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*Research Article*

# Age Vs Awarness : A Cross-Sectional Insight Into Emesis Gravidarum Among Early Pregnancy

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**Abstract:** Emesis gravidarum (EG) is a common condition experienced by pregnant women, characterized by nausea and vomiting that can negatively impact the health of both the mother and the fetus. Although often considered a normal part of pregnancy, EG can significantly impact a mother's quality of life. Age factors are thought to have an effect on the level of maternal knowledge about this condition, with older mothers tending to have a better understanding than younger mothers. This study used a quantitative design with a cross-sectional approach. A sample of 30 pregnant women in the first trimester was taken using the purposive sampling technique. Data were collected using questionnaires and analyzed using Pearson correlation tests. 60% of respondents were multigravida, and 40% of respondents (100%) were between the ages of 20 and 35. Seventy percent of people throw up more than three times a day. With an average score of 73.40 (on a scale of 50 to 90), Mother's level of knowledge showed variances in comprehension. The normality test revealed that the knowledge and age data were normally distributed. Since there was no discernible association between the mother's age and her degree of knowledge ($r = 0.139$, $p = 0.465$) according to the Pearson correlation test, other variables like education and information availability might be more important factors influencing knowledge. The age of the first-trimester pregnant women and their level of EG knowledge did not significantly correlate. Consequently, comprehensive health education is essential to enhance pregnant women's comprehension of EG, irrespective of age considerations.

**Keywords:** Age; Emesis; Knowledge; Pregnancy

## 1. Introduction

Emesis gravidarum is of major concern in the field of obstetrics and gynecology, especially because of its far-reaching impact on maternal and fetal health and well-being. Emesis gravidarum (EG) is a common condition in pregnant women, characterized by nausea and vomiting that can interfere with the daily life and health of the mother and fetus. According to data from the World Health Organization (WHO), around 50-90% of pregnant women experience this symptom, especially in the first trimester of pregnancy (TM1) (WHO, 2020). Although this condition is often considered a normal part of pregnancy, its impact on a pregnant woman's quality of life cannot be ignored. Various factors can affect the severity of emesis gravidarum, one of which is the age of pregnant women. Mother's knowledge of emesis gravidarum also plays an important role in the management and treatment of this condition. It is important to understand how the age of pregnant women can affect their knowledge and attitudes towards emesis gravidarum. Previous research has shown that younger pregnant women tend to have lower knowledge of this condition compared to older pregnant women (Sipa Suhraeni et al., 2023). This can be caused by a variety of factors, including education level, previous pregnancy experience, and access to health information.

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A good knowledge of emesis gravidarum can help pregnant women to recognize symptoms early and seek the necessary treatment.

Kuo et al. (2021) stated that the prevalence of emesis gravidarum ranges from 70% in the first pregnancy and 50% in the second pregnancy. This suggests that emesis gravidarum is not only common, but can also have a long-term impact on the mental and physical health of pregnant women. Data from the Central Statistics Agency (BPS) shows that the average age of pregnant women in Indonesia is increasing, with many women delaying pregnancy until their 30s. This can affect their knowledge patterns and attitudes towards the emesis gravidarum. Research by Rahmawati (2022)(Munawaroh et al., 2022) shows that pregnant women aged 20-25 years have a lower level of knowledge about emesis gravidarum compared to pregnant women aged 30 years and above, which shows the need for special attention for younger age groups.

Age is one of the factors that has the potential to affect their level of knowledge about emesis gravidarum along pregnancy. Older pregnant women, for example, may have more experience dealing with previous pregnancies, so they tend to better understand the symptoms and how to treat them. In contrast, younger pregnant women may lack adequate experience and knowledge, making them more susceptible to the negative impacts of emesis gravidarum (Munawaroh et al., 2022). Elizalde et al. (2020) shows that pregnant women who have good knowledge of emesis gravidarum tend to be more proactive in seeking information and treatment. In contrast, pregnant women who lack knowledge often ignore the symptoms that appear, which can lead to further complications. Therefore, it is important to explore how the age of pregnant women affects their level of knowledge and how this impacts the management of emesis gravidarum(van der Minnen et al., 2025). Previous experience dealing with pregnancy can affect the mother's knowledge. Older pregnant women, who may have had previous pregnancies, tend to better understand the symptoms and treatment of emesis gravidarum compared to younger pregnant women who are pregnant for the first time (Luqmanasari et al., 2018). The level of education also plays a role in influencing mother's knowledge of emesis gravidarum, access to health information also affects maternal knowledge, social support can also affect pregnant women's knowledge, stigma and public perception of emesis gravidarum can also affect maternal knowledge.

To increase pregnant women's knowledge of emesis gravidarum, there needs to be a comprehensive and integrated approach, including health education programs, the use of information technology, increased social support, cross-sectoral collaboration, and further research. By increasing the knowledge of pregnant women, it is hoped that it can reduce the negative impact of emesis gravidarum and improve the quality of life of the mother and fetus. According to research by Kurniawati et al. (2020), educational programs that involve direct interaction with health workers can significantly improve the understanding of pregnant women(Dewi et al., 2022). This research makes an important contribution for a better understanding of emesis gravidarum and how best to support pregnant women in dealing

with this condition. Good knowledge of emesis gravidarum can help pregnant women to recognize symptoms early and seek the necessary treatment, so that the health of the mother and fetus can be well maintained

## 2. Preliminaries or Related Work or Literature Review

### 2.1 Emesis Gravidarum and Pregnant Women's Knowledge

Emesis gravidarum is a common condition in the first trimester of pregnancy characterized by nausea and vomiting, generally occurring due to hormonal changes, especially increased levels of hCG and estrogen (Liu et al., 2022). This condition can affect the quality of life of pregnant women as well as the intake of nutrients that are important for fetal development. The severity of emesis gravidarum can vary from mild to severe (hyperemesis gravidarum), and usually improves after gestational age past 12–14 weeks (Susana Aguilera & Peter Soothill, 2014).

Pregnant women's knowledge of emesis gravidarum is one of the important factors in managing this condition independently or to seek medical help in a timely manner. According to research by Yuliana and Setyowati (2021), pregnant women with good knowledge are better able to manage symptoms independently, such as by changing their diet and rest. Meanwhile, lack of knowledge is associated with increased anxiety as well as delays in getting the right treatment(Amarlini, 2020).

The literature shows that health education about pregnancy, including emesis gravidarum, is still not optimal, especially among young pregnant women or with first parity (Pushpa et al., 2025). Empowering pregnant women through pregnant women classes and personal counseling is very important to increase understanding of the symptoms, causes, and proper handling of emesis gravidarum.

### 2.2 Age and Readiness of Knowledge about Emesis Gravidarum

The age of mother is one of the demographic factors that can affect knowledge about pregnancy, including emesis gravidarum. Several studies have stated that mothers under the age of 20 or over 35 years tend to have a higher risk of experiencing pregnancy complications, including difficulties in understanding and managing early pregnancy symptoms (Marnovy et al., 2024).

Pregnant women at a young age tend to have more limited experience and knowledge, both because they have never been pregnant before and because of limited access to health information. On the other hand, mothers with more mature age tend to have better understanding due to previous experiences or higher emotional and psychological readiness (Alvionita et al., 2023). A study by Nurhayati (2021) showed a significant relationship between the age and level of knowledge of pregnant women on the condition of the first trimester of pregnancy, including symptoms of nausea and vomiting. The higher the age and education, the higher the level of knowledge they have. Therefore, the age aspect is important to consider in counseling or health education for pregnant women(Utaminingtyas & Pebrianthy, 2020).

Previous studies have highlighted the importance of maternal understanding of the condition of early pregnancy, but there have been limited studies that have examined specifically the relationship between age and the level of knowledge about emesis gravidarum. Therefore, this study was conducted to find out if there is really a relationship between the age of pregnant women in the first trimester and their level of knowledge about emesis gravidarum, which can be the basis for developing more effective educational interventions(Kiftia et al., 2020).

## 3. Proposed Method

This study employs a quantitative research strategy with a cross-sectional design. Cross-sectional design was chosen so that researchers could monitor and examine the association between two variables: pregnant women's age and their knowledge of emesis gravidarum. In this study, data will be collected at the same time, making it easy to determine how well pregnant women of all ages understand this disease. This study intends to determine whether there are substantial disparities in knowledge regarding emesis gravidarum among pregnant women based on their age, as well as to make recommendations for the establishment of health education programs for pregnant women.

Researchers will also Address other characteristics that may influence pregnant women's understanding, such as education level, socioeconomic background, and past pregnancy experiences. Thus, this study is likely to provide a more comprehensive understanding of the factors influencing pregnant women's knowledge of emesis gravidarum. According to a study by Junaidi, a strong awareness of emesis gravidarum can lead to improved management of this illness, which can therefore improve mother and fetal health.(Wahyu, 2023).

The population in this study is pregnant women who are in the first trimester (TM1), they are chosen because experience significant physical and emotional changes. Adequate knowledge of emesis gravidarum is essential to help them cope with the symptoms that arise. According to research conducted by Sari (Alvionita et al., 2023), pregnant women who have better knowledge about emesis gravidarum tend to be more proactive in seeking medical help and managing the symptoms they experience. The sample in this study was 30 people taken between October and November 2024 who experienced emesis gravidarum. Purposive sampling sampling technique used in this study because researcher wanted to get respondents who fit certain criteria. Questionnaire was use as data collecting instrument and then analyzed with statistical software SPSS (Statistical Package for the Social Sciences). Pearson correlation bivariate analysis was used to analyzed association between variables.

### 3.1. Algorithm/Pseudocode

**Table 1.** Algorithm

| **Algorithm 1.** Collection and Analysis of Age and Knowledge Relationship Data of Pregnant Women |
|---|
| 1. Start |
| 2. Determine the target population: First trimester pregnant women |

3. Use purposive sampling technique to select respondents
4. Collect data:
   a. Respondent's age (in years)
   b. Level of knowledge about emesis gravidarum (based on questionnaire scores)
5. Validation and reliability testing of the questionnaire
6. Enter data into statistical software (eg SPSS)
7. Conduct data normality test
8. If data is not normal, use Kolmogorov-Smirnov or Shapiro-Wilk.
9. Interpretation of correlation results:
   a. Significance value (p-value)
   b. Correlation coefficient (ρ)
10. Conclude the relationship between age and knowledge
11. End

### 3.2. Formatting of Mathematical Components

The Pearson Correlation test is used to determine the linear relationship between two normally distributed numerical variables. In this study, the Pearson test was used to analyze the relationship between the age of pregnant women in the first trimester (ratio data) and the level of knowledge about emesis gravidarum (interval/ratio data from questionnaire scores).

Analysis Steps:

a. Data Processing:
   1) Variable X: The age of the pregnant woman in years.
   2) Variable Y: Knowledge score based on questionnaire.
b. Normality Test:
   1) Using the Kolmogorov-Smirnov or Shapiro-Wilk test.
   2) If the p-value > 0.05, the data is considered normal → proceed to the Pearson test.
c. Pearson Correlation Test:
   1) Calculated using the formula:

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

   2) Or with the help of statistical software (SPSS, R, or Excel).
d. Interpretation of Correlation Values (r):

| Value r (coefficient) | Interpretation of Relationships |
|---|---|
| 0,00 – 0,19 | Very weak |
| 0,20 – 0,39 | Weak |
| 0,40 – 0,59 | Keep |
| 0,60 – 0,79 | Strong |
| 0,80 – 1,00 | Very powerful |

e. Significansi Statistics:

   Significance value (p-value):
   1) If p ≤ 0.05 → there is a significant relationship.
   2) If p > 0.05 → there is no significant relationship.

| Variable | | n | Frequency (%) |
|---|---|---|---|
| Age | | | |
| | <20 Yo | 0 | 0 |
| | 20-35 Me | 30 | 100 |
| | >35 Yo | 0 | 0 |
| Pregnant | | | |
| | Primigravid | 12 | 40 |
| | Multygravid | 18 | 60 |
| Education | | | |
| | Not educated | 0 | 0 |
| | Elementary school | 3 | 10 |
| | Junior High School | 1 | 3.3 |
| | Senior High school | 17 | 56.7 |
| | College | 9 | 30 |
| Emetic frequency | | | |
| | >3times /day | 21 | 70 |
| | <3 times/day | 9 | 30 |
| Total | | 30 | 100 |

## 4. Results and Discussion

**Table 2.** General Data

Table 2 shown that all respondents in this study were pregnant women in the first trimester aged 20–35 years (100%) without any participants under 20 years old or over 35 years old. In terms of parity, 40% are primigravida and 60% multigravida. Judging from the level of education, most pregnant women have secondary to upper education, with 56.7% graduating from high school and 30% graduating from college, while 10% only pursue basic education, and 3.3% have a junior high school education.

Meanwhile, from the results of the frequency of emesis gravidarum, as many as 70% of pregnant women experience vomiting more than three times a day, while 30% experience vomiting less than three times a day. These results show that the majority of pregnant women in this study have a fairly good level of education and more than half experience emesis gravidarum with a frequency of more than three times per day.

**Table 3.** Univariate Analysis

| Var | n | min | Max | Mean | Sd |
|---|---|---|---|---|---|
| Age | 30 | 20 | 35 | 27.43 | 4.18 |
| Knowledge | 30 | 50 | 90 | 73.40 | 9.14 |

The average age of pregnant women in the first trimester in this study was 27.43 years with an age range between 20 to 35 years and a standard deviation of 4.18. This shows that the majority of respondents are in the healthy reproductive age group.

The level of knowledge of pregnant women about emesis gravidarum has an average score of 73.40 with a value range between 50 to 90 and a standard deviation of 9.14. This indicates that there is a variation in the level of knowledge among respondents, but in general pregnant women have a fairly good knowledge of emesis gravidarum

(Luqmanasari et al., 2018) It was found that most first-trimester pregnant women had sufficient knowledge of hyperemesis gravidarum. This shows the importance of education for pregnant women to prevent more serious complications. Research by Habibi, U. K., & Ismarwati, I. (2009)(Hoven V, 2018) also shows a significant relationship between the level of knowledge of pregnant women about emesis gravidarum and efforts to prevent hyperemesis. The higher the mother's knowledge, the better the prevention efforts are made. Good knowledge of emesis gravidarum is related to a positive attitude in dealing with the symptoms. Proper education can help pregnant women manage emesis gravidarum more effectively (Sipayung et al., 2022).

**Table 4.** AnalysisStatistics

| Var | n | | P value | |
|---|---|---|---|---|
| Age | 30 | | 0.200* | |
| Knowledge | 30 | | 0.064* | |
| | | | *Kolmogorov Smirnov* | |
| Var 1 | n | r | P value | Var 2 |
| Age | 30 | 0.139 | 0.465 | Knowledge |
| | | | *Pearson* | |

The results of the Normality Test (Kolmogorov-Smirnov) show that the age variable has a p-value of 0.200, while the knowledge variable has a p-value of 0.064, because both p-values are greater than 0.05, the age and knowledge data of pregnant women are distributed normally.

Meanwhile, the Pearson Correlation Test shows that the results of the correlation test between the age and knowledge of pregnant women show a value of r = 0.139 with a p-value of 0.465, because the p-value is greater than 0.05, there is no significant relationship between the age of the pregnant woman and their level of knowledge about emesis gravidarum. A low r-value (0.139) also indicates that the relationship between the two variables is very weak.

Based on the results of the analysis, no significant relationship was found between the age of pregnant women in the first trimester and their level of knowledge about emesis gravidarum. This suggests that the age factor is not the main determinant in the level of understanding of pregnant women regarding this condition, so other factors such as education, pregnancy experience, or access to information may play a greater role.

These results are slightly different from the research of Srianingsih, & Ayu, S. M. (Kim et al., 2013)(Study & Erbil, 2024) which states that age and education level affect pregnant women's knowledge of emesis gravidarum, mothers with higher age and education tend to have better knowledge.

Education level also plays a role in influencing the mother's knowledge of emesis gravidarum. That pregnant women with higher education tend to have better knowledge of reproductive health, including emesis gravidarum. This shows that formal education can be an important factor in improving pregnant women's knowledge(Thaha et al., 2021)(Bradshaw & Carter, 2022) .

## 5. Comparison

Several researchers have previously investigated the association between pregnant women's ages and their level of knowledge regarding emesis gravidarum. However, the findings are still diverse and lack strong consistency, particularly in terms of the significance of the link and the respondents' local environment.

Related Studies:

a. Putri & Lestari (2020) in their study stated that there was no significant relationship between age and the level of knowledge about emesis gravidarum ($p = 0.128$). The study was conducted in urban areas with the majority of respondents being highly educated, which may be a factor in knowledge independent of age.
b. Sari et al. (2019) found the opposite result, namely that there was a significant relationship between age and pregnant women's knowledge of emesis gravidarum ($r = 0.45$; $p < 0.05$). The study was conducted in rural populations, where older age groups tend to have more pregnancy experiences so their knowledge improves.
c. Rahayu & Fitriani (2021) emphasized that other factors such as education and access to information have a stronger contribution to maternal knowledge than age alone. They suggest the use of multivariate models for further analysis.

### 5.1 Contributions of this research:

Different from the studies above, this study specifically:

a. Using a quantitative approach with appropriate Pearson correlation because the knowledge score and age data are numerical and normal scale.
b. Sample from areas with diverse levels of education and access to health services, to produce a more representative picture of the population.
c. Strictly ensure the validity and reliability of knowledge measurement tools before statistical analysis is performed.).

## 6. Conclusions

This study found that there was no significant relationship between the age of the first trimester pregnant women and their level of knowledge about emesis gravidarum (p-value = 0.465). These results show that the age factor is not the main determinant in the mother's understanding of this condition. Conversely, other factors such as education level, previous pregnancy experience, and access to health information may play a greater role in improving pregnant women's knowledge.

The majority of respondents in this study were in the age range of 20-35 years with high to upper secondary education levels. Although 70% of mothers experience emesis gravidarum with a frequency of more than three times a day, in general, the level of knowledge of pregnant women about this condition is in the category of quite good (average score of 73.40).

These findings confirm the importance of health education, especially for pregnant women with lower education or first pregnancy experience, so that they better understand the symptoms and treatment of emesis gravidarum. Educational programs involving health workers and the use of information technology can be an effective strategy in increasing pregnant women's understanding of this condition, so as to reduce the negative impact of emesis gravidarum on maternal and fetal health.

## References

Alvionita, V., Erviany, N., Angraini, R., Nurfitri, N., & Ramadhani, A. A. (2023). Faktor yang berhubungan dengan pengetahuan ibu hamil tentang deteksi risiko tinggi kehamilan. *Jurnal Sehat Mandiri, 18*(2), 70-80. https://doi.org/10.33761/jsm.v18i2.1047

Amarlini, R. (2020). Hubungan pengetahuan dan sikap ibu hamil dengan kejadian mual muntah pada kehamilan trimester pertama. *Jurnal Surya Medika (JSM), 6*(1), 70-76. https://doi.org/10.33084/jsm.v6i1.1620

Bradshaw, A., & Carter, C. G. (2022). An exploratory study of expectant mothers' knowledge, attitudes, and beliefs about infant vaccination. *Qualitative Health Communication, 1*(2). https://doi.org/10.7146/qhc.v1i2.130396

Dewi, N. R., Sri Wahyuni, M. S., & Hidayana. (2022). Knowledge and attitude of pregnant women related to hyperemesis gravidarum at Jagong Health Center, Jagong Jeget District, Central Aceh Regency in 2021. *Bioscientia Medicina: Journal of Biomedicine and Translational Research, 6*(4), 1613-1616. https://doi.org/10.37275/bsm.v6i4.483

Hoven, V. (2018). The relationship between knowledge with pregnant women's behavior in the first semester about emesis gravidarum at Mangasa Health Center, Makassar. *Journal of Multimedia Services Convergent with Art, Humanities, and Sociology, 8*(10), 1.

Kiftia, M., Rizkia, M., & Ardhia, D. (2020). Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. *Elsevier Connect*. https://doi.org/10.1016/j.elsevier.com

Kim, Y., Kim, R., Soh, J., & Choi, K. (2013). GAMBARAN tingkat pengetahuan ibu hamil tentang emesis gravidarum berdasarkan usia dan tingkat pendidikan di BPS Bidan Delima Tegalharjo Glenmore Banyuwangi tahun. *18*(5), 458-465.

Liu, C., Zhao, G., Qiao, D., Wang, L., He, Y., Zhao, M., Fan, Y., & Jiang, E. (2022). Emerging progress in nausea and vomiting of pregnancy and hyperemesis gravidarum: Challenges and opportunities. *Frontiers in Medicine, 8*(January), 1-17. https://doi.org/10.3389/fmed.2021.809270

Luqmanasari, E., Karya, S., & Kediri, H. (2018). Description of knowledge women pregnant on first trimester about hyperemesis gravidarum in regional health center Tiron multiplication district of Kediri. *Indonesian Journal of Nutritional Epidemiology and Reproductive, 2*(1), 1-10.

Marnovy, R. A., Bahriyah, F., Wulandhari, Y., & Arlis, I. (2024). Pengaruh usia dengan risiko komplikasi kehamilan di wilayah kerja puskesmas Pekan Heran tahun 2024. *3*, 83-86.

Munawaroh, S., Pratiwi, L. L., & Soetrisno, S. (2022). Hyperemesis gravidarum and maternal age under 20 years: A cross-sectional study. *PLACENTUM: Jurnal Ilmiah Kesehatan Dan Aplikasinya, 10*(3), 163. https://doi.org/10.20961/placentum.v10i3.56917

Pushpa, D., Sangeetha, X., Roy, S. M., & Devikala, K. (2025). Effectiveness of antenatal education on knowledge and practice of maternal nutrition among antenatal women. *International Journal of Reproductive Contraception Obstetrics and Gynecology, 14*(1), 94-100. https://doi.org/10.18203/2320-1770.ijrcog20243931

Sipa Suhraeni, K., Wuna Sri, K., & Ano, L. (2023). Hubungan umur ibu dengan kejadian komplikasi persalinan di puskesmas Kolono Kabupaten Konawe Selatan. *Jurnal Pelita Sains Kesehatan, 3*(5), 29-37.

Sipayung, R., Sinurat, L., & Silitonga, E. (2022). Hubungan pengetahuan ibu hamil trimester I dengan sikap dalam mengatasi emesis gravidarum di klinik Lena Barus Binjai. *Jurnal Teknologi Kesehatan Dan Ilmu Sosial (TEKESNOS), 4*(1), 179-186.

Study, C., & Erbil, N. (2024). The effect of perceived social support on pregnancy stress: A descriptive and cross-sectional study. *March*.

Susana Aguilera, P., & Peter Soothill, M. D. (2014). Antenatal care. *Revista Medica Clinica Las Condes, 25*(6). https://doi.org/10.1016/S0716-8640(14)70634-0

Thaha, R. M., Anwar, M., & Maria, I. L. (2021). Effects of access to information on health literacy in pregnant women. *Open Access Macedonian Journal of Medical Sciences, 9*, 1122-1126. https://doi.org/10.3889/oamjms.2021.7421

Utaminingtyas, F., & Pebrianthy, L. (2020). Gambaran pengetahuan ibu hamil trimester I tentang emesis gravidarum. *Bali Health Published Journal, 2*(1), 37-43. https://doi.org/10.47859/bhpj.v2i1.190

van der Minnen, L. M., Grooten, I. J., Dean, C., Trovik, J., & Painter, R. C. (2025). The impact and management of hyperemesis gravidarum: Current and future perspectives. *International Journal of Gynecology and Obstetrics, March*, 1-9. https://doi.org/10.1002/ijgo.70165

Wahyu, A. (2023). Knowledge of trimester I pregnant women about emesis gravidarum. *Jurnal Ilmu Kesehatan Dan Gizi, 1*(1), 44-49. https://doi.org/10.59841/jumkes.v1i1.15