

The Relationship of Physical Activity Level and Stress Levels in Pregnant Mothers

Choirul Amin¹, Yuni Astuti²

¹ Nursing, Faculty of Medicine and Health Sciences, University of Muhammadiyah Yogyakarta, Jalan Brawijaya, Geblagan, Tamantirto, Kasihan District, Bantul, Yogyakarta Special Region, 55183, Indonesia

² Nursing, Faculty of Medicine and Health Sciences, University of Muhammadiyah Yogyakarta, Jalan Brawijaya, Geblagan, Tamantirto, Kasihan District, Bantul, Special Region of Yogyakarta, 55183, Indonesia

Email: ckhoirulamin@gmail.com¹; yuniastuti.psikumy@gmail.com²

ABSTRACT

Introduction many expectant mothers are unaware of the best physical activities to engage in to reduce stressful situations. Stress situations have an impact on pregnant women's and unborn children's health.

Purpose of this study was to examine the connection between pregnant women's levels of physical activity and stress in the Banguntapan 1 Public Health Center workplace.

Methodology this study employed a cross-sectional study design and a quantitative methodology. At Banguntapan Health Center 1, a purposive sampling was conducted on 78 pregnant women.

Findings according to the study's findings, there was no correlation between pregnant women's levels of stress and physical activity (p value = 0.296).

Implication the majority of pregnant women had heavy physical activity because most pregnant women carried out daily activities such as before pregnancy such as carrying out daily activities such as before pregnancy and were still actively working or selling to meet their daily needs.

Keywords: Pregnant women, Physical activity level, Stress level

INTRODUCTION

In Indonesia, the Maternal Mortality Rate (MMR) is still rather high. Information from the Republic of Indonesia's Ministry of Health (2019) AKI reached 4,221 cases, and in 2018 there were 4,226 deaths, this figure showed a decrease, although not significant. Data from the Special Region of Yogyakarta for the last 2 years tends to increase the maternal mortality rate, the target for the death rate in Yogyakarta in 2018 is 111.5 per 100,000 live births. One of the main focuses on reducing maternal mortality is by controlling the causative factors.

The causes of maternal death according to the National Health Center (2019) were caused by hypertension disorders as much as 33.0%, obstetric hemorrhage, which accounts for 27.3% of cases, non-obstetric problems, which account for 15.7%, and other obstetric difficulties, which can reach 12.4%, infections in pregnancy 6, 6%, and other causes 4.81%. In pregnancy conditions, physical, psychological and socio-economic factors need to be

considered because they can cause problems for pregnant women such as stress and depression (Kurniawan et al., 2019). Stress conditions can cause poor sleep quality in pregnant women (Astuti & Afsah, 2019). Early in pregnancy, prenatal stress affects 91.86 percent of women (Tang et al., 2019).

Stress in pregnant women on average due to internal family problems as much as 45.7%, due to changes in life and the environment as much as 67.4%, due to worries about financial problems as much as 47.8%, due to current pregnancy as much as 76.1%, and stress due to workload as much as 54.3% (Iskandar & Sofia, 2019). Factors that cause psychosocial stress during pregnancy include education level, parity level, and occupation (Jusuf, 2018). Owing to their dual responsibilities at work and at home, pregnant women may face stress due to a number of issues, including the job element. Lack of physical activity can cause health problems and affect the birth process (Hastuti et al., 2016). The Qur'an mentions that humans naturally have a state of anxiety that can affect human mental and physical feelings. As stated in Surah Al-Ma'arij verses 19 and 20, which are the words of Allah SWT, "Indeed, humans were created in a state of anxiety. When he is afflicted with trouble he complains" (JavanLabs, 2020). Disasters experienced by humans can make people feel anxious or depressed and for some people, including pregnant women. Excessive anxiety or stress can cause stress.

Feelings of restlessness, anxiety and discomfort in pregnant women can result from excessive activities (Yusmutia et al., 2020). Stress in pregnant women can be one of the causes of hypertension. Hypertension during pregnancy is the second leading cause of maternal death, namely 13 percent of maternal deaths in Indonesia (Kes, 2019), given the importance of doing physical activity and the dangers of stress in pregnant women, it can be a concern for the importance of conducting a study entitled "The Relationship of Physical Activity to Levels of Pregnancy." Stress in Pregnant Women".

METHOD

This research employed a cross sectional, analytical observational design. This cross-sectional approach looks for the relationship between two variables. In the study, participants were watched once and measured in relation to their levels of physical activity during pregnancy and their levels of stress (Siyoto & Sodik, 2015).

Pregnant women who lived in the working area of the Banguntapan 1 Health Center served as the study's subjects. Subjects were selected by purposive sampling. Pregnant women living in the Banguntapan 1 Health Center between the ages of 20 and 30 met the inclusion criteria for this study, were muslim, lived with their husbands, had a minimum education of basic level, and could operate communication tools/mobile phones. Pregnant women with a history of mental problems, a nuclear family with mental disorders, or a history of miscarriage are among the study's exclusion criteria.

Researchers used the Banguntapan area as respondents because according to data for May 2021 in Kapanewon Bantul Regency, the Banguntapan area is in a moderate risk zone for Covid-19. The number of suspected Covid-19 in Banguntapan district is 1,746 people, Covid-19 isolation cases are 2,170 people, and 47 people died. This figure is quite high when compared to other regions. Therefore, researchers assume that the Covid case is one of the causes of increased stress in pregnant women. This research was conducted on April 8, 2021 – May 8, 2021 and was conducted online. The research instrument is the researcher, google form which contains demographic data, PPAQ questionnaire and DASS 42 questionnaire. Data analysis with Spearman Rank correlation test.

RESEARCH RESULT

78 expectant women from the Banguntapan 1 Public Health Center in Bantul, Yogyakarta, participated in this study.

1. Participants characteristics

a. Pregnant mother's age

Table 1. Age of pregnant women

Median	Min	Mak	Std. deviasi
26	20	30	2,976

Based on the median age of 26 years, the youngest age (minimum) is 20 years old and the oldest age (maximum) is 30 years old.

b. Gestational age

Table 2. Gestational age

Gestational age	Frequency	Percentage
First trimester	8	10,3%
Second trimester	24	30,8%
Third trimester	46	59%

The respondents with the earliest gestational age, 8 in the first trimester, made up more than half of those in the third trimester (59%) (10.3%).

c. Pregnant women's work

Table 3. Employment of pregnant women

Employment	Frequency	Percentage
Housewives	53	67,9%
Working mom	25	32,1%

53 of respondents, or more than half, are housewives (67.5%).

d. Education

Table 4. Education

Education	Frequency	Percentage
junior secondary	52	66,7%
high school	26	33,3%

Around 40% of respondents have secondary education, which includes junior high and senior high schools (51.3%).

e. Pregnancy interval

Table 5. Pregnancy interval

Pregnancy interval	Frequency	Percentage
<2 years	7	19%
>2 years	30	81%

The respondent's responders gestational age. The majority of responses were more than two years away from conception. The least number of respondents are at <2 years of pregnancy interval. The remaining 41 respondents had never given birth before or in their first pregnancy. Out of 78 respondents, 37 of them had given birth before.

f. Income

Table 6. Income

Income	Frequency	Percentage
Above UMR	41	60,3%
Under UMR	31	39,7%

The income of more than half of respondents whose income is above the minimum wage (above Rp 1,842,460) is 47 respondents (60.3%).

g. Parity

Table 7. Parity

Parity	Frequency	Percentage
Primigravida	41	52,6%
Multigravida	37	47,4%

Based on pregnancy parity, half of the respondents were in multigravida parity 41 (52.6%).

2. Physical activity and stress levels

The findings of this survey show that 57 respondents, or more than half, have a level of severe activity (73%).

Table 8. Physical activity level

Physical activity level	Frequency (n)	Percentage (%)
Consistent	0	0%
Mild	4	5,1%
Medium	17	21,8%
Severe	57	73%

According to the study's findings, 41 (52.6%) of all respondents have a normal level of stress,

while the least amount of respondents (1.2%) had a very severe stress level.

Table 9. Stress level

Stress level	Frequency (n)	Percentage (%)
Normal	41	52,6%
Mild	20	25,6%
Medium	11	14,1%
Severe	5	6,4%
Very severe	1	1,2%

3. The relationship between the level of physical activity and stress levels

Based on the results of the correlation analysis between variables, it shows that there is no relationship between the level of physical activity and the level of stress as evidenced by the P value of 0.296 (> 0.05).

DISCUSSION

1. Characteristics of respondents

a. Respondent's age

The age category in this study took respondents aged between 20-30 years. The ideal age for pregnancy and childbirth is 20-35 years because of the more mature reproductive and mental organs (Sukorini, 2017). Pregnant women's maturing reproductive organs can reduce the likelihood of pregnancy difficulties, lowering the risk of complications during pregnancy and childbirth (Kaimuddin, 2018). During pregnancy it must be followed by obstetrical care to prevent health problems, one of which is stress. To prevent stress, pregnant women can consult with professionals regarding issues about modifying lifestyles and complementary therapies (Pais & Pai, 2018).

b. Gestational age

This study revealed that, with a percentage of 46%, the majority of respondents indicated that they were pregnant in the third trimester. According to Yusmutia, (2020) stated that pregnant women in the third trimester of pregnancy have a possible stress risk compared to the second trimester. Another study states that pregnant women experience more antenatal stress in the third trimester of pregnancy (Pais & Pai, 2018).

Pregnant women in the first trimester also have a high risk of stress as is the case with third trimester pregnant women. Research conducted by Jusuf, (2018) states that pregnant women at approximately 9.2 weeks of gestation are likely to be prone to high stress. Another study stated that the level of stress experienced by women in the first trimester was higher than in the later stages of pregnancy or postpartum (Stepowicz et al., 2020).

c. Employment

According to the data, 60.5 percent of people are employed as home employees. Mothers who

work and do not work are equally stressed, because mothers who work and do not work always experience role conflicts, as housewives, apart from taking care of children, taking care of their husbands is also the burden of housework that piles up while mothers who work as career mothers are also added to mothers household. Research conducted by Aisyah, (2019) showed a relationship between work and stress levels in pregnant women where working mothers were in the moderate stress category more than mothers who did not work. According to a different study, pregnant women who do not work have higher levels of stress than mothers who work (Kahyaoglu Sut & Kucukkaya, 2021).

d. Pregnancy interval

According to the features of the time between pregnancies, the majority of respondents had gestational intervals of more than two years. According to Saleha et al., (2019), The occurrence of stress among pregnant women and pregnancy distance are unrelated. However, pregnancy distance affects the pregnancy's health hazards. Pregnancy interval < 2 years is included in the risky pregnancy interval. One of the risks, such as in a study conducted by Sjahriani & Faridah, (2019) stated that pregnant women with a birth spacing of < 2 years are at risk of causing the incidence of anemia by 22 times compared to a pregnancy spacing of > 2 years. Pregnancy with a distance of > 2 years is very good for the mother because the mother's condition has returned to normal, where the endometrium which was originally damaged due to childbirth has started to regenerate back to its original state (Prihandini et al., 2016).

e. Education

The amount of education has a significant impact on pregnant women's attitudes toward pregnancy and their understanding on how to preserve their health during pregnancy. Research shows that women who have finished high school have more awareness of the birth process and knowledge of things to do after childbirth that involve physical, psychological, and financial burdens (Jusuf, 2018). Pregnant women with an education level of less than 9 years are said to have a higher risk of stress than those more than 9 years old (Kahyaoglu Sut & Kucukkaya, 2021). Maternal education influences how much prenatal care a mother receives, which has a favorable impact on maternal mental health; hence, the greater the mother's education, the better the pregnancy care she receives, and the higher her mental health (Mahmoodi et al., 2017).

f. Income

Based on the characteristics of the respondents' income, more than half of them are above the minimum wage in Bantul Regency (Rp 1,842,460). Research conducted by Yusmutia, (2020) the risk of stress is higher for expectant mothers earning less than UMR than for those earning more than UMR.

Another study found that pregnant women from poor socioeconomic categories appeared to have more anxiety (Nath et al., 2019). Research conducted by Pais & Pai, (2018) pregnant women experience higher stress related to low family income.

g. Pregnancy parity

Pregnant women with primigravida tend to experience higher stress than those with multigravida. Research conducted by Nurdin & Fattah, (2021) claims that primigravida pregnant ladies have higher degrees of anxiety than multigravida pregnant women. This is probably because pregnant women with primigravida have not had previous experience of giving birth so they will feel more worried during the pregnancy until the time of delivery. According to Tang et al., (2019), Pregnant women who are primiparous or who have recently given birth report higher levels of stress and anxiety than pregnant women who have previously given birth.

2. Physical activity level

The results showed that most of the respondents had a level of heavy physical activity with a percentage of 73%. These outcomes are consistent with research conducted by Rustikayanti et al., (2020) It demonstrated that pregnant women engaged in predominantly intense physical exercise. This is because pregnant women still carry out daily activities such as before pregnancy, including doing housework (washing, mopping, cooking, shopping), dropping off/picking up school children, walking up and down stairs with luggage, and still actively working, or selling to meet the needs of his life. Another factor could be that more than half of pregnant women are stay-at-home moms who are less likely to hire domestic help or other services that would enhance their level of physical activity (Gebregziabher et al., 2019). Additionally, internal elements from pregnant women themselves have an impact on a pregnant woman's physical activity.

Young pregnant women participate more actively in numerous household and employment activities during pregnancy than older pregnant women, according to Hailemariam et al. (2020). Pregnant women were shown to have the highest levels of work activity in the first trimester of their pregnancies, and the levels were much lower in the second and third trimesters (Antosiak-Cyrak & Demuth, 2019). This may be because in the first trimester, the condition of the pregnancy is still young, so it is still easier to do physical activity. Other studies have also shown that pregnant women with multiparous parity are more active than primiparas. This is because raising more children requires a higher level of activity (Kikuchi-Noguchi et al., 2019). According to research done by Grenier et al., (2021), the income component is defined as participation in a physical activity program or gym

membership that requires additional funding, causing new issues for some pregnant women with low incomes. Certain cultures or beliefs may have an impact on how physically active pregnant women are.

The study in the district of Garut, West Java stated that pregnant women are encouraged to move around a lot and go for walks, especially in the morning when the air is still fresh and women who are late in pregnancy are encouraged to frequently perform menngging movements including mopping the floor using their hands (Juariah, 2018). The role values and beliefs play can shape the healthy behavior of pregnant women. Expectant mothers who believe that there will be direct health benefits for their babies describe this as a source of motivation (Grenier et al., 2021).

This study differs from that of Okafor & Goon (2020), who found that most pregnant women have less activity than usual. The majority of pregnant women lack knowledge and information, which contributes to this problem by making pregnant women unaware of the benefits of physical activity. Pregnant women are confused of what activities are safe to start or continue, as well as concerning their duration and intensity (Grenier et al., 2021). Knowledge of physical activity helps pregnant women to modify their exercise as their pregnancy progresses and allows pregnant women to stay active (Hailemariam et al., 2020). Therefore, simple information is very important to increase the level of physical activity should also be provided (Kikuchi-Noguchi et al., 2019). The Polish populace is less interested in sports and other forms of relaxation when they have lower levels of education (Antosiak-Cyrak & Demuth, 2019).

Apart from knowledge, the lack of social support also affects the participation of pregnant women to do physical activities in the area (Okafor & Goon, 2020). Other considerations include the fact that pregnant women rarely perform home or caregiving tasks and that they limit their level of physical activity during the first 20 weeks of pregnancy, according to a study done in China (Yin et al., 2019). The appearance of discomfort symptoms also affects the physical activity of pregnant women. Pregnant women who carry out physical activities will stop their activities when symptoms of discomfort such as aches, nausea, dizziness, etc. (Hailemariam et al., 2020) appear. Physical activity can also be affected by gestational age. According to Kikuchi-Noguchi et al., (2019), pregnant women who are still working in their third trimester typically take maternity leave, which may cause them to spend more time at home than at work and reduce their activities.

3. Stress level

The results showed that most of the respondents had a normal stress level with a

percentage of 52.6%. These findings suggest that the majority of pregnant women experience typical levels of stress. This is in line with the results published by Kurnia, S. et al. (2018), which revealed that the majority of participants did not report feeling stressed. A different study revealed that more than half of the participants reported experiencing typical stress (Deo et al., 2020). The majority of pregnant women feel more secure and at ease performing home tasks, and they also see these tasks as less burdensome (Gebregziabher et al., 2019). So that by doing physical activity pregnant women feel less depressed and may reduce feelings of stress. Women who are physically active while pregnant are better able to deal with emotional issues, feel stronger, have more self-esteem, and display greater physical endurance (Antosiak-Cyrak & Demuth, 2019).

During treatment and into the postpartum period, pregnant women's improved psychological state may have an impact on the health of their unborn children (Basu et al., 2021). Prenatal infections and disease rates, as well as the chance of health issues like postpartum depression, can all be increased by stress throughout pregnancy (Basu et al., 2021). Additionally raising the chance of miscarriage, early birth, low birth weight, and poorer Apgar scores at birth are prenatal anxiety and sadness (Purwaningsih, 2020). Prenatal Women who have had previous miscarriages are one of the causes. This is due to concerns that engaging in physical exercise while pregnant could endanger the fetus and cause another miscarriage or inadequate fetal growth (Gebregziabher et al., 2019). This causes feelings of concern to carry out physical activities which can lead to excessive feelings which may cause stress for pregnant women.

4. The relationship between physical activity levels and stress levels

The findings of this study suggest that there is no correlation between pregnant women's levels of physical activity and stress in the Banguntapan Health Center workplace. Based on the results of the crosstab between physical activity level and stress level, almost half of the respondents had a level of heavy physical activity and a normal stress level of 33 (42.3%) respondents, which means that pregnant women who do a lot of physical activity have normal stress levels.

Certain attitudes or ideas continue to have an influence on how physically active pregnant women are. The Javanese believe that certain activities should be avoided or discouraged for pregnant women. According to Furilta et al., (2020) stated that pregnant women are encouraged to take walks every morning, often nungging or prostration and mopping during late pregnancy. In addition to these recommendations, pregnant women are prohibited from traveling long distances, prohibited

from traveling in public places or to the market during late pregnancy, prohibition of going out and walking at night, prohibition of slaughtering animals, prohibition of digging soil, prohibition of removing objects by using feet, prohibition of breaking wooden twigs and delaying washing dishes after eating (Umayah et al., 2019) (Murniasih et al., 2016) (Furilta et al., 2020).

This study is not comparable to that done by Koomaska et al., (2019), who found that physical activity helps pregnant women feel less depressed and anxious. According to other study, pregnant women who exercise can experience less anxiety and despair (Martins-Filho et al., 2020). This is because the characteristics in this study used respondents who lived with their husbands and had no history of psychological disorders and medication. This study is similar to the research conducted by M. Rodriguez-Ayllon et al. (2021) a study that found lower incidence of depression in pregnant women who engaged in moderate to vigorous physical activity. The lifestyle of the pregnant women themselves can have an impact on their stress levels.

According to Pais & Pai, (2018) pregnant women who live with nuclear families are at risk of experiencing stress. Due to their involvement in decision-making and the lack of support from their husbands, living in a nuclear family implies that you are still close with your parents. Pregnant women's capacity for adaptive coping may be influenced by social support, particularly assistance from the husband (Winarsih, 2019).

Stress on the respondents in this study may be influenced by pregnant women who have no history of mental disorders and previous treatment. Pregnant women who have experienced a history of mental disorders and previous treatment experience higher stress (Stepowicz et al., 2020). The participants in this study, however, had no history of prior mental illnesses. The vast majority of responders earn more than the minimum wage socioeconomically. One of the elements that affects stress in pregnant women is the socioeconomic environment. Low socioeconomic level has been linked to an increase in stress among pregnant women, according to research by Nath et al. (2019).

CONCLUSION

The features of respondents who are pregnant with a median value of 26 years can be inferred from the research findings and discussion in the preceding chapter, the majority of respondents' gestational age are in the third trimester (59%), most of the respondents' occupations are housewives (IRT) (67, 9%), the distance between pregnancies was more than 2 years out of 37 respondents who had given birth before (81%), more than half of the respondents' education was at the middle level

(junior high school and high school) (66.7%), the income of the respondents was mostly above the minimum wage (60.3%) and parity of pregnancy was equally divided between primigravida and multigravida (50%).

Pregnant women in the Banguntapan 1 Health Center's workplace engaged in excessive levels of physical exercise (73%). Pregnant women working at the Banguntapan 1 Public Health Center are under regular levels of stress (52.6%). There is no connection between pregnant workers at Banguntapan 1 Health Center's workplace stress levels and physical activity levels (P value 0.296).

REFERENCE

- Aisyah. (2019). Factors Affecting Level of Stress in Primigravida Pregnant Woman While Normal Labor in the property of Badan mandiri in the district central distric padang 2017. *Jurnal Kesehatan, 10*(2).
- Antosiak-Cyrak, K. Z., & Demuth, A. (2019). A study of physical activity levels of pregnant women using the Polish version of Pregnancy Physical Activity Questionnaire (PPAQ-PL). *Ginekologia Polska, 90*(5), 250–255. <https://doi.org/10.5603/GP.2019.0047>
- Astuti, Y., & Afsah, Y. (2019). *The Factors Influencing Sleep Quality of Pregnant Women in Yogyakarta, Indonesia. 15(IcoSIHSN), 203–206.* <https://doi.org/10.2991/icosihsn-19.2019.44>
- Basu, A., Kim, H. H., Basaldua, R., Choi, K. W., Charron, L., Kelsall, N., Hernandez-Diaz, S., Wyszynski, D. F., & Koenen, K. C. (2021). A cross-national study of factors associated with women's perinatal mental health and wellbeing during the COVID-19 pandemic. *PLoS ONE, 16*(4 April), 1–18. <https://doi.org/10.1371/journal.pone.0249780>
- Deo, B. K., Sapkota, N., Kumar, R., Shakya, D. R., Thakur, A., & Lama, S. (2020). A Study on Pregnancy, Perceived Stress and Depression. *Journal of BP Koirala Institute of Health Sciences, 3*(1), 79–87. <https://doi.org/10.3126/jbpkihs.v3i1.30331>
- Furilta, A. E., Rosjidi, C. H., & Icha, F. (2020). Praktik Perawatan Kehamilan di Desa Pohijo, Kecamatan Sampung Ponorogo: Analisis Transkultural. *Gaster, 18*(1), 21. <https://doi.org/10.30787/gaster.v18i1.413>
- Gebregziabher, D., Berhe, H., Kassa, M., & Berhanie, E. (2019). Level of physical activity and associated factors during pregnancy among women who gave birth in Public Zonal Hospitals of Tigray. *BMC Research Notes, 12*(1), 1–6. <https://doi.org/10.1186/s13104-019-4496-5>
- Grenier, L. N., Atkinson, S. A., Mottola, M. F., Wahoush, O., Thabane, L., Xie, F., Vickers-Manzin, J., Moore, C., Hutton, E. K., & Murray-Davis, B. (2021). Be Healthy in Pregnancy: Exploring factors that impact pregnant women's nutrition and exercise behaviours. *Maternal and Child Nutrition, 17*(1), 1–9. <https://doi.org/10.1111/mcn.13068>
- Hailemariam, T. T., Gebregiorgis, Y. S., Gebremeskel, B. F., Haile, T. G., & Spitznagle, T. M. (2020). Physical activity and associated factors among pregnant women in Ethiopia: Facility-based cross-sectional study. *BMC Pregnancy and Childbirth, 20*(1), 1–11. <https://doi.org/10.1186/s12884-020-2777-6>
- Hastuti, T. A., Mudigdo, A., & Budihastuti, U. R. (2016). Age, Parity, Physical Activity, Birth Weight, and the Risk of Perineum Rupture at PKU Hospital in Delanggu, Klaten, Central Java. *Journal of Maternal and Child Health, 01*(02), 93–100. <https://doi.org/10.26911/thejmch.2016.01.02.04>
- Iskandar, & Sofia, R. (2019). HUBUNGAN STRESOR PSIKOSOSIAL PADA KEHAMILAN DENGAN KOMPLIKASI PERSALINAN DI WILAYAH KERJA PUSKESMAS LAPANG ACEH UTARA. *Jurnal Avcrrous, 5*(1). <https://doi.org/https://doi.org/10.29103/averrous.v5i1.1627>
- JavanLabs. (2020). *Surat Al-Ma'arij Ayat 19-20.* TafsirQ.Com. <https://tafsirq.com/70-al-maarij/ayat-19-20>
- Juariah, -. (2018). Kepercayaan Dan Praktik Budaya Pada Masa Kehamilan Masyarakat Desa Karang Sari, Kabupaten Garut. *Sosiohumaniora, 20*(2), 162–167. <https://doi.org/10.24198/sosiohumaniora.v20i2.10668>
- Jusuf, E. C. (2018). Nusantara Medical Science Journal. *Nusantara Medical Science Journal, 3* No. 2, 32–36. <https://doi.org/10.20956/nmsj.v3i2.5775>
- Kahyaoglu Sut, H., & Kucukkaya, B. (2021). Anxiety, depression, and related factors in pregnant women during the COVID-19 pandemic in Turkey: A web-based cross-sectional study. *Perspectives in Psychiatric Care, 57*(2), 860–868. <https://doi.org/10.1111/ppc.12627>
- Kes, A. D. M. (2019). *Deteksi Dini Kehamilan Resiko Tinggi Bagi Kader Kesehatan.* 100.
- Kikuchi-Noguchi, H., Shiraiishi, M., Matsuzaki, M., & Haruna, M. (2019). Physical activity levels in the second trimester of pregnancy and related demographic factors: A cross-sectional secondary data analysis. *Cogent Medicine, 6*(1), 1704607. <https://doi.org/10.1080/2331205x.2019.1704607>
- Kołomańska, D., Zarawski, M., & Mazur-Bialy, A. (2019). Physical activity and depressive disorders in pregnant women—a systematic review. *Medicina (Lithuania), 55*(5), 1–16.

- <https://doi.org/10.3390/medicina55050212>
Kurniawan, E. S., Ratep, N., Bagian, W. W., Smf, /, Fakultas, P., Universitas, K., / U., Sakit, R., Pusat, U., & Denpasar, S. (2019). Faktor Penyebab Depresi Pada Ibu Hamil Selama Asuhan Antenatal Setiap Trimester Factors Lead To Depression During Antenatal Care Every Trimester of Pregnant Mother. *E-Jurnal Medika Udayana, perinatal Depressive*, 1–13. <http://ojs.unud.ac.id/index.php/eum/article/viewFile/4936/3726#page=3&zoom=auto,-12,508>
- Mahmoodi, Z., Dolatian, M., Mirabzadeh, A., Majd, H. A., Moafi, F., & Ghorbani, M. (2017). The relationship between household socioeconomic status and mental health in women during pregnancy: A path analysis. *Iranian Journal of Psychiatry and Behavioral Sciences*, 11(2). <https://doi.org/10.5812/ijpbs.8823>
- Murniasih, N. P., Masfiah, S., & Hariyadi, B. (2016). Perilaku Perawatan Kehamilan dalam Perspektif Budaya Jawa di Desa Kaliori Kecamatan Kalibagor. *Jurnal Kesmas Indonesia*, 8(1), 56–66.
- Nath, A., Venkatesh, S., Balan, S., Metgud, C. S., Krishna, M., & Murthy, G. V. S. (2019). <p>The prevalence and determinants of pregnancy-related anxiety amongst pregnant women at less than 24 weeks of pregnancy in Bangalore, Southern India</p>. *International Journal of Women's Health, Volume 11*, 241–248. <https://doi.org/10.2147/ijwh.s193306>
- Nurdin, S., & Fattah, A. H. (2021). *Gambaran Kecemasan Ibu Hamil Di Wilayah Kerja Puskesmas Cabenge Kabupaten Soppeng*. 01(1), 20–26.
- Okafor, U. B., & Goon, D. Ter. (2020). Physical activity and exercise during pregnancy in Africa: a review of the literature. *BMC Pregnancy and Childbirth*, 20(1), 1–17. <https://doi.org/10.1186/s12884-020-03439-0>
- Pais, M., & Pai, M. V. (2018). Stress among pregnant women: A systematic review. *Journal of Clinical and Diagnostic Research*, 12(5), LE01–LE04. <https://doi.org/10.7860/JCDR/2018/30774.11561>
- Prihandini, S. R., Pujiastuti, W., & Hastuti, T. P. (2016). Usia Reproduksi Tidak Sehat Dan Jarak Kehamilan Yang Terlalu Dekat Meningkatkan Kejadian Abortus Di Rumah Sakit Tentara Dokter Soedjono Magelang. *Jurnal Kebidanan*, 5(10), 47–57.
- Purwaningsih, H. (2020). Analisis Masalah Psikologis pada Ibu Hamil Selama Masa Pandemi Covid-19 : Literature Review. *CALL FOR PAPER SEMINAR NASIONAL KEBIDANAN, 2020, Vol. 1 No. 1*, 9–15.
- Rodriguez-Ayllon, M., Acosta-Manzano, P., Coll-Risco, I., Romero-Gallardo, L., Borges-Cosic, M., Estévez-López, F., & Aparicio, V. A. (2019). Associations of physical activity, sedentary time and physical fitness with mental health during pregnancy: The GESTAFIT project. *Journal of Sport and Health Science*, 00. <https://doi.org/10.1016/j.jshs.2019.04.003>
- Rustikayanti, R. N., Anam, A. K., & Hernawati, Y. (2020). Korelasi Aktivitas Fisik Dengan Kualitas Tidur Ibu Hamil: Studi Cross-Sectional. *Jurnal Perawat Indonesia*, 4(2), 344. <https://doi.org/10.32584/jpi.v4i2.313>
- Saleha, N., Delfina, R., & Maiyulis, M. (2019). Derajat Stres Ibu Hamil Dan Preeklamsia Mempengaruhi Kejadian Persalinan Prematur. *Jurnal Vokasi Keperawatan (JVK)*, 2(1), 34–42. <https://doi.org/10.33369/jvk.v2i1.10652>
- Sjahriani, T., & Faridah, V. (2019). 1035325 Faktor-faktor yang Berhubungan dengan Kejadian Anemia Pada Ibu Hamil. *Jurnal Kebidanan : Jurnal Medical Science Ilmu Kesehatan Akademi Kebidanan Budi Mulia Palembang*, 9(2), 161–167. <https://doi.org/10.35325/kebidanan.v9i2.195>
- Stepowicz, A., Wencka, B., Bieńkiewicz, J., Horzelski, W., & Grzesiak, M. (2020). Stress and anxiety levels in pregnant and post-partum women during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 17(24), 1–9. <https://doi.org/10.3390/ijerph17249450>
- Sukorini, M. U. (2017). Hubungan Gangguan Kenyamanan Fisik Dan Penyakit Dengan Kualitas Tidur Ibu Hamil Trimester Iii. *The Indonesian Journal of Public Health*, 12(1), 1. <https://doi.org/10.20473/ijph.v12i1.2017.1-12>
- Tang, X., Lu, Z., Hu, D., & Zhong, X. (2019). Influencing factors for prenatal Stress, anxiety and depression in early pregnancy among women in Chongqing, China. *Journal of Affective Disorders*, 253(May), 292–302. <https://doi.org/10.1016/j.jad.2019.05.003>
- Umayah, P., Sinaga, R. M., & Ekwandari, Y. S. (2019). Mitos Bagi Wanita Hamil pada Masyarakat Suku Jawa di Desa Muara Aman. *FKIP Unila*, 01.
- Winarsih, W. (2019). Hubungan Dukungan Suami Dengan Koping Ibu Hamil Primigravida Saat Menghadapi Persalinan. *Midwifery Journal*, 4(1), 17–21.
- Yin, Y. N., Huang, Y., Liu, X. H., & Luo, B. R. (2019). Assessment of physical activity status among pregnant women in southwestern China. *Frontiers of Nursing*, 6(2), 135–141. <https://doi.org/10.2478/FON-2019-0020>
- Yusmutia, A., Novrikasari, & Windusari, Y. (2020). *Analysis of Physical Activity Against Stress Levels in Pregnant Women at Plaju Health Center Abstract - Energy expenditure by skeletal muscle movements includes light , moderate , activities . Pregnant women with excessive stress*

level . Conditions of anx. 25(Sicph 2019), 64–79.