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The Effect of Pregnancy Massage on Level of Depression, Anxiety and Stress in Pregnant Women

Luh Komang Suwarma Santi
Universitas Udayana, Denpasar, Indonesia
Corresponding author email: komangsantiuns@ymail.com

A. A. Raka Sudewi
Universitas Udayana, Denpasar, Indonesia

Dyah Pradnyaparamita Duarsa
Universitas Udayana, Denpasar, Indonesia

Cokorda Bagus Jaya Lesmana
Universitas Udayana, Denpasar, Indonesia

Abstract---*Depression, anxiety, and stress in pregnancy are adverse risk factors for mother and child such as a short gestational age, and hurt the neurodevelopment of the fetus and child born. Anxiety during pregnancy is associated with the occurrence of prematurity, low birth weight, non-optimal fetal growth, increased nausea and vomiting, prolonged sick leave during pregnancy, cesarean section, and can affect the child's immune system. This study aims at determining the effectiveness of pregnancy massage to reduce depression, anxiety, and acceptable stress in pregnant women. This study used a cohort approach to identify the risk factors, where the population of this study was all second-trimester pregnant women who underwent examinations in all Denpasar City Health Centers that met the inclusion and exclusion criteria. The measurement of the level of depression, anxiety, and stress experienced by pregnant women was implementing the DASS questionnaire as a screening tool. While the PHQ-9 questionnaire was made to see the patient's mood over the past 2 weeks. Statistical analysis was conducted to see the correlation between variables. The results showed that there was a decrease in depression scores as seen from the average pre-test score which was higher than the post-test (depression = 7.2 pre/4.05 posts) (anxiety = 11 pre/7.35 post), (stress = 13.55 pre/ 8.8 posts). There was a significant relationship between pregnancy massage and decreased levels of depression, anxiety, and stress in pregnant women. The conclusion: Pregnancy massage can significantly reduce depression, anxiety, and stress in pregnant women compared to those who do not get a pregnancy massage.*
Keywords---*anxiety, depression, pregnancy massages, stress.*

Introduction

Mental health is still one of the health problems that are of concern to the world, including in Indonesia. WHO (2017) estimates that the number of people with mental disorders in the world is around 450 million people. The prevalence of severe mental disorders in the Indonesian population is 1.7 per mile. The most severe mental disorders are in DI Yogyakarta, Aceh, South Sulawesi, Bali, and Central Java. The Island of the Gods of Bali experienced an increase in the number of people with mental disorders from 2013 which was 2.3% to 11% in 2018.

Azrul Azwar (Directorate General of Health Development, Ministry of Health) stated that one in four Indonesians suffers from mental disorders such as anxiety, depression, and stress (Yosep, 2014). Prevalence rates by gender, women have a statistically greater likelihood of experiencing anxiety disorders than men (Schmidt et al., 2018). Mental disorders often occur starting at the age of 19 years and we rarely see the phenomenon of problems before the

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child is born. Recent developments conclude that mental health problems start from the period of conception or the period in the womb (Yosep, 2014). Research shows that there is a link between the period in the womb and a person's mental and physical health in the future. Mednick's research proves that a person who at the time of the outbreak was in the second trimester in the womb had a higher risk of experiencing mental health disorders (Yosep, 2014).

The occurrence of depression, anxiety, and stress is influenced by three factors, namely, first, physical disorders, secondly, mental disorders, and third, social disorders (Yosep, 2014). Physical or biological disorders can also occur due to anatomical changes experienced by pregnant women such as specific physiological changes due to pregnancy that can cause discomfort during pregnancy such as pelvic nerve conversion and borsolumbar lordosis (Irianto, 2015). Psychological factors during pregnancy are considered to be a strong emotional state that triggers stress. Buckwalter observed mood swings during pregnancy and found that most women during pregnancy experience a change in attitude towards themselves, their entire environment, and their future life. During pregnancy, every pregnant woman experiences mood swings, emotional disturbances, anxiety disorders, and depression (Bjelica et al., 2018).

Social or environmental factors also affect the occurrence of depression, anxiety, and stress in pregnant women. Stress can be experienced by pregnant women if they experience problems in their marriage such as quarrels over trivial things or infidelity. Work problems also hurt pregnancy such as overwork or even job loss. Environmental problems such as moving residence or living in a crime-prone environment. As well as financial problems such as income are much lower than expenses and involved debt. Financial problems are very influential on a person's mental health and often financial problems are a factor that makes people experience depression and anxiety (Yosep, 2014). Depression, anxiety, and stress in pregnancy are adverse risk factors for mothers and children such as a short gestational age and hurt the neurodevelopment of the fetus and child born (Schetter & Tanner, 2015). Anxiety during pregnancy is associated with the occurrence of prematurity, low birth weight, non-optimal fetal growth, increased nausea and vomiting, prolonged sick leave during pregnancy, cesarean section, and can affect the child's immune system (Deklava et al., 2015).

This study uses a holistic approach that supports Neumann's theory. Neuman's theory focuses on the physical, emotional, social, and spiritual which in his journal is called a holistic approach to pregnancy. The holistic approach to pregnancy recommends various therapies such as pregnancy massage, yoga, music therapy, relaxation, acupuncture, acupressure, and herbal medicine. Pregnancy brings many changes to the body of a pregnant woman. Not infrequently during pregnancy mothers experience leg pain and back pain due to the process of fetal development increased stress and anxiety due to hormonal developments, and decreased sleep quality. The recommended solution is pregnancy massage which can reduce depression, reduce negative fetal activity in the womb and reduce the risk of premature birth (Neumann, 2010). Based on the above description, it is considered necessary to research to find out the effect of pregnancy massage on depression level, anxiety, and stress.

Materials and Methods

This study is a quantitative study that aims at determining the effectiveness of pregnancy massage to reduce depression, anxiety, and acceptable stress. This study uses a cohort approach which is intended in this study to identify risk factors, then a group of subjects (called a cohort) is followed prospectively over a certain period to see whether or not an effect occurs. The population in this study were all pregnant women in the second trimester who had their pregnancy checked at Denpasar City Public Health Center. Researchers applied two types of criteria, namely inclusion criteria which include being willing to be a respondent, normal pregnancy, able to read and write, and experiencing depression, anxiety, and stress either mild, moderate, or severe, and exclusion criteria including not getting permission from husband or family and having a history of infectious diseases such as skin diseases, tuberculosis and covid 19. The reason for choosing TM II pregnant women is because the research conducted by Mednick in 1988 proved that someone who was in the second trimester of the outbreak in the womb had a higher risk of mental health problems (Yosep, 2014).

Permits were requested at the Community Public Health and then the respondents were recruited based on the midwife's recommendation. The researcher explained the research objectives, benefits, and consequences orally and in writing to the respondents and allowed the respondents to decide whether to participate in the research. From the results of the sample calculation using the cohort model research formula, the required sample results are as many as 20 samples. The permit was requested at the Public Health Center and then the respondent was recruited based on the midwife's recommendation. The researcher explained the research objectives, benefits, and consequences orally and

in writing to the respondents and allowed the respondents to decide whether to participate in the research (Kim et al., 2005; Bastani et al., 2005; Mulyani et al., 2017).

The researcher collected data using the steps, namely determining the research subject, pregnant women who fit the criteria, providing an explanation of the research and agreeing to provide informed consent, namely a statement that the mother is willing to be a respondent, giving questionnaires to respondents to fill out, providing guidance and provide an explanation if there is a statement sentence that is considered by the respondent to be unclear. The obtained data were analyzed using descriptive and inferential analysis (Field et al., 2009; Mc Nabb et al., 2006). The difference test was carried out using the t-test at the significance level = 0.05.

Results and Discussions

The average age of the respondents is 26 years. The oldest age is 39 years and the youngest is 21 years old. Judging from the pregnancy, 45% of respondents' pregnancies were second pregnancies with an average gestational age of 21.15 weeks. The oldest gestational age was 24 weeks and the youngest gestational age was 16 weeks. As many as 45% of respondents are housewives and 35% of respondents work in the private sector. The research was conducted at four Public Health Centers (Puskesmas) in Denpasar City area, namely Puskesmas II West Denpasar which is located at Jalan Pulau Buru No. 38, Puskesmas I East Denpasar having its address at Jalan Nusa Indah, Sumerta, and Puskesmas II Denpasar Utara having its address at Jalan Gunung Agung, Gang 2 No. 8x.

Table 1
The respondent characteristic

Variable	N	%
Age		
(Mean (Elementary School)	26 (4,62)	
Pregnant		
1	7	35
2	9	45
3	3	15
4	1	5
Gestational Age		
(Mean (Elementary School)	21,15 (2,7)	
Occupation		
Housewife	9	45
Midwife	2	10
Labour	1	5
Teacher	1	5
Privaae	7	35

In performing the statistical test of the paired sample mean, the paired sample t-test analysis is used if the data is normally distributed and the Wilcoxon sign rank test if the data is not normally distributed. Based on the results of the normality test on the pre and post-depression level data, the p value> 0.05 so that it can be concluded that the data is normal (Smith et al., 2019; Karaçam & Ançel, 2009). The results of the normality test can be seen from the following table:

Table 2
Data Normality Test

Variable	P Value
Pre Depression	0,85
Post Depression	0,09

Based on the data normality test, to see the difference between pre and post-depression levels, statistical tests were carried out using the paired sample t-test. The test results can be seen in the following table:

Table 3
The differences in pre and post depression levels

Variable	N	Mean	P Value	CI (95%)
Pre Depression Level	20	7,2	0,0002	1,64 – 4,65
Post Depression Level	20	4,05		

Based on the above test, it can be concluded that there is a change in the level of depression of pregnant women between before the intervention and after the intervention, as indicated by the p-value <0.05, namely 0.0002. Based on the Confidence Interval between 1.64-4.65 shows the number 0 is outside the interval so that the results are declared statistically significant. The decrease in depression scores can be seen from the average pre-test score of 7.2, which is higher than the average post-test score of 4.05. In performing the statistical test of the paired sample mean, the paired sample t-test analysis is used if the data is normally distributed and the Wilcoxon sign rank test if the data is not normally distributed. Based on the results of the normality test on the pre and post-depression level data, the p value> 0.05 so that it can be concluded that the data is normal (Labrecque et al., 1999; Latifses et al., 2005). The results of the normality test can be seen from the following table:

Table 4
Data normality test

Variable	P Value
Pre Anxiety	0,65
Post Anxiety	0,40

Based on the data normality test, to see the difference between pre and post-depression levels, statistical tests were carried out using the paired sample t-test. The test results can be seen in the following table:

Table 5
The differences in pre and post anxiety levels

Variabel	N	Mean	P Value	CI (95%)
Pre Anxiety Level	20	11	0,0001	2,04-5,25
Post Anxiety Level	20	7,35		

Based on the above test, it can be concluded that there is a change in the level of anxiety of pregnant women between before the intervention and after the intervention, which is indicated by a p-value <0.05, namely. 0.0001. Based on the Confidence Interval between showing the number 0 is outside the interval, namely 2.04-5.25 so that the results are stated to be statistically significant. The decrease in anxiety scores can be seen from the average pre-test score of 11 which is higher than the average post-test score of 7.35. Based on the results of the normality test on the pre and post-depression level data, the p value> 0.05 so that it can be concluded that the data is normal. The results of the normality test can be seen from the following table:

Tabel 6
Data normality test

Variable	P Value
Pre Stress	0,20
Post Stress	0,61

Based on the data normality test, to see the difference between pre and post-depression levels, statistical tests were carried out using the paired sample t-test. The test results can be seen in the following table:

Tabel 7
The differences in pre and post-stress levels

Variable	N	Mean	P Value	CI (95%)
Pre Stress Level	20	13,55	0,0002	2,39-7,10
Post Stress Level	20	8,8		

Based on the above test, it can be concluded that there is a change in the stress level of pregnant women between before the intervention and after the intervention, which is indicated by a p-value <0.05, namely. 0.0002. Based on the Confidence Interval between showing the number 0 is outside the interval, namely 2.39-7.10 so that the results are stated to be statistically significant (Field et al., 2008; Lebel et al., 2020). The decrease in stress scores can be seen from the average pre-test score of 13.55 which is higher than the average post-test score of 8.8. Based on the results of the normality test on the pre and post-depression level data, the p value> 0.05 so that it can be concluded that the data is normal. The results of the normality test can be seen from the following table:

Tabel 8
Data normality test

Variable	P Value
Pre Depression Level	0,41
Post Depression Level	0,27

Based on the data normality test, to see the difference between pre and post-depression levels, statistical tests were carried out using the paired sample t-test. The test results can be seen in the following table:

Table 9
The differences in pre and post PHQ Rates

Variable	N	Mean	P Value	CI (95%)
Pre Depression Level	20	7	0,0000	1,31-3,08
Post Depression Level	20	4,8		

Based on the above test, it can be concluded that there is a change in the level of depression in pregnant women based on the PHQ questionnaire between before and after the intervention, which is indicated by a p-value <0.05, namely. 0.0000. Based on the Confidence Interval between showing the number 0 is outside the interval, namely 1.31-3.08 so that the results are stated to be statistically significant. The decrease in depression scores can be seen from the average pre-test score of 13.55 which is higher than the average post-test score of 4.8.

Conclusion

The results showed that there was a decrease in depression scores as seen from the average pre-test score of 7.2 which was higher than the average post-test score of 4.05, a decrease in anxiety scores was seen from the average pre-test score of 11. higher than the average post-test score of 7.35, a decrease in stress scores can be seen from the average pre-test score of 13.55 which is higher than the average post-test score of 8.8, and a decrease in depression scores based on the PHQ questionnaire, it can be seen from the average pre-test score of 13.55 which is higher than the average post-test score of 4.8. The results showed a significant relationship between pregnancy massage and decreased levels of depression, anxiety, and stress in pregnant women.

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