and improve immune function in pregnant women. The outcome of the research by [Fogarty et al. \(2019\)](#), is that there is a significant relationship between pain, stress levels, and sleep quality with massage during pregnancy and after pregnancy. There was a decrease in stress levels between before the massage, which was 32.8 to 10.3 after the massage. Likewise for pain before the intervention, the pain score of 36.0 decreased to 14.3. The conclusion was given by the researcher that pregnancy massages did not have a negative impact but had a positive impact on pregnant women.

Conclusion

The intervention program in the form of massage for pregnant women is an effort that can be done to reduce anxiety in pregnant women. By doing massage, pregnant women can feel the process of relaxation and get comfort in the pregnancy process. The thing that needs to be considered in the implementation of the intervention is the duration and technique of the massage so that the results obtained are more optimal. The use of massage with aromatherapy oil, longer massage duration, and continuous implementation will reduce anxiety levels more significantly. Based on the four articles that the authors have described, it can be concluded that the most effective intervention in reducing anxiety scores is in the research of [El-Hosary et al. \(2016\)](#). The intervention given was Pregnancy massages the full-body, which was carried out twice a week with a massage duration of 10-20 minutes for five weeks so that a total of 10 massages were given. The massage consists of head and neck massage, back, arms, hands, calves, and feet. The level of anxiety in the intervention group between before massage and after the massage is known to have decreased anxiety scores from 12.87 to 3.82. These results indicate that massage therapy during pregnancy is very effective in reducing anxiety, discomfort during pregnancy and improving the sleep quality of pregnant women.

References

- Ashokka, B., Loh, M. H., Tan, C. H., Su, L. L., Young, B. E., Lye, D. C., ... & Choolani, M. (2020). Care of the pregnant woman with coronavirus disease 2019 in labor and delivery: anesthesia, emergency cesarean delivery, differential diagnosis in the acutely ill parturient, care of the newborn, and protection of the healthcare personnel. *American journal of obstetrics and gynecology*, 223(1), 66-74. <https://doi.org/10.1016/j.ajog.2020.04.005>
- Chen, P. J., Yang, L., Chou, C. C., Li, C. C., Chang, Y. C., & Liaw, J. J. (2017). Effects of prenatal yoga on women's stress and immune function across pregnancy: A randomized controlled trial. *Complementary Therapies in Medicine*, 31, 109-117. <https://doi.org/10.1016/j.ctim.2017.03.003>
- El-Hosary, E., Soliman, H. F. A., & El-Homasy, S. (2016). Effect of Therapeutic Massage on Relieving Pregnancy Discomforts. *IOSR Journal of Nursing and Health Science*, 5(04), 57-64.
- Field, T., Diego, M., Hernandez-Reif, M., Deeds, O., & Figueiredo, B. (2009). Pregnancy massage reduces prematurity, low birthweight and postpartum depression. *Infant Behavior and Development*, 32(4), 454-460. <https://doi.org/10.1016/j.infbeh.2009.07.001>
- Field, T., Hernandez-Reif, M., & Diego, M. (2006). Newborns of depressed mothers who received moderate versus light pressure massage during pregnancy. *Infant Behavior and development*, 29(1), 54-58. <https://doi.org/10.1016/j.infbeh.2005.07.004>
- Fitrianiingsih, Y., & Prianti, V. A. (2017). Perbedaan Metode Deep Back Massage dan Metode Endorphin Massage Terhadap Intensitas Nyeri Persalinan Kala I Fase Aktif di Puskesmas Poned Plered Kabupaten Cirebon Tahun 2017. *Care: Jurnal Ilmiah Ilmu Kesehatan*, 5(3), 382-392.
- Fogarty, S., McInerney, C., Stuart, C., & Hay, P. (2019). The side effects and mother or child related physical harm from massage during pregnancy and the postpartum period: an observational study. *Complementary therapies in medicine*, 42, 89-94. <https://doi.org/10.1016/j.ctim.2018.11.002>
- Genatha, D. W. (2018). The Relationship Between Depression and Hypertension Incident in Pregnant Women. *Jurnal Berkala Epidemiologi*, 6(3), 209-218.
- Hernandez-Reif, M., Diego, M., & Field, T. (2007). Preterm infants show reduced stress behaviors and activity after

- 5 days of massage therapy. *Infant Behavior and Development*, 30(4), 557-561. <https://doi.org/10.1016/j.infbeh.2007.04.002>
- Hernandez-Reif, M., Ironson, G., Field, T., Hurley, J., Katz, G., Diego, M., ... & Burman, I. (2004). Breast cancer patients have improved immune and neuroendocrine functions following massage therapy. *Journal of psychosomatic research*, 57(1), 45-52. [https://doi.org/10.1016/S0022-3999\(03\)00500-2](https://doi.org/10.1016/S0022-3999(03)00500-2)
- Inchingolo, R., Smargiassi, A., Moro, F., Buonsenso, D., Salvi, S., Del Giacomo, P., ... & Testa, A. C. (2020). The diagnosis of pneumonia in a pregnant woman with coronavirus disease 2019 using maternal lung ultrasound. *American journal of obstetrics and gynecology*, 223(1), 9-11. <https://doi.org/10.1016/j.ajog.2020.04.020>
- Khojasteh, F., Rezaee, N., Safarzadeh, A., Sahlabadi, R., & Shahrakipoor, M. (2016). Comparison of the effects of massage therapy and guided imagery on anxiety of nulliparous women during pregnancy. *depression*, 13, 14.
- Kumar, A., & Somani, A. (2020). Dealing with Corona virus anxiety and OCD. *Asian Journal of Psychiatry*, 51, 102053. <https://doi.org/10.1016/j.ajp.2020.102053>
- LaMontagne, L. L., Hepworth, J. T., & Salisbury, M. H. (2001). Anxiety and postoperative pain in children who undergo major orthopedic surgery. *Applied Nursing Research*, 14(3), 119-124. <https://doi.org/10.1053/apnr.2001.24410>
- Mulyani, S., Subiyanto, A., Anantanyu, S., Respati, S. H., & Wiboworini, B. (2017). Path analysis: knowledge, motivation factor, and their relationship with readiness to provide exclusive breastfeeding among pregnant women. *International Research Journal of Management, IT & Social Sciences*, 4(1), 8-13.
- Purnama, B. W. R. (2015). Guided Imagery Terhadap Tingkat Kecemasan Menjelang Persalinan Pada Ibu Hamil. *Jurnal Ilmiah Psikologi Terapan*, 3(2), 287-307.
- Resmaniasih, K. (2018). Pengaruh Pijat Hamil Terhadap Perubahan Kualitas Tidur Ibu Hamil Trimester Tiga. *JIK (Jurnal Ilmu Kesehatan)*, 2(2), 93-99.
- Rismawan, W. (2014). Pengaruh Endorphine Massage Terhadap Tingkat Kecemasan Ibu Primigravida Usia Kehamilan >36 Minggu Dalam Menghadapi Persalinan Di Wilayah Kerja Puskesmas Cibeureum Kota Tasikmalaya Tahun 2017. *Kesehatan Bakti Tunas Husada. KESEHATAN BAKTI TUNAS HUSADA*, 12(1), 112-127.
- Said, N., Kanine, E., & Bidjuni, H. (2015). Hubungan Faktor Sosial Ekonomi dengan Kecemasan Ibu Primigravida di Puskesmas Tuminting. *ejournal Keperawatan (e-Kp)*.
- Sianipar, K., Sinaga, R., & Nainggolan, Y. (2017). Pengaruh aromatherapi, relaksasi oto progresif terhadap penurunan kecemasan ibu hamil menjelang Persalinan Di BPM Simalungun. *Jurnal Ilmiah PANNMED (Pharmacist, Analyst, Nurse, Nutrition, Midwifery, Environment, Dentist)*, 12(1), 81-91.
- Smith, C. A., Levett, K. M., Collins, C. T., Dahlen, H. G., Ee, C. C., & Sukanuma, M. (2018). Massage, reflexology and other manual methods for pain management in labour. *Cochrane Database of Systematic Reviews*, (3).
- Urtnowska, K., Bułatowicz, I., & Ludwikowski, G. (2017). Massage during pregnancy - indications, contraindications, general principles of the procedure. *Polish physiotherapy*.
- Wahyuni, S. (2018). Perceived stress dan sindrom depresi pada ibu primigravida. *Jurnal Ilmiah Bidan*, 3(2), 21-28.
- Wati, L. S. (2018). Pengaruh Prenatal Massage Terhadap Stres Kehamilan Pada Primigravida Trimester III Di BPM Lilis Surya Wati Sambong Dukuh Jombang. *Jurnal Kebidanan*, 8(1).