

## **OVERVIEW OF KNOWLEDGE, ATTITUDE AND BEHAVIOR OF PREGNANT WOMEN IN SELF MONITORING OF FETAL MOVEMENT**

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### **ABSTRACT**

Fetal movement monitoring is one of the most important things to assess fetal well-being which can be done independently by pregnant women. However, studies on the ability of pregnant women to conduct self-monitoring of fetal movements were still limited. Objective: The purpose of this study was to determine the description of knowledge, attitude and behavior of pregnant women in self-monitoring of fetal movements in Sukawening District, Garut. This study used secondary data obtained from the main research entitled "Fetal Movement Counting Model: Efforts to Prevent Fetal Death Through Self-Monitoring by Pregnant Women" and with a quantitative descriptive design method. The sample in this study were 136 data on knowledge, attitude and behavior of pregnancy women in self-monitoring fetal movements. The instrument has been tested for construct validity and reliability by the principal researcher. The data analyzed univariately. Knowledge is categorized into good, enough, and less. Attitude is categorized into supportive and non-supportive. Behavior is categorized into positive and negative. The results indicated that pregnant women have less knowledge, supportive attitude, and positive behavior towards monitoring fetal movement.

Keywords: fetal health; fetal monitoring; fetal movements; fetal well-being

### **INTRODUCTION**

Wellbeing and a healthy life are part of the Sustainable Development Goals (SDGs). Sustainable development targets in 2030 include reducing the world's maternal mortality rate to no more than 70 per 100,000 live births and reducing neonatal mortality to 12 per 1,000 live births and preventing newborn deaths (SDGs, 2024). Indonesia itself has not yet reached the SDGs target. According to data from the Indonesian Health Profile (Kemenkes RI, 2023), Maternal Mortality Rate (MMR) in Indonesia increased in 2023 to 4,482 where previously in 2022 it reached 3,572 deaths. Health conditions, health services, education, economy, and socio-cultural factors affect maternal mortality during pregnancy and childbirth. Maternal deaths can occur due to various causes and can also be affected by fetal conditions or have an impact on the fetus. Infant Mortality Rate (IMR) in Indonesia, including fetal mortality and infant mortality rates born aged 0-11 months. Based on the results of the 2020 Long Form Population Census, the IMR in Indonesia was 16.85 per 1,000 live births (BPS, 2022). This number has been prevented by various programs. These programs include the 10T program (Kemenkes, 2020), one of which is determining fetal presentation and fetal heart rate.

Factors affecting maternal health can be internal and external factors. Internal factors can be by careful monitoring by the mother herself of the vital signs and physical activity of the mother is very useful to ensure the health of the mother and fetus during pregnancy. This monitoring is the first step in early detection of pregnancy abnormalities and risks and has the opportunity to provide rapid and effective interventions to prevent maternal and neonatal morbidity and mortality (Ryu et al., 2021). One of the roles of the mother in protecting the fetus is by monitoring fetal movements. Risk conditions for infant mortality can be prevented by monitoring the health or welfare of the fetus during pregnancy. Fetal movement counting is the

only method that can be applied by mothers without requiring a doctor's examination or equipment (Tsakiridis et al., 2022). Maternal awareness of fetal health monitoring still depends on health workers and health services. Research shows that not many pregnant women know and monitor fetal movements in their daily practice (Weller et al., 2023). However, information about this still varies across studies.

Fetal movement monitoring refers to counting and recording fetal movements. Fetal movements are felt by primigravida from the 18th week onwards, and multipara from the 16th week of pregnancy. At 28 weeks gestation the fetal kicks generally get stronger and more numerous. During the last trimester of pregnancy, as the fetus increases in size, fetal movements may appear to decrease and amniotic fluid may decrease. Although each fetus has its own development and activity pattern, the average normal movement felt is 4-6 times per hour or 10-12 times per hour (Weller et al., 2023). The mother should set aside the same amount of time each day at a time that is most convenient for counting fetal movements. It is usually a good time after the main meal (breakfast, lunch or dinner).

The health behavior of pregnant women in maintaining the welfare of the fetus during pregnancy is influenced by the knowledge, attitude and behavior of pregnant women. Various studies on the knowledge of pregnant women have been conducted previously. Several studies related to the knowledge of pregnant women towards pregnancy checks (Setiawan et al., 2023; Trisanti & Puspitasari, 2021), attitude of pregnant women towards high-risk pregnancies (Norfitri & Zubaidah, 2023; Pratiwi et al., 2024), and the behavior of pregnant women related to stunting prevention (Nurfatimah et al., 2021) have been studied before. However, research specific to the knowledge, attitude and behavior of pregnant women related to monitoring fetal movements in Indonesia is still limited and there is no novelty so the author is interested in researching this.

Knowledge, attitude, and behavior are also influenced by health workers. In Sukawening District, Garut, mothers are very dependent on the results of health checks in other words, mothers still think that to find out fetal movements only by health workers / midwives, even though monitoring can be done by mothers independently. With specific research on knowledge, attitude and behavior in monitoring fetal movements is still limited, so the author is interested in researching this. The purpose of this study was to obtain a description of the knowledge, attitude and behavior of pregnant women in self-monitoring of fetal movements in Sukawening District, Garut.

## **Method**

This research is a research with a documentation study of secondary data with the main research title "Fetal Movement Counting Model: Efforts to Prevent Fetal Death through Self-Monitoring by Pregnant Women" as a Research Competition for Lecturers at Padjadjaran University. Secondary data were analyzed descriptively quantitatively. The author describes the knowledge, attitude and behavior of pregnant women towards self-monitoring of fetal movements. The setting of this study was in the Sukawening District, Garut in the period July to August 2024 with a total of 136 pregnant women. Data were obtained from 5 villages in Sukawening Garut District with the following details: 24 data from Sudalarang village, 46 data from Mekarluyu village, 29 data from Mekarwangi village, 9 data from Mekarhurip village, and 28 data from Pasanggrahan village. This study used a total sampling technique. The sample in the study was secondary data in the form of 136 data on knowledge, attitudes, and behavior of pregnant women in self-monitoring of fetal movements.

The secondary data used instruments in the form of questionnaires which were divided into four parts, namely demographic data, knowledge questionnaires, attitude questionnaires and maternal behavior questionnaires related to fetal movement monitoring. Demographic data consists of 8 question items. Then there is a knowledge questionnaire consisting of 6 question items with aspects of questions including identification of fetal movements, how to perform and count fetal movements, and the benefits of monitoring fetal movements. Then there is also an attitude questionnaire consisting of 16 statements with aspects of the statement including information on fetal movement, gestational age feels fetal movement, time to monitor fetal movement, and the role of health workers in monitoring fetal movement. Finally, the instrument contained a behavioral questionnaire consisting of 8 statement items with aspects of the statement including observation of fetal movements, calculation of fetal movements, and pregnancy checks. The instrument used is an instrument developed from previous research (Komariah & Wahyuni, 2023; Samutri & Endriyani, 2021). The instrument has been tested for construct validity and reliability by the main researcher on 60 pregnant women other than research respondents. The instrument has previously been tested for construct validity with values in the range of 0.2833-0.7125 and reliability testing with a Cronbach's Alpha value of 0.7897.

This research has obtained ethical permission from the Research Ethics Commission of Padjadjaran University with Number: 786/UN6.KEP/EC/2024. As a form of ethical consideration, the authors sought to fulfill the rights of research subjects based on the four principles of research ethics as follows: Respect for human dignity, Respect for privacy and confidentiality, Respect for justice and inclusiveness and Balancing harm and benefits. The data analysis used in this study is a descriptive analysis whose results will be presented as they are without analyzing why the phenomenon can occur. This study also used univariate analysis using frequency distribution. The data in this study were analyzed based on each variable. In the knowledge variable, the measurement results are good knowledge if the value is greater than or equal to 76 to 100%, sufficient knowledge if the value is 56 to 75%, and less knowledge if the value is less than or equal to 55%. If you get a score of 5-6 including the good category, a score of 4 including the sufficient category, and a score of 0-3 including the less category. From 136 data grouped into each category how much knowledge is good, sufficient, and lacking along with the percentage of frequency. In the attitude variable, a normality test was conducted to determine the normality of the data. In the attitude variable, the measurement results are supportive attitudes and non-supportive attitude. In the attitude variable, it is found that the data is not normally distributed, so to determine the final result using the median with a value of 72. From 136 data, it is known that if the score is above or equal to 72, it is in the category of supportive attitude and if the score is below 72, it is in the category of non-supportive attitude. Then the data is analyzed based on its frequency distribution.

In the behavior variable, a normality test is carried out to determine the normality of the data. In the behavior variable, the measurement results are positive behavior and negative behavior. In the behavior variable, it is found that the data is not normally distributed, so to determine the final result using the median with a value of 28. From 136 data, it is known that if the score is above or equal to 28, it is in the positive behavior category and if the score is below 28, it is in the negative behavior category. Then the data is analyzed based on its frequency distribution.

## RESULT

Table 1.

Frequency distribution of respondent characteristics (n= 136)

Respondent characteristics	f	%
Age		
< 20 years	13	9.6
20-35 years	102	75
> 35 years	21	15.4
Education		
Elementary School	21	15.4
Junior High School	61	44.9
Senior High School	50	36.8
College	4	2.9
Employment Status		
Employed	12	8.8
Non-employed	124	91.2
Maritas Status		
Married	136	100
Unmarried	0	0
Pregnancy age		
14-27 weeks	83	61
28-41 weeks	53	39
Number of pregnancies		
First pregnancy	54	39.7
Second or more pregnancies	82	60.3

Based on table 1, showing the characteristics of pregnant women in Sukawening Subdistrict, most of the 102 pregnant women (75%) were aged in the range of 20 to 35 years, most of the 61 pregnant women (44.9%) graduated from junior high school, most of the 124 pregnant women (91.2%) did not work, all 136 pregnant women (100%) were married, most of the 83 pregnant women (61%) were in the range of 14 to 27 weeks of pregnancy, and most of the 82 pregnant women (60.3%) had been pregnant more than once.

Table 2.

Frequency distribution of pregnant women's knowledge (n= 136)

Knowledge	f	%
Good Knowledge	7	5.1
Enough Knowledge	21	15.4
Less Knowledge	108	79.4

Based on table 2, the results of analyzing the knowledge of pregnant women on self-monitoring of fetal movements that most of the 108 pregnant women (79.4%) have less knowledge.

Table 3.

Frequency distribution of pregnant women's attitude (n= 136)

Attitude	f	%
Supportive Attitude	77	56.6
Non-supportive Attitude	59	43.4

Based on table 3, the results of the analysis of the attitude of pregnant women towards self-monitoring of fetal movements showed that most of the 77 pregnant women (56.6%) had a supportive attitude. However, this figure is not much different or in other words, it is almost balanced between supportive and non-supportive attitude.

Table 4.

Frequency distribution of pregnant women's behavior (n= 136)

Behavior	f	%
Positive Behavior	73	53.7
Negatif Behavior	63	46.3

Based on table 4, the results of the analysis of the behavior of pregnant women towards self-monitoring of fetal movements showed that most of the 73 pregnant women (53.7%) had positive behavior. However, this figure is not much different or in other words almost balanced between positive behavior and negative behavior.

## **DISCUSSION**

### **Overview of Pregnant Women's Knowledge in Self-Monitoring Fetal Movement**

In this study, the knowledge of pregnant women in self-monitoring of fetal movements in Sukawening District was mostly in the deficient category. The results showed that most mothers answered incorrectly on the question points about understanding doing and counting fetal movements. This indicates a misunderstanding of whether fetal movements will, or may decrease, closer to the time of birth. Such misconceptions can cause mothers to ignore signs of fetal distress such as decreased fetal movement or decreased strength of fetal movement. The results of this study are relevant to previous research in Canada (Berndl et al., 2013) where the knowledge of pregnant women in self-monitoring of fetal movements is included in the less category of knowledge where mothers will immediately conduct a pregnancy check if they experience a decrease in fetal movements. The results of the study also mentioned that there were pregnant women who did not identify daily fetal movements and said that it might be normal if fetal movements stopped around the estimated date of birth.

In contrast to the results of previous research in Indonesia (Samutri & Endriyani, 2021) which shows that the knowledge of pregnant women about calculating fetal movements is included in the good knowledge category. After a three-week intervention, there was an increase in the knowledge of pregnant women. The intervention was fetal movement education provided by health care providers, including through videos and written booklets. These efforts can reduce maternal and fetal mortality and anxiety about fetal well-being.

Conditions in Indonesia with high fetal mortality rates (BPS, 2022) still require sufficient knowledge studies, access to information on knowledge and also assistance from health workers to increase the knowledge of pregnant women. Health workers, especially nurses in collaboration with families, are expected to have a maximum role in increasing maternal knowledge about monitoring fetal movements independently. The importance of the role of health care providers regarding fetal movement education to increase the knowledge of pregnant women was also expressed in several previous studies (Smith et al., 2021). Fetal movement monitoring education should be provided clearly, effectively, and systematically at every antenatal check-up and when the mother reports a decrease in fetal movement. Fetal movement counting education significantly improved knowledge regarding fetal movement counting across all domains (Samutri & Endriyani, 2021)

### **Overview of Pregnant Women's Attitude in Self-Monitoring Fetal Movement**

In this study, the attitude of pregnant women in self-monitoring of fetal movements in Sukawening District were mostly in the supportive category. However, the number is not much different or in other words almost balanced between supportive and unsupportive attitude. The results of this study are relevant to previous research where the attitude of pregnant women are not all supportive. Research in Sweden (Malm et al., 2014), where the attitude of pregnant women in self-monitoring of fetal movements is included in the supportive category attitude with pregnant women having a positive attitude in observing fetal movements systematically, and there are pregnant women who change their attitude from negative to positive during their pregnancy.

The attitude of pregnant women towards monitoring fetal movements as one of the prevention of fetal death. Death can also be caused by pregnancy complications. There is research related to physical exercise as one of the health promotion measures and prevention of pregnancy-related complications (Syed et al., 2021). Research in Ethiopia showed that about half of the participants had a favorable attitude towards physical exercise during pregnancy (Yimer et al., 2024). Many pregnant women agree that physical exercise during pregnancy is necessary, and there are few pregnant women who strongly disagree with physical exercise during pregnancy because they think it can pose a risk to the fetus. The results of this study are also supported by several other studies related to attitude towards physical exercise that most pregnant women have a positive attitude regarding physical exercise during pregnancy (Benyian, 2024; Janakiraman et al., 2021; Negash & Alelgn, 2023). The attitude of pregnant women regarding physical exercise is in line with this study where the majority of pregnant women have a supportive attitude. Pregnant women who feel supported tend to be more active in monitoring fetal movements and vice versa, lack of support can reduce the mother's motivation to monitor fetal movements. Health workers can increase the role of families in supporting pregnant women to monitor fetal movements by using media that is easy to use for communication between families and health workers.

### **Overview of Pregnant Women's Behavior in Self-Monitoring Fetal Movement**

In this study, the behavior of pregnant women in self-monitoring of fetal movements in Sukawening Subdistrict was mostly in the positive category. However, the number is not much different or in other words almost balanced between positive behavior and negative behavior. The results of this data analysis are relevant to previous research where monitoring and counting fetal movements can help mothers to show behavior that increase emotional attachment between the mother and her fetus. The results of this data analysis also support previous research which reveals that education shapes the ability of pregnant women to acquire anticipatory behavior when experiencing a decrease in fetal movement.

Compliance of pregnant women to monitor fetal movements is influenced by several factors, namely maternal awareness, maternal confidence in their role in assessing fetal health, effective communication and clear instructions from health care providers in carrying out the practice of counting fetal movements. Pregnant women found that adjustments to pregnancy and continuous improvement in maternal health beliefs can improve their behavior. Belief in health plays an important role in the formation of fetal movement self-monitoring behavior in pregnant women. Research (Niu et al., 2024) found that the self-monitoring behavior of fetal movement in pregnant women in China needs to be improved. In regulating the behavior of self-monitoring of fetal movements in pregnant women can be with social support. The more positive social support, the more positive the self-monitoring behavior of pregnant women.

Maternal health beliefs can influence their self-monitoring behavior of fetal movement and pregnant women with low health beliefs do not adhere to medical guidelines during pregnancy. Medical personnel who inform pregnant women about the importance and benefits of fetal movement self-monitoring and provide fetal movement monitoring guidelines can increase the overall level of maternal health beliefs, thereby increasing their awareness and motivation to perform fetal movement self-monitoring behavior (Smith et al., 2021). This study is expected to design more effective education and intervention strategies to improve pregnant women's behavior in fetal movement self-monitoring.

## CONCLUSION

Based on research conducted on 136 pregnant women in Sukawening District, Garut, it can be concluded that most of the 108 pregnant women have insufficient knowledge of fetal movement monitoring where mothers do not understand in depth about the importance of fetal movement monitoring, danger signs, and the correct procedures for monitoring. Although the level of knowledge is lacking, but most of 77 pregnant women have a supportive attitude towards self-monitoring of fetal movements where mothers realize the importance of monitoring fetal movements as a form of concern for fetal health and early detection of the risk of pregnancy complications. Most of the 73 pregnant women also have positive behavior towards fetal movement monitoring. Even with limited knowledge, most pregnant women still try to monitor fetal movements independently based on information they know, both from health workers, family, and personal experience. This shows that there is a great opportunity to improve the knowledge of pregnant women towards fetal movement monitoring. This research recommendation is expected to increase efforts to prevent fetal death by conducting educational intervention programs related to the importance of self-monitoring of fetal movements.

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## REFERENCES

- Benyian, F. F. (2024). Evaluation of pregnant women’s knowledge and attitude toward physical exercise during pregnancy at maternity hospitals. *Journal of Education and Health Promotion, 13*, 79. [https://doi.org/10.4103/jehp.jehp\\_982\\_23](https://doi.org/10.4103/jehp.jehp_982_23)
- Berndl, A. M. L., O’Connell, C. M., & McLeod, N. L. (2013). Fetal movement monitoring: how are we doing as educators? *Journal of Obstetrics and Gynaecology Canada : JOGC = Journal d’obstetrique et Gynecologie Du Canada : JOGC, 35*(1), 22–28. [https://doi.org/10.1016/s1701-2163\(15\)31044-6](https://doi.org/10.1016/s1701-2163(15)31044-6)
- BPS. (2022). *Kematian, Mobilitas, dan Kelahiran berdasarkan Long Form Sensus Penduduk 2020*. Badan Pusat Statistik. <https://sensus.bps.go.id/main/index/sp2022>
- Janakiraman, B., Gebreyesus, T., Yihunie, M., & Genet, M. G. (2021). Knowledge, attitude, and practice of antenatal exercises among pregnant women in Ethiopia: A cross-sectional study. *PloS One, 16*(2), e0247533. <https://doi.org/10.1371/journal.pone.0247533>
- Kemkes. (2020). *Pedoman Pelayanan Antenatal Terpadu*. Kementerian Kesehatan Republik Indonesia. <https://repository.kemkes.go.id/book/147>
- Kemkes RI. (2023). *Profil Kesehatan Indonesia 2023*. Kementerian Kesehatan Republik Indonesia.
- Komariah, N., & Wahyuni, S. (2023). Pregnant women’s perception of fetal movement. *Science Midwifery, 10*(6), 4822–4828. <https://doi.org/10.35335/midwifery.v10i6.1203>
- Malm, M.-C., Rådestad, I., Rubertsson, C., Hildingsson, I., & Lindgren, H. (2014). Women’s experiences of two different self-assessment methods for monitoring fetal movements in full-term pregnancy--a crossover trial. *BMC Pregnancy and Childbirth, 14*, 349. <https://doi.org/10.1186/1471-2393-14-349>
- Negash, B. T., & Alelgn, Y. (2023). Knowledge, attitude and practice of physical exercises among pregnant women attending prenatal care clinics of public health institutions in Hawassa city, Sidama, Ethiopia, in 2021: descriptive cross-sectional study. *BMC Women’s Health, 23*(1), 630. <https://doi.org/10.1186/s12905-023-02756-8>
- Niu, C., Xie, Y., Zhou, W., Ren, Y., Zheng, Y., & Li, L. (2024). Effect of social support on

- fetal movement self-monitoring behavior in Chinese women: a moderated mediation model of health beliefs. *Journal of Psychosomatic Obstetrics and Gynaecology*, 45(1), 2291632. <https://doi.org/10.1080/0167482X.2023.2291632>
- Norfitri, R., & Zubaidah, Z. (2023). Pengetahuan dan Sikap Ibu Hamil Tentang Kehamilan Risiko Tinggi. *Jurnal Ilmu Kesehatan Insan Sehat*, 11, 75–80. <https://doi.org/10.54004/jikis.v11i2.134>
- Nurfatihah, N., Anakoda, P., Ramadhan, K., Entoh, C., Sitorus, S., & Longgupa, L. (2021). Perilaku Pencegahan Stunting pada Ibu Hamil. *Poltekita : Jurnal Ilmu Kesehatan*, 15, 97–104. <https://doi.org/10.33860/jik.v15i2.475>
- Pratiwi, M., Dewi, K., & Teja, N. (2024). Hubungan Pengetahuan Ibu Dengan Sikap Ibu Hamil Tentang Pencegahan Kehamilan Risiko Tinggi. *Menara Medika*, 7, 153–161. <https://doi.org/10.31869/mm.v7i1.5517>
- Ryu, D., Kim, D. H., Price, J. T., Lee, J. Y., Chung, H. U., Allen, E., Walter, J. R., Jeong, H., Cao, J., Kulikova, E., Abu-Zayed, H., Lee, R., Martell, K. L., Zhang, M., Kampmeier, B. R., Hill, M., Lee, J., Kim, E., Park, Y., ... Xu, S. (2021). Comprehensive pregnancy monitoring with a network of wireless, soft, and flexible sensors in high- and low-resource health settings. *Proceedings of the National Academy of Sciences of the United States of America*, 118(20). <https://doi.org/10.1073/pnas.2100466118>
- Samutri, E., & Endriyani, L. (2021). Education of fetal movement counting: an effort to increase knowledge and compliance of pregnant women to do self-assessment of fetal wellbeing. *Jurnal Ners Dan Kebidanan Indonesia*, 9, 68. [https://doi.org/10.21927/jnki.2021.9\(1\).68-75](https://doi.org/10.21927/jnki.2021.9(1).68-75)
- SDGs. (2024). *Metadata Indikator SDGs*. Sustainable Development Goals. <https://sdgs.bappenas.go.id/metadata-indikator-sdgs/>
- Setiawan, S., Lucyati, A., & Rachmadhiani, I. (2023). Peningkatan Keteraturan Pemeriksaan Kehamilan Dengan Meningkatnya Pengetahuan Ibu Hamil Tentang Tanda Bahaya Kehamilan Trimester III. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, 16, 158–165. <https://doi.org/10.34011/juriskesbdg.v16i1.2430>
- Smith, V., Muldoon, K., Brady, V., & Delaney, H. (2021). Assessing fetal movements in pregnancy: A qualitative evidence synthesis of women's views, perspectives and experiences. *BMC Pregnancy and Childbirth*, 21(1), 197. <https://doi.org/10.1186/s12884-021-03667-y>
- Syed, H., Slayman, T., & DuChene Thoma, K. (2021). ACOG Committee Opinion No. 804: Physical Activity and Exercise During Pregnancy and the Postpartum Period. *Obstetrics and Gynecology*, 137(2), 375–376. <https://doi.org/10.1097/AOG.0000000000004266>
- Trisanti, I., & Puspitasari, I. (2021). Pengetahuan Ibu Hamil Tentang Jadwal Pemeriksaan Kehamilan di Jepara, Jawa Tengah (Studi Eksploratif). *Jurnal Ilmu Keperawatan Dan Kebidanan*, 12, 450. <https://doi.org/10.26751/jikk.v12i2.1162>
- Tsakiridis, I., Zerva, C., Mamopoulos, A., Kalogiannidis, I., Athanasiadis, A., & Dagklis, T. (2022). Maternal perception of fetal movements: onset and associated factors. *Journal of Perinatal Medicine*, 50(9), 1174–1179. <https://doi.org/10.1515/jpm-2021-0606>
- Weller, K., Housseine, N., Khamis, R. S., Meguid, T., Hofmeyr, G. J., Browne, J. L., & Rijken, M. J. (2023). Maternal perception of fetal movements: Views, knowledge and practices of women and health providers in a low-resource setting. *PLOS Global Public Health*, 3(3 March), 1–18. <https://doi.org/10.1371/journal.pgph.0000887>
- Yimer, A., Endris, S., Wossen, A., & Abate, M. (2024). Pregnant women's knowledge, attitude, and practice toward physical exercise during pregnancy and its associated factors at Dessie town health institutions, Ethiopia. *AJOG Global Reports*, 4(4), 100391. <https://doi.org/10.1016/j.xagr.2024.100391>