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DIFFERENCES OF BIRTH WEIGHT AND ONSET OF ACHOLIC STOOL BETWEEN EXTRAHEPATIC AND INTRAHEPATIC CHOLESTASIS

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Abstract

Background*: Biliary atresia (extrahepatic cholestasis) and neonatal hepatitis (intrahepatic cholestasis) are the two main causes of cholestasis. It is important to distinguish the type of cholestasis to determine management. Patients with intrahepatic cholestasis have birth weight lower than extrahepatic cholestasis. The onset of acholic stool in extrahepatic cholestasis usually appears in 15-30 days of first life. The study aims to identify differences in birth weight and onset of acholic stool between the types of cholestasis.* ***Method:*** *A retrospective study on cholestasis children aged under 2 years was conducted at Dr. Soetomo General Academic Hospital, Surabaya from January 2012 to December 2016. A thorough history of birth weight and onset of acholic stool were undertaken. Based on histopathology liver biopsy patients were classified into two groups: I (extrahepatic cholestasis) and II (intrahepatic cholestasis). Data was analyzed using Mann Whitney U with p<0.05 being significant.* ***Result:*** *A total of 84 children were included, 55% were male. 40 children suffered from extrahepatic cholestasis (mean age 4.8 ± 2.6 months old) and 44 children suffered from intrahepatic cholestasis (mean age 2.9 ± SD 3.8 months old). The mean birth weight between extrahepatic and intrahepatic cholestasis was 2813 ± 704 gram vs 2717 ± 577 gram) (p=0.29). The mean onset of acholic stool between extrahepatic and intrahepatic cholestasis was 43.0 ± 60.6 days vs 26.6 ± 39.7 days (p=0.27).* ***Conclusion:*** *There is no difference in birth weight and onset of acholic stool between extrahepatic and intrahepatic cholestasis.*

Keywords: *Acholic stool, Birth weight, Children, Extrahepatic Cholestasis, Intrahepatic cholestasis,*

INTRODUCTION

Cholestasis is a condition of decreased bile production and/or excretion. Conjugated hyperbilirubinemia, which is present at birth or develops within the first few months of life, is often referred to as neonatal cholestasis. Conjugated hyperbilirubinemia is an elevation of conjugated bilirubin >20% of total serum bilirubin and >1 mg/dL (Pandita et al., 2018). Cholestatic jaundice is a rare condition that indicates hepatobiliary dysfunction. Cholestatic jaundice occurs in 1 out of every 2,500 infants and is therefore often missed for diagnosis (Feldman and Sokol, 2013).

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The most common causes of cholestatic jaundice in the first months of life are biliary atresia and neonatal hepatitis, representing the majority of cases. For optimal treatment and prognosis, early recognition by the primary care physician and timely referral to a pediatric gastroenterologist or hepatologist is essential (Fawaz et al., 2017).

Birth weight and onset of acholic stool are two clinical manifestations that are usually used to differentiate extrahepatic cholestasis from intrahepatic cholestasis (Lee and Chai, 2010). Patients with intrahepatic cholestasis have birth weight lower than extrahepatic cholestasis. The onset of acholic stool in extrahepatic cholestasis usually appears in 15-30 days of first life (Bellomo-Brandao et al., 2010). There is a rare study about birth weight and onset of acholic stool between the types of cholestasis therefore, this study aims to identify differences in birth weight and onset of acholic stool between extrahepatic cholestasis and intrahepatic cholestasis.

METHOD

A retrospective study on cholestasis children was conducted at Dr. Soetomo General Academic Hospital, Surabaya from January 2012 to December 2016. All cholestasis children aged under 2 years old who had done a liver biopsy. The site of this study was the pediatric ward, Dr. Soetomo General Academic Hospital, Surabaya, East Java. Patient data were obtained from medical records. Histopatology examination of liver biopsy was performed by an anatomy pathologist. Children aged under 2 years diagnosed with cholestasis who had run liver biopsy were involved. Based on the result of histopathology liver biopsy, patients were classified into two groups: I (extrahepatic cholestasis) and II (intrahepatic cholestasis). A thorough history of birth weight and onset of acholic stool were undertaken. Statistical analysis of Mann Whitney U was used with $p<0.05$ being significant. Analysis was performed using SPSS software. The study was approved by the Ethics committee of Dr. Soetomo General Academic Hospital, Surabaya, Indonesia (No 117/Panke.KKE/II/2017).

RESULT AND DISCUSSION

A total of 84 children were studied, forty-six (55%) children were male with a mean age were 4.8 ± SD 2.6 months old on extrahepatic cholestasis and 2.9 ± 3.8 months old on intrahepatic cholestasis. From the histopathology of liver biopsy, 40 (48%) showed extrahepatic cholestasis and 44 (52%) were intrahepatic cholestasis. (Table 1).

Table 1. Baseline characteristics

Characteristic	n (%)
Sex	
Male	46 (55)
Female	38 (45)
Histopatology liver biopsy	
Extrahepatic	40 (48)
Intrahepatic	44 (52)
	Mean ± SD
Age (month)	
Extrahepatic	4.8 ± 2.6
Intrahepatic	2.9 ± 3.8
Birth weight (gram)	
Extrahepatic	2813 ± 704
Intrahepatic	2717 ± 577
Onset of acholic stool (day)	
Extrahepatic	43.0 ± 60.6
Intrahepatic	26.6 ± 39.7

The mean birth weight between extrahepatic and intrahepatic cholestasis was 2813 (SD 704) grams vs 2717 (SD 577) grams (p=0.29). The mean onset of acholic stool between extrahepatic and intrahepatic cholestasis was 43.0 (SD 60.6) days vs 26.6 (SD 39.7) days (p=0.27) (Figures 1 and 2).

Figure 1. Mean birth weight between extrahepatic and intrahepatic cholestasis

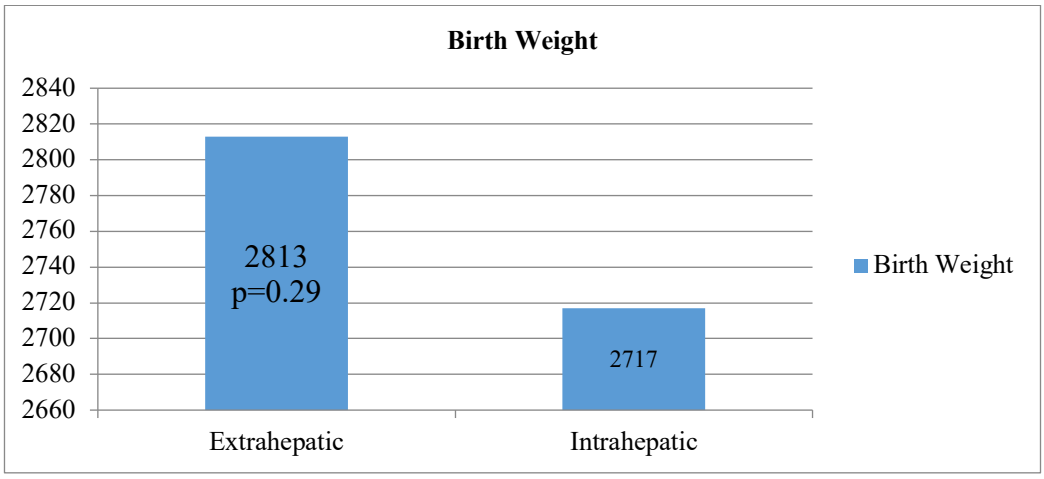

Figure 1 shows that the mean of birth weight patients with extrahepatic cholestasis was 2813 grams and the birth weight of patients with intrahepatic cholestasis was 2717 grams. The birth weight of patients with extrahepatic cholestatic was a little bit bigger than patients with intrahepatic cholestasis. The result of data analysis using the Mann-Whitney U test obtained p value 0.29. There was no difference in birth weight between patients with extrahepatic and intrahepatic cholestasis (p>0.05).

Figure 2. Onset of acholic stool between extrahepatic and intrahepatic Cholestasis

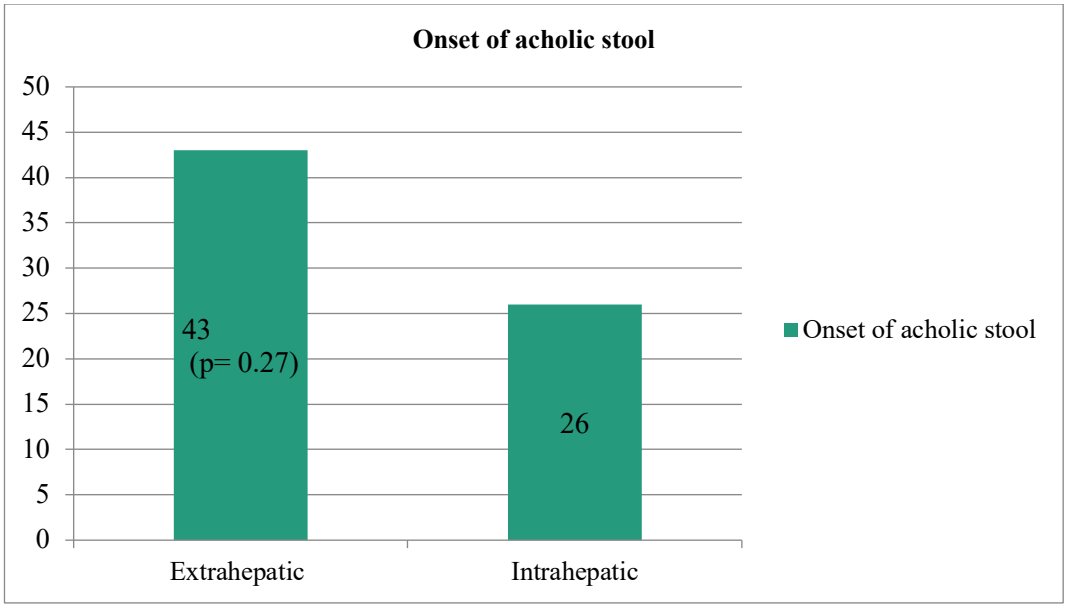

Figure 2 shows that the mean onset of acholic stool in patients with extrahepatic cholestasis was 43 days and patients with intrahepatic cholestasis were 26 days. The result of data analysis using the Whitney U test obtained a p-value of 0.27 ($p<0.05$). So statistically that was no difference in the onset of acholic between patients with extrahepatic and intrahepatic cholestasis.

Cholestatic jaundice in the first three months of life is a condition that occurs due to a reduction in the flow and/or excretion of bile and can be caused by a variety of conditions. Neonatal cholestasis should be considered in all infants with prolonged jaundice or jaundice at more than 2 weeks of age, or earlier in the presence of other clinical signs such as hepatomegaly, failure to thrive, yellow stools, or dark urine. Although rare, neonatal cholestasis can be a life-threatening cause of liver damage. However, delay in diagnosis of neonatal cholestatic disorders, especially biliary atresia, is still a health problem today. Misdiagnosis as physiologic jaundice, lack of national screening for genetic disorders, and presence of pigmented stools are common causes. of delayed diagnosis (Pandita et al., 2018).

Biliary atresia (extrahepatic cholestasis) and neonatal hepatitis (intrahepatic cholestasis) are the two main causes of cholestasis. It is important to distinguish the type of cholestasis to determine a medical management and surgical intervention as soon as possible (Pandita et al., 2018). Improvement in bile flow may occur if a hepato-portoenterostomy is performed before 2 months of age. If inadequately treated, biliary atresia patients may progress to end-stage liver disease and eventually require liver transplantation (Kobayashi et al., 2020).

Differentiating the type of cholestasis in our study based on the histopathology liver biopsy. Liver biopsy is an invasive test used in addition to other clinical methods to determine the etiology of cholestasis in the neonate. In one study, biopsies were found to contribute new findings to the diagnostic workup in 36.2 percent of cases, with an associated overall complication rate of 6.9 percent (Chaudhry et al., 2019). Liver biopsy performs well with a sensitivity of 95.1% and specificity of 91.6% in the diagnosis of extrahepatic cholestasis leading to biliary atresia (Ali et al., 2024). Extrahepatic biliary atresia associated with other diseases can generally be differentiated by the histopathologic examination and can help to

determine the need for surgical exploration in 90 to 95 percent of the patients. (Fawaz et al., 2017).

Liver histopathology is necessary to confirm the presence of intrahepatic cholestasis and extrahepatic cholestasis. Some of the liver histopathologic features obtained to differentiate between intra- and extrahepatic cholestasis include periportal duct proliferation, portal duct proliferation, portal expansion, cholestasis in the neoductus, foci of myeloid metaplasia, and portal-portal bridges. The finding of foci of myeloid metaplasia suggests intrahepatic cholestasis. Meanwhile, in extrahepatic cholestasis, periportal duct proliferation, portal duct proliferation, portal expansion, cholestasis in neo-ducts, portal cholestasis, and portal-portal bridges can be found (Ahmed et al., 2021).

Birth weight was one of the clinical parameters that can distinguish extrahepatic cholestasis from intrahepatic cholestasis. In our study, the mean birth weight in extrahepatic cholestasis more higher than in intrahepatic cholestasis, and the difference was not statistically significant. The study in Pakistan mentioned that the mean age was recorded as 118.01 days + 118.1 SD (Bilal et al., 2022). Another study showed that the mean age of cholestasis was 63.94 ± 20.62 days (Ali et al., 2024). A study from Bellomo-Brandao shows a different result which is there were significant differences in birth weight between extrahepatic and intrahepatic cholestasis (Bellomo-Brandao et al., 2010). A study at Dr. Soetomo General Academic Hospital, Surabaya stated that full-term and normal weight newborns have a higher risk of developing biliary atresia than those with low birth weight or premature birth (Yana et al., 2023).

The typical findings in an infant who has cholestasis are protracted jaundice, scleral icterus, acholic stools, dark yellow urine, and hepatomegaly. The report of pale stools by the parent or observation of clay-colored stool by the physician raises the suspicion of cholestasis (De Bruyne et al., 2011). Acholic stools in an infant should always prompt further evaluation. patients who have biliary atresia are critical (Feldman and Sokol, 2013). Biliary atresia had significantly more frequent acholic stool than neonatal hepatitis (Gürlek Gökçebay et al., 2015). Three clinical features considered sensitive to differentiate extrahepatic cholestasis in biliary atresia from neonatal hepatitis are the presence of acholic or variable stools on

admission, a firm/hard liver consistency, and a palpable liver ≥4 cm (sensitivity 77%, 80%, and 94%, respectively), but the specificity is low (51%, 65%, and 39%) (Lee and Chai, 2010).

In our study, the mean onset of acholic stool between extrahepatic was longer than intrahepatic cholestasis, but it was not significant. Although the presence of acholic stool had a 100% specificity for biliary atresia, its sensitivity was low at 58%. However, it was the first readily significant clinical presentation that could lead to extensive diagnostic evaluation on biliary atresia.

Delay in diagnosis of biliary atresia beyond 60–100 days of age may reduce the longevity of the native liver and increase morbidity in infants with biliary atresia, although the ideal surgical timing remains controversial (Jancelewicz et al., 2015). In our study birth weight and onset of acholic stool between extrahepatic and intrahepatic have no significant difference, the physician should be considered biliary atresia even though the birth weight was low or the onset of acholic stool was late.

CONCLUSION AND SUGGESTION

There is no difference in birth weight and onset of acholic stool between extrahepatic and intrahepatic. Further cohort studies with larger sample sizes was needed to evaluate any clinical manifestation to differentiate the type of cholestasis.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept until writing draft article.

Ethical Approval

Research Ethics Committee **of** Dr. Soetomo General Academic Hospital, Surabaya, Indonesia (No 117/Panke.KKE/II/2017).

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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MIDWIVES' PERCEPTIONS OF PREECLAMPSIA SCREENING

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Abstract

Background: Preeclampsia-related maternal mortality is a persistent issue globally, including in Indonesia. The International Federation of Gynecology and Obstetrics (FIGO) recommends universal preeclampsia screening in obstetric services. In Indonesia's NTT Province, pregnant women are screened based on guidelines in the MCH book. Sikka Regency mandates midwives to use the KSPR and MCH manuals for risk factor screening In 2022, 154 out of 9,685 screened pregnant women exhibited signs of preeclampsia risk factors. Despite the reduction in maternal deaths in Sikka Regency, the number of deaths directly linked to preeclampsia increased from one in 2021 to four in 2022. Notably, at Watubaing Public Health Center, two cases of maternal death were specifically attributed to preeclampsia. This underscores a significant gap in midwives' perceptions and clinical practices, elevating maternal mortality risk. This study explores midwives' perceptions of preeclampsia screening. **Method:** Qualitative research with a phenomenological approach at Watubaing Public Health Center involved three informants selected through purposive sampling, meeting the inclusion criteria. Data collection, conducted from April to July 2023, comprised in-depth semi-structured interviews that were subsequently analyzed thematically. **Results:** Midwives' expressed divergent opinions Midwives' expressed divergent opinions Midwives have different opinions. They still use the KSPR for pre-eclampsia screening and the pre-eclampsia screening guidelines in the KIA book.on preeclampsia screening, yet a consensus prevailed on its crucial importance. **Conclusion:** Midwives' perceptions of preeclampsia screening in ANC services are significantly shaped by internal and external factors, including knowledge and experience.

Keywords: *Perception, Midwife, Preeclampsia Screening, Antenatal Care.*

INTRODUCTION

Maternal deaths attributed to preeclampsia represent a critical global challenge, particularly pronounced in Indonesia, where the Maternal Mortality Rate (MMR) remains the highest in Southeast Asia. This stark reality contradicts the Sustainable Development Goals (SDGS) target of reducing the MMR to 183 per 100,000 live births by 2024 and less than 70 per 100,000 live births by 2030. Addressing this challenge necessitates strategic efforts, demanding an annual decrease of at least 5.5% in maternal death (Kemenkes 2020).

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Maternal mortality cases in Indonesia, notably in the East Nusa Tenggara Province (NTT), have witnessed a significant upswing in the past two years. Sikka, a district in NTT, has experienced an overall decline in maternal deaths, but specific causes, such as eclampsia, have shown a notable increase. Eclampsia has emerged as the primary cause of maternal mortality in Sikka, with two out of four cases reported at the Watubaing Public Health Center (Laporan Kematian Ibu 2022)

Efforts to combat preeclampsia in Sikka, particularly at the Watubaing Community Health Center, reveal an escalating trend, with 21 cases reported in 2022 out of 68 pregnancies with complications (LB2S 2022). The surge in global and Indonesian preeclampsia cases has prompted heightened research and debates. The International Federation of Gynecology and Obstetrics (FIGO) recommends the universal adoption of preeclampsia screening in obstetric care practices (Poon et al. 2019)

Initiatives in Indonesia include screening pregnant women during Antenatal Care (ANC) using guidelines from the Maternal and Child Health (MCH) book and the Poedji Rochjati Score Card (KSPR). However, essential screening measures, such as Mean Arterial Pressure (MAP) and Body Mass Index (BMI), remain lacking in many healthcare facilities and Private Midwife Practices (PMB) (Susanti et al. 2022). Research conducted by K Jayanti on 53 midwives working in 19 health centres in Gresik Regency Implementing the screening programme Preeclampsia screening programme still not optimal (Jayanti 2021)

Research by (Khodijah and Lumbanraja 2021) reveals a gap in midwives' proficiency in differentiating between hypertension categories during pregnancy, impacting the timely detection of preeclampsia. A qualitative study by Ansari et al. emphasizes the gap in midwives' perceptions and clinical practices related to preeclampsia detection and management, heightening the risks of maternal and perinatal mortality (Ansari et al. 2019). This research aims to provide a concise overview of midwives' perceptions regarding preeclampsia screening at the Watubaing Public Health Center in Sikka Regency.

METHOD

This qualitative study employs a phenomenological design to explore the experiences of midwives conducting preeclampsia screening at the Watubaing Public Health Center in Sikka Regency.

Data were obtained through in-depth interviews, with each session lasting between 22-40 minutes conducted in April 2023. Additional data collection through telephone interviews occurred in August 2023. The sampling technique used was purposive sampling, with three participants selected based on specific inclusion and exclusion criteria.

Inclusion Criteria: a) Midwives employed at the Watubaing Community Health Center, b) Minimum educational qualification of a Diploma III (DIII) in Midwifery, c) Currently active midwives providing maternity care services at the Watubaing Public Health Center, d) Work experience exceeding 10 years, e) One Midwife Coordinator, f) Two Midwife Practitioners with the following specifications: one midwife with documented cases of maternal mortality due to preeclampsia in her working area, and one midwife with no recorded maternal mortality in her working area.

Exclusion Criteria: Exclusion criteria include midwives who meet the inclusion criteria but exhibit specific conditions requiring their exclusion from the study. This may include midwives who refuse to participate as informants during the research period. The data analysis techniques used involved transcribing verbatim data, coding, categorizing, developing thematic contexts, and interpreting data.

RESULT AND DISCUSSION

1. Participants' characteristics

The participants' ages ranged from 35 to 50 years old. All three participants had a Diploma III (DIII) in Midwifery as their latest education level. The length of work experience as midwives varied, with one participant having 13 years of experience, another with 15 years, and the third with 27 years. All participants had additional tasks, such as being the Head of Polindes (Integrated Service Post), and one also served as the Midwife Coordinator and Quality Team Leader. The

interviews took place in different locations, namely the Head of the administration department Room and the Head of the Public Health Center Room, on April 29, 2023. The duration of each interview ranged from approximately 22 to 40 minutes. (Table.1)

Table 1. Overview of the participants of the study

Code	Interview Location	Research Date	Time and Duration	Age (years)	Last Education	Length of Work as a Midwife (years)	Additional Tasks
I01	KTU Room	29-04-2023	08.00-08.40 a.m and 40.51,37 minutes	35	Diploma III in Midwifery	13	Head of Polindes (Pos Pelayanan Terpadu)
I02	KTU Room	29-04-2023	09.00-09.22 a.m and 22.15,67 minutes	37	Diploma III in Midwifery	15	Head of Polindes (Pos Pelayanan Terpadu)
I03	Coordinating Midwife	29-04-2023	10.00-10.40 a.m and 40.34,50 minutes	50	Diploma IV in Midwifery	27	Midwife Coordinator, Quality Team Leader

The research findings have successfully identified three overarching themes and fourteen sub-themes derived from in-depth interviews, aligning with the research problem and objectives.

Table.2 Theme Analysis

Theme	Sub Theme
1. Overview of Midwive's Regarding Preeclampsia Screening Activities	1) Information sources related to preeclampsia screening 2) Screening guidelines used during the first antenatal visit (K1) for pregnant women. 3) Competence in identifying risk factors. 4) Reasons for not conducting preeclampsia screening in accordance with the Maternal and Child Health Booklet (MCH) Screening Guidelines. 5) Flow of management if risk factors are identified. 6) Midwives' opinions on preeclampsia screening.
2. Factors influencing informants in implementing preeclampsia screening in antenatal care.	1) Policy considerations 2) Motivation.

3.	The Midwives' Perception of Preeclampsia Screening	1) Knowledge about Preeclampsia Screening 2) Experience with Preeclampsia Screening 3) Training on Preeclampsia Screening

2. Overview of Midwive's Regarding Preeclampsia Screening Activities

1) Information sources related to preeclampsia screening

The information sources are diverse, including human resources, books, journals, the internet, observation, experiments, and interviews. Crucial information from entities such as the health department should be carefully considered regarding reliability, validity, and relevance to the tasks and antenatal services at health centers. In this study, it was found that information about preeclampsia screening was disseminated during the Maternal and Child Health (MCH) book utilization socialization activities conducted by the health department team, both at the district and health center levels (I 01/I 02/ I 03).

> *"I recall hearing about it during a Health Department event where they were promoting the use of the MCH book. There was also a time when the Health Department team visited during maternal death audits, and they discussed the screening"* (I 01, I 02, I 03).

Certain information sources may have specific interests or biases that can influence screening guidelines. Information sources relevant to the condition or population being screened are crucial. Irrelevant information may lead to guidelines that do not align with the specific screening needs (Rahayu 2018)

2) Screening guidelines used during the first antenatal visit (K1) for pregnant women

The Preeclampsia Screening Score Card (KSPR) functions as a family-based antenatal screening tool to identify risk factors in pregnant women, aiding in early condition recognition and preventing complications during childbirth. Structured with a combination format, integrating a checklist of maternal conditions/risk factors with a scoring system, the KSPR was developed as a simple, easily acceptable technology intended for non-professional healthcare providers (Rochjati 2011). However, the KSPR has not yet become the standard reference for preeclampsia screening. Developing countries, particularly in primary healthcare services during ANC visits, prioritize patient identity assessments over preeclampsia screening, without strict adherence to guidelines (Kurniati Ayu 2022)

Differing opinions among midwives regarding preeclampsia screening guidelines were found in this study. Midwives who prefer the KSPR as an initial guide find it simpler (I 01).

> *"For new pregnant mothers on their first visit, I initially refer to the Poedji Rochyati Score Card (KSPR). However, I find the scoring in Puji Royati's version simpler"* (I 01).

Additionally, according to midwives, each primigravida undergoes anamnesis and preeclampsia screening following the guidelines in the Maternal and Child Health (MCH) Book, offering a comprehensive package during ANC (I 02/I 03).

> *"Upon admission, we conduct anamnesis right away. From the anamnesis, we follow the MCH book. We perform screening through its format, specifically taken from the MCH book for preeclampsia screening" (I 02).*
> *"So, for a first-time pregnant mother, the initial healthcare contact includes a complete examination, including screening according to the guidelines in the MCH book" (I 03).*

The Federation of International Gynaecology and Obstetrics (FIGO) recommends that all countries include pre-eclampsia screening in antenatal care. This aligns with FIGO's recommendation for global implementation of preeclampsia screening in midwifery practice (Poon et al. 2019). Despite the same observed object, different perceptions among midwives' stem from various factors, including the preeclampsia screening guideline. Healthcare providers' compliance perceptions are influenced by sensory perception, resulting in diverse understandings and interpretations. In this context, midwives' differing perceptions relate to early condition identification and diagnosis for preventing preeclampsia using various screening guidelines.

3) Competence in identifying risk factors.

Efforts to reduce the morbidity and mortality of preeclampsia can be achieved through active screening for risk factors. Unfortunately, a significant number of midwives struggle to convey the complete criteria for moderate and severe risk factors leading to preeclampsia, as outlined in the Maternal and Child Health (MCH) Book guidelines. Midwives can accurately identify 2 out of 7 known high-risk factors, but information on moderate-risk criteria is often omitted. This

discrepancy contradicts the risk factor criteria in the preeclampsia screening guidelines of the MCH Book (Kementerian Kesehatan RI 2022). The criteria for risk factors leading to preeclampsia, embedded in the MCH Book, serve as a screening guideline, and it is expected that all healthcare providers can identify them.

> *"From what I know, it might be related to blood pressure. If the blood pressure is possibly over 140. Then maybe the previous pregnancy, perhaps with symptoms of hypertension or high blood pressure. Also, with the previous childbirth. That too, if she had a history of obstetrics that wasn't good, along with the lab results. Usually, we recommend pregnant women have their first check-up, where we can check for urine protein and examine her. That's where we can categorize it as moderate. If it's high, it might be calculated from... um... I forgot the term, something like arterial pressure or something... ummm... maybe it's calculated from there, then it can be determined. But for the ones before that, honestly, we only rely on their blood pressure" (I 01).*

Another midwife conveys information about 2 out of 9 moderate risk factors and 2 out of 7 high-risk factors, albeit not in detail. The midwife also emphasizes collaboration with doctors when such cases are identified. This aligns with the management flow of preeclampsia screening, where if a pregnant woman has at least 2 moderate risk factors or 1 high-risk factor, referral is initiated. Healthcare professionals are expected to identify and control preeclampsia risk factors to enable primary prevention (US Preventive Services Task Force et al. 2017) Seventeen factors proven to increase the risk of preeclampsia, as outlined in the MCH Book's preeclampsia screening page, were gathered from several studies.

> *"Usually, we look at the screening. During anamnesis, we assess if there are causes, such as if she is multiparous, then her age is over 35 years, chronic hypertension, and then if her mean arterial pressure is above ninety. For diseases, hahahaha... ummmm... for preeclampsia, if she is already diagnosed with hypertension. Hypertension is indicated by a diastolic reading above ninety, and if the measurement is done twice with a one-hour interval. Usually, if we find such a case, we proceed to collaborate with a doctor for blood and urine tests" (I 02).*

Another midwife responds that she cannot categorize due to her long career, expressing reliance on the KSPR criteria. If midwives cannot accurately perform early detection, cases of preeclampsia are often discovered too late and in severe conditions, leading to maternal and fetal mortality.

> *"In that case, it's not about how many, but it's been a long time. It's just that in the MCH book, there is a section, I don't remember which page, but there's a sheet there, maybe it's yellow or white, if I'm not mistaken. I don't remember. In that section, there are several questions related to preeclampsia screening for mothers. One of them is whether the mother complains of a headache or dizziness, then asked about how. Basically, there are several questions we use for screening. Several cases of preeclampsia have occurred like that. The mother is already too old. The mother is old. And she has more than 4-5 children. That's the first. The second is due to stress factors" (I 03)*
>
> .

4) Reasons for not conducting preeclampsia screening in accordance with the Maternal and Child Health Booklet (MCH) Screening Guidelines.

To reduce the incidence of preeclampsia, screening is crucial for all pregnant women during Antenatal Care (ANC), following guidelines provided in the Maternal and Child Health (MCH) Book or the Poedji Rochjati Score Card (KSPR) as a general risk detection tool (Kementerian Kesehatan RI 2022). While preeclampsia screening is essential in health facilities based on the MCH Book, many healthcare facilities and Private Midwife Practices (PMP) fail to implement Mean Arterial Pressure (MAP) and Body Mass Index (BMI) measurements in preeclampsia screening (Susanti, Yani, and Yudianti 2022)

A qualitative study by Ansari et al. found a striking gap in midwives' perceptions and clinical practices in detecting and managing preeclampsia across various health facilities, increasing the risk of maternal and perinatal mortality (Ansari et al. 2019). In this study, it was also observed that a significant number of midwives do not adhere to preeclampsia screening guidelines for various reasons. These include an overwhelming workload with repeated record-keeping and screening activities causing fatigue, ultimately leading to non-compliance with established procedures. Some midwives avoid using preeclampsia screening guidelines because they find the assessment items confusing and time-consuming to register. Additionally, the repetition of cohort and SOAP formats further extends the process, and the overall busyness of village midwives hinders consistent implementation.

> *"In the book, to be honest, at first, I was confused about the assessment items that had to be done like that. And what made it time-consuming is that they forget we have to ask slowly. Moreover, with the human resources there,*

some are not educated enough, so the understanding of the discussion is slow. When asked, it takes a while for them to answer, and then they quickly write. After that, they still have to fill in all the data because this filling is not just for one book. There's the register, and then there's the cohort. There's another format like SOAP. The writing is the same, but it has to be transferred from one to another. That's what makes it take a long time" (I 01).

"It's possible. We, who work under these midwives, maybe haven't fully reached the maximum potential to conduct screening according to the format in this book. Because sometimes it's due to busyness" (I 03).

5) Flow of management if risk factors are identified

Procedures for preeclampsia screening indicate that if at least 2 moderate-risk factors or 1 high-risk factor are identified, pregnant women should be referred (Kementerian Kesehatan RI 2022). In this study, a common perception was found among all midwives that collaboration and referral are necessary when risk factors are identified (I 01/I 02/I 03).

"Usually, if we find such a case, we proceed to collaborate with a doctor for blood and urine tests" (I 02).

"In every case, whether it's a mild or severe preeclampsia, consultation is usually done. If it's my duty, I will monitor it, and if necessary, I recommend immediate consultation with a specialist doctor. I also involve them in education" (I 03).

"I haven't done screening like this before. I have never referred based on this screening. Most of the time, if I find high blood pressure during my blood pressure check, then I refer" (I 01).

6) Midwives' opinions on preeclampsia screening.

Preeclampsia screening is mandatory for all pregnant women undergoing antenatal examinations, with primary healthcare facilities conducting simple screenings through anamnesis and physical examinations (Rochjati 2011). This aligns with the guidelines recommended by FIGO, outlining global standards for preeclampsia screening in the first trimester, targeting healthcare providers such as doctors, midwives, and nurses (Poon et al. 2019). In this study, it was found that all midwives consider preeclampsia screening a supported and obligatory method for healthcare professionals, including midwives, doctors, and nurses.

"In my personal opinion, and probably all my colleagues feel the same way. I think it's necessary. It's not just for us midwives but can also apply to doctors and nurses. It's good to be socialized to all healthcare providers. It's more focused on midwives, though" (I 01).

"I think it's excellent. If all midwives use screening as a guideline" (I 02).

7) Training on Preeclampsia Screening

Training plays a crucial role in influencing preeclampsia screening, where comprehensive and in-depth training assists healthcare professionals, such as midwives and doctors, in gaining a better understanding of the symptoms, signs, and risk factors of preeclampsia. It enables them to operate and interpret the results of medical tools used in screening, following official guidelines and protocols for preeclampsia screening, including the recommended frequency of screening during pregnancy.

Additionally, through training, professionals can determine the necessary actions if preeclampsia is detected, such as closer monitoring, treatment, or pregnancy management. This also encompasses effective communication skills to explain screening results to patients, provide advice, and help them understand the importance of closer monitoring if preeclampsia is suspected (Ansari et al. 2019). With proper training, healthcare professionals can enhance their ability to conduct preeclampsia screening, ultimately aiding in the early detection of preeclampsia, improving care, and reducing the risk of serious complications during pregnancy.

In this study, it was found that all midwives conveyed that they have not received specific training on preeclampsia screening from the Health Department. Instead, they only received information during socialization sessions conducted by the Health Department, particularly during Maternal Mortality Audits (AMP) and socialization on the use of the latest Maternal and Child Health (MCH) Book.

> *"But specifically for screening, there has been no training. I heard about it once, if I'm not mistaken, from someone from the health department. There was an activity related to the new MCH Book at that time" (I 01).*
> *"For specific training on preeclampsia screening, we have never had it. We only received socialization from the coordinator about how to fill out the MCH Book, and there is a section on preeclampsia screening, but it's done by doctors in the MCH Book. Also, when there are activities at the village clinic, if I'm not mistaken, three times I heard there were visits from the health department" (I 02).*
> *"If talking about training, it has never happened. It was explained about the use of the latest MCH Book, and there was socialization about filling out the MCH Book. Inside it, there is a sheet about preeclampsia screening" (I 02).*

3. Factors influencing informants in implementing preeclampsia screening in antenatal care.

1) Policy considerations

Government policies regarding the use of preeclampsia screening guidelines, especially those found in the Maternal and Child Health (MCH) Book, have a significant impact on midwives' perceptions and implementation of screening. Currently, there is variation in policies and guidelines for detecting risk factors, affecting the implementation of preeclampsia risk factor anamnesis by midwives. Several challenges have been identified, such as disagreements among relevant institutions regarding the use of preeclampsia screening guidelines in the MCH Book, insufficient socialization to midwives, and informants' confusion about existing risk factor detection guidelines.

The use of preeclampsia screening guidelines is still scattered, with midwives feeling confused due to the lack of agreement on their use. High workloads and the lack of standardization by the Health Department in establishing preeclampsia screening guidelines pose challenges. Although some midwives agree with the policy of using preeclampsia screening in the MCH Book, there is still confusion and a lack of understanding about these guidelines. This indicates the need for further efforts to socialize, clarify, and support the implementation of this policy.

> *"I must admit that for preeclampsia screening, we are confused. There's the Pudjiroyati score, 18 screenings, MCH. What the Health Department standardizes, we don't know. Up to now, there's no clarification from the department to the community health centers. Even among us midwives, some don't know. Honestly, I'm not very familiar with this screening" (I 01).*
> *"There's no specific SOP for screening; we just refer to the MCH Book. It would be great if all midwives follow the screening guidelines. It seems it's not too late. Hahaha" (I 02).*
> *"In my opinion, it's good. I hope all first-trimester pregnant women undergo screening because in the MCH book, there are numerous questions. If, from the beginning, we know that it aligns with the format, it means our management is clear" (I 03).*

2) Motivation

A midwife's practice in providing maternity services, especially in anamnesis of preeclampsia risk factors, is significantly influenced by motivation

and supervision from the coordinating midwife. Motivation is a psychological factor that can impact performance (Fatkhiyah 2015). Motivation is a driving force that compels someone to take action to achieve goals (Notoatmodjo, S 2018). Understanding motivation needs to be based on the assumption that motivation is a positive influence and a determinant of work performance. In the context of healthcare services, work motivation determines the direction of behavior in the workplace and the level of self-mastery in overcoming obstacles, making it crucial in determining job performance (Fahmi 2020). In this study, it was found that motivation from the coordinating midwife regarding antenatal care and the detection of risk factors is consistently communicated. During every meeting, information is provided, and encouragement is given to all midwives to implement screening for pregnant women. However, direct supervision in the village clinics (polindes) regarding the actual implementation of preeclampsia screening guidelines during antenatal care is not evenly distributed among all midwives.

> *"There is no specific training for preeclampsia screening, only general information about pregnant women with PEB is frequently conveyed" (I 01).*
> *"The motivation from our coordinator is always there... always detect risk factors, no matter what... during meetings and even during visits to village clinics, sometimes we call the coordinator if we find risk factors, and if we can't handle it, the coordinator usually comes down to help us. As for specific training on screening, I attended it once at the integrated service post (posyandu) but with someone from the health department at that time" (I 02).*
> *"So, during every regular meeting at the primary health center or sub-district level, or during midwife meetings, we always convey to village midwives and midwives at the health center that we should conduct screening for every pregnant woman. We don't wait for formal training. I share my knowledge with them. So, the knowledge is always transferred to them. Thus, it's not just me who knows, but they also know" (I 03).*

CONCLUSION AND SUGGESTION

The knowledge of midwives is influenced by reliable sources of information, experience, and in-depth training, playing a role in shaping their attitudes and practices in conducting preeclampsia screening. In this context, the availability of clear guidelines and support from health authorities can enhance motivation and the effectiveness of using these guidelines. Internal and external

factors, including supportive policies, also play a crucial role in shaping perceptions of preeclampsia screening in antenatal care.

To enhance understanding and the implementation of preeclampsia screening, further efforts are required, such as disseminating and providing comprehensive training to midwives on the use of preeclampsia screening guidelines in the Maternal and Child Health (MCH) book. Additionally, the socialization and clarification of policies and guidelines related to preeclampsia screening need to be intensified by relevant authorities to ensure consistent usage. The development of specialized training programs for midwives is also crucial, emphasizing practical aspects and the development of communication skills needed in antenatal care.

Declaration :

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept until writing draff article.

Ethical Approval

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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CORRELATION BETWEEN HEIGHT, BMI, MUAC WITH ANEMIA STATUS IN ADOLESCENT GIRLS

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Abstract

Background: Anemia in adolescents is a health problem that needs immediate intervention in Indonesia. Anemia can caused by malnutrition. protein and iron deficiency will cause nutritional problems including stunted, thinness, and Mid Upper Arm Circumference (MUAC) < 23,5 cm. Protein and iron deficiency can interfere with the formation of hemoglobin resulting in anemia. This study aims to analyze the relationship between status based on height, Body Mass Index (BMI) and MUAC with anemia status at Mambaus Sholihin Islamic Boarding School in Gresik Regency. **Method:** This research is a quantitative observational analytic with the cross sectional method. The population was adolescent girls in Mambaus Sholihin Islamic Boarding School in Gresik Regency. The sample was 11th and 12th grade senior high school girls with a total of 141 respondents using the total sampling technique. The variables used in this research consisted of height, BMI, MUAC, and anemia. Height data was obtained by using microtoise, BMI using microtoise and scales, MUAC using tape measure plastic, and hemoglobin using the digital tool of Point of Care Testing (POCT) method. The research data were analyzed by chi square test with a contingency coefficient of 95%. **Result:** The results showed that out of 141 adolescent girls, 66.7% had normal height status, 23.4% were stunted, and 9.9% were severely stunted. In BMI status, 55.3% normal, 14.9% thinness, 15.6% overweight, and 14.2% obese. MUAC status was 79.4% with MUAC ≥ 23.5 cm and 20.6% with MUAC < 23.5 cm. Anemia status was 51.8% frail and 48.2% not anemic. After the chi square test, the significance value was obtained (p=0.006), which means that statistically there was a significant relationship between height and anemia, (p=0.003) there was a significant relationship between BMI and anemia, and (p=0.01) there was a significant relationship between MUAC and anemia. **Conclusion:** There is a relationship between nutritional status based on height, BMI, and MUAC with anemia status in adolescent girls at Mambaus Sholihin Islamic Boarding School in Gresik Regency.

keyword : Anemia, Adolescent Girls, Height, BMI, MUAC

INTRODUCTION

Anemia is common condition in middle- to low-income countries. This condition is characterized by hemoglobin levels below 12-16 g/dL (Taufiqa, 2020). Anemia often occurs in adolescence (15-24 years) due to rapid physical and mental development. Anemia in adolescents is still a big challenge in Indonesia (Kemenkes, 2021). Anemia is more prone to occur in adolescent girls due to the

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menstrual cycle that occurs every month (Kemenkes, 2018). If not intervened, anemia in adolescent girls will develop into pregnancy anemia. Anemia in pregnancy has a negative impact on fetal growth, increases the risk of complications of pregnancy and childbirth, and risks causing maternal and child death (Riskesdas, 2019).

One of the causes of anemia is malnutrition. Malnutrition that occurred over many years results in a MUAC < 23.5 cm (Muthmainnah et al, 2021). Chronic malnutrition can cause stunting in adolescents characterized by stunted or severely stunted (Tarini et al, 2020). MUAC < 23.5 cm and stunted in adolescents are caused by a lack of protein intake. Protein deficiency will interfere with hemoglobin formation and iron transport, causing anemia (Eniwati et al, 2019). In addition, MUAC < 23.5 cm and stunted in adolescents can also be caused by micronutrient deficiencies, namely iron. Iron is a mineral needed to form hemoglobin (Susiloningtyas, 2023). Iron deficiency will cause the body to be unable to form hemoglobin, resulting in anemia.

According to research by Enggardany et al (2021) there is a relationship between BMI and anemia. This is similar to the results of research by Imelda et al (2022) which states that adolescents with underweight status are more likely to suffer from anemia 1.4 times compared to other BMI status. There is also a relationship between height and anemia, according to research by Zhu et al (2021) there is a relationship between height and anemia. The taller a person's body indicates high hemoglobin levels in the body. This is in line with research by Shaka and Wondimagegne (2018) which resulted in a relationship between height and anemia in adolescents. In addition, there is also a relationship between MUAC and anemia. Based on research by Ina et al (2018) at the Tribhuwana Tunggadewi University Dormitory for Girls Malang, the smaller the MUAC, the lower the hemoglobin levels in the body. This is also similar to the results of research by Vaira et al (2022) showed there is a relationship between MUAC and anemia status The purpose of this study was to analyze the relationship between height, BMI, and MUAC with anemia status in adolescent girls.

METHOD

This type of research was quantitative research with a cross-sectional design, sampling using the total sampling method. The population was adolescent girls in Mambaus Sholihin Islamic Boarding School in Gresik Regency. Using the total sampling technique, the number of samples was 141 adolescent girls in grades 11 and 12 of Mambaus Sholihin Islamic Boarding School in Gresik Regency. The variables used in this research consisted of height, BMI, MUAC, and anemia. Height data was obtained by using microtoise, BMI using microtoise and scales, MUAC using tape measure plastic, and hemoglobin using the digital tool of Point of Care Testing (POCT) method. The research was conducted at Mambaus Sholihin Islamic Boarding School, Gresik Regency from October 2022 to November 2023. Data were taken from direct measurements of respondents. The ethical eligibility number for this study was 231/EC/KEPK/FKUA/2023. Collected data were recorded for entry and processed using Microsoft Excel and SPSS 2.5. Data were analyzed univariate and bivariate in SPSS 2.5 using a chi square test with a 95% confidence level.

RESULT AND DISCUSSION

Research Result

Data and research analysis are explained in the form of tables and narratives. This aims to find out information about the characteristic of respondents.

Table 1 The characteristic of respondents

Characteristic Respondents	f	Percentage (%)
Age		
15 years old	16	11,3
16 years old	96	68,1
17 years old	27	19,1
18 years old	2	1,4
Stay at boarding school		
Stay at boarding school	141	100
Length of stay at boarding school		
< 3 years	55	39
≥ 3 years	86	61
Frequency of meals in a day		
1x a day	12	8,5
2x a day	103	73,0
3x a day	26	18,4
Eating at the boarding school canteen		

Always	117	83,0
Sometimes	9	6,4
Rarely	4	2,8
No	11	7,8
Meal menu		
Rice and side dishes	67	47,5
Rice and vegetables	13	9,2
Rice, vegetables, and side dishes	61	43,3
Side dishes consumed yesterday		
Chicken	23	16,3
Meat	13	9,2
Fish	20	14,2
Tofu/tempeh	45	31,9
Egg	27	19,1
Without side dishes	13	9,2
Tea consumption		
No	92	65,2
Yes	49	34,8

Below is the frequency distribution data of height, BMI, MUAC, and anemia status of respondents at Mambaus Sholihin Islamic Boarding School in Gresik Regency.

Table 2 The Frequency Distribution of Height, BMI, MUAC, and Anemia Status of Respondents

Variable	f	Percentage (%)
Height		
Normal	94	66,7
Stunted	33	23,4
Severely stunted	14	9,9
BMI		
Normal	78	55,3
Thinness	21	14,9
Overweight	22	15,6
Obese	20	14,2
MUAC		
MUAC ≥ 23,5	112	79,4
MUAC < 23,5	29	20,6
Anem Status		
Anemia	73	51,8
Non anemia	68	48,2

Tabel 3 Relationship between height with anemia status in adolescent girls at Mambaus Sholihin Islamic Boarding School in Gresik Regency

Height	Anemia Status				Total	P *value*	CC
	Non Anemia		Anemia				
	f	%	f	%			
Normal	53	56,4	41	43,6	94	0,006	0,26
Stunted	8	24,2	25	75,8	33		
Severely Stunted	7	50	7	50	14		
Total	68	48,2	73	51,8	141		

Based on the results there was relationship between height and anemia status at Mambaus Sholihin Islamic Boarding School in Gresik Regency is weak.

Table 4 Relationship between BMI with anemia status in adolescent girls at Mambaus Sholihin Islamic Boarding School in Gresik Regency

BMI	Anemia Status				Total	P *value*	CC
	Non Anemia		Anemia				
	f	%	f	%			
Normal	31	40,3	46	39,9	77	0,03	0,24
Thinness	9	40,9	13	59,1	22		
Overweight	16	72,7	6	27,3	22		
Obesse	12	60	8	40	20		
Total	68	48,2	73	51,8	141		

Based on the results there was the relationship between BMI and anemia status at Mambaus Sholihin Islamic Boarding School in Gresik Regency is weak.

Table 5 Relationship between MUAC with anemia status in adolescent girls at Mambaus Sholihin Islamic Boarding School in Gresik Regency

MUAC	Anemia Status				Total	P *value*	CC
	Non Anemia		Anemia				
	f	%	f	%			
MUAC ≥ 23,5 cm	60	53,6	52	46,4	112	0,013	0,21
MUAC < 23,5 cm	8	27,6	21	72,4	29		
Total	68	48,2	73	51,8	141		

Based on the results there was the relationship between MUAC and anemia status at Mambaus Sholihin Islamic Boarding School in Gresik Regency is weak.

Discussion

Relationship between Height with Anemia Status in Adolescent Girls at Mambaus Sholihin Islamic Boarding School in Gresik Regency

The results of this study are by research by Shaka and Wondimagegne (2018) in southern Ethiopia which states that there is a relationship between height per age and anemia status in adolescents. The results of this study are similar to research by Zhu et al (2021) in western China which states that height status is related to hemoglobin levels in the blood. Research by Soliman et al (2014) showed that chronic anemia can inhibit growth and development. Anemia that occurs in childhood and then is not intervened will continue to become chronic anemia during adolescence. Research by Soliman et al (2017) also shows a similar thing, namely chronic anemia has a negative impact, especially because it inhibits physical growth. This is because chronic anemia can occur as a result of nutritional deficiency conditions, namely micronutrients (iron) on a chronic basis. Nutritional deficiencies cause impaired growth and psychomotor development.

Other studies have shown that stunting causes anemia. Research by Tarini et al (2020) states that stunting or shortness is one of the factors causing anemia. This is related to protein consumption. Children who consume protein is not optimal tend to experience growth failure so that their height becomes short. Protein plays a role in the formation of hemoglobin. Protein deficiency will disrupt hemoglobin formation resulting in anemia. According to research by Flora et al (2019), children who are stunted or short have a 2.7 times greater risk of anemia.

The results of this study showed that more respondents with normal status did not experience anemia while more respondents with stunted status experienced anemia. Adolescents with stunted and severely stunted status are 6 times more at risk of anemia (Shaka and Wondimanegne, 2018). Normal or above normal height status is associated with high levels of hemoglobin in the blood (Zhu et al, 2021)

A person's height growth is influenced by protein consumption (Millward, 2021; Alwi et al, 2022). Someone whose protein needs are not met will have a shorter height than someone whose protein needs are met. If the body's protein needs are not met, it will cause protein deficiency so that hemoglobin formation

and iron transport will be disrupted and anemia will occur (Eniwati et al, 2019). Conversely, if protein needs are met, the height status will be normal or above normal and there will be no disruption of hemoglobin formation so that anemia does not occur.

Frequent consumption of eggs and meat and frequent meal frequency (≥ 3 times a day) can reduce the chance of anemia in adolescents (Zhu et al, 2021). The above statement relates to the fulfillment of protein and body nutrients for adolescent growth. Based on the results of filling out the questionnaire, 19.1% of respondents consumed eggs, 9.2% of respondents consumed meat and 18.4% of respondents ate 3 times a day. This figure shows that quite a lot of respondents consume eggs, meat and eat 3 times a day so that protein needs are met. This causes the results of the study to show more respondents with normal height status and not anemic.

In this study, the respondents were adolescents aged 16-18 years. At this age, height growth in adolescent girls has stopped. The cessation of height growth is caused by the epiphyseal plates (Fauziyah et al, 2017). This makes it impossible to provide interventions for short or very short adolescents to become tall. The solution that can be provided is an intervention to reduce the anemia status of the respondents.

Relationship between BMI with Anemia Status in Adolescent Girls at Mambaus Sholihin Islamic Boarding School in Gresik Regency

The results of statistical tests in this study showed a relationship between BMI and anemia status in adolescent girls. This is following research by Wiworomukti and Santik (2023) at SMKN 2 Salatiga which resulted in p (0.009) <0.05 with the chi square test which means there is a relationship between BMI and anemia status. The results of this study are also in line with research conducted by Enggardany et al (2021) which resulted in p (0.034) <0.05 with the odd ratio test, which means that there is a relationship between BMI and anemia status.

This study shows the results of undernourished with BMI tend to experience anemia compared to overnourished and obese status. This is similar to the results of research by Imelda et al (2022) which states that adolescents with undernutrition

status are more at risk of 1.4 times suffering from anemia compared to other BMI statuses (Imelda et al, 2022).

Anemia in adolescent girls is influenced by several factors, one of which is poor nutrition (Handayani and Rumiati, 2020). The majority of adolescent girls have poor nutritional status due to an unhealthy diet. An unhealthy diet such as an unbalanced diet can cause protein and iron deficiencies resulting in anemia. Anemia in adolescent girls is exacerbated by iron loss through menstruation every month (Rai et al, 2023). This causes the iron intake of adolescent girls to be more than that of adolescent boys.

According to the results of filling out the questionnaire, respondents consumed more unbalanced menus, namely rice with side dishes without vegetables. According to Regulation of The Minister of Health Republic Indonesia no. 41.2014 on Balanced Nutrition Guidelines, a balanced diet helps maintain body weight and avoid nutritional problems such as undernutrition or overnutrition. This could be the cause of some respondents having under- and over-nutrition and obesity.

An unbalanced diet, such as eating ≤ 2 meals a day and consuming plant-based foods can be the cause of undernutrition and anemia. The recommended meal frequency is 3 large meals a day (BPOM, 2013). A meal frequency of ≤ 2 times a day is not an ideal meal frequency for adolescents because it can cause the fulfillment of micro or macronutrient needs to be not optimal. This leads to undernutrition in adolescents. Suboptimal fulfillment of iron (micronutrients) and protein (macronutrients) nutrition can cause anemia.

Based on the results of filling out the questionnaire, the majority of respondents consumed vegetable side dishes, namely tofu and tempeh. Vegetable side dishes contain non-heme iron and are lower in fat than animal side dishes (Arima et al, 2019; Blongkod and Arpin, 2022). Non-heme iron has ingredients that can inhibit its absorption. If iron absorption is inhibited, iron needs are not met so the hemoglobin formation process will be inhibited and anemia occurs. The low fat content in plant-based foods causes no increase in body weight. Therefore, more respondents with thinness experienced anemia.

Examination of nutritional status by measuring BMI in this study, the results showed that most respondents had normal nutritional status, but many experienced anemia. This can be caused by the lack of consumption of animal protein and animal iron. Based on the results of filling out the questionnaire, the majority of respondents consumed more tofu and tempeh compared to meat, chicken, and fish. Animal iron such as red meat, chicken, and fish is more easily absorbed by the body compared to vegetable iron such as tofu and tempeh (Skolmowska and Glabska, 2019)/ The slow absorption of plant-based iron by the body can cause high iron requirements in adolescent girls to not be met optimally.

Relationship between MUAC with Anemia Status in Adolescent Girls at Mambaus Sholihin Islamic Boarding School in Gresik Regency

The results of this study indicate that there is a relationship between MUAC and anemia status in adolescent girls. In this study, it was found that the majority of adolescent girls with MUAC ≥ 23.5 cm did not experience anemia (53.6%) while adolescent girls with MUAC < 23.5 cm experienced more anemia (72.4%). This is similar to research conducted by Ina et al (2018) at the Women's Dormitory of Tribhuwana Tunggadewi University Malang which states that the smaller a person's MUAC size, the lower the hemoglobin level in that person's body. This is also similar to the results of research by Vaira et al (2022) showing there is a relationship between MUAC and anemia status.

MUAC in women of childbearing age shows the availability of nutrients in bone, muscle, and subcutaneous fat. Subcutaneous fat describes energy stores while muscle and bone can describe protein stores in the body (Seliawati et al, 2023). Fat is needed by the body as a source of energy [30]. A lack of fat will cause the body to experience a lack of energy so the energy that must be met is taken from protein reserves (Marwah, 2019). The use of protein reserves for energy will cause the body to lack protein to transport iron in hemoglobin formation so hemoglobin formation is not optimal. This will lead to anemia.

Fat also helps the absorption of vitamins such as vitamin E. Vitamin E acts as an antioxidant that influences erythrocytes. If the body lacks energy, the absorption of vitamin E will be disrupted. Low vitamin E levels will cause

erythrocytes to split to form hemolysis which then disrupts hemoglobin formation (Marwah, 2019).

Fulfillment of fat reserves is not only obtained from foods that contain fat, but also from foods that contain carbohydrates. Excess carbohydrate intake in the body will be converted into subcutaneous fat (Puddick, 2023). Then the fat will be converted into energy in the metabolic process (Sari, 2019).

The smaller the result of a person's MUAC measurement, it shows that the fulfillment of nutritional needs in the body is not optimal, such as protein deficiency. Protein deficiency will disrupt iron transport in the formation of hemoglobin so that hemoglobin levels in the body will be low and anemia will occur (Muthmainnah et al, 2021). Based on the explanation above, it is following research by (Tarini et al, 2020), states that anemia can occur due to deficiencies in carbohydrates, fats, proteins, vitamins, and iron.

In this study, adolescent girls with MUAC ≥ 23.5 cm tended not to be anemic. This can occur because the need for protein and fat in the body is sufficient so that the body has sufficient protein and fat stores and then causes the results of MUAC measurements to be ≥ 23.5 cm. Adequate fat needs will not interfere with the absorption of vitamin E so that erythrocytes do not experience hemolysis. In addition, adequate fat needs cause the body to have enough energy so that the body does not use protein reserves as energy. Adequate body protein needs cause no disruption of iron transportation in the formation of hemoglobin so that hemoglobin levels in the body will be normal.

The number of adolescent girls with MUAC ≥ 23.5 cm and anemia in this study was 46.4%. This figure is only slightly different from that of adolescent girls with MUAC ≥ 23.5 cm and not anemic (53.6%). In adolescent girls with MUAC ≥ 23.5 cm and anemia can be caused by the needs of protein and fat, but the needs of other micronutrients are not met such as iron.

Based on the results of filling out the questionnaire, the majority of respondents consume a plant-based diet. Plant-based foods contain non-heme iron which is absorbed longer. In addition, the absorption of non-heme iron can be inhibited by egg yolks containing phosvitin (Yilmaz and Ağagündüz, 2020). According to the results of the questionnaire, quite a several respondents consumed

eggs as side dishes. This can cause inhibition of the absorption of non-heme iron that respondents get from plant foods. Iron is needed by the body for the formation of hemoglobin in the (Riawan et al, 2023). If iron needs are not met, then the hemoglobin levels in the body will be low, causing anemia.

Based on the results of filling out the questionnaire, the majority of respondents ate rice and side dishes without vegetables. This can cause respondents to lack vitamin E intake from vegetables, causing erythrocyte hemolysis and disrupting hemoglobin formation.

CONCLUSION AND SUGGESTION

This study concluded that most of the adolescent girls in Mambaus Sholihin Islamic boarding school in Gresik Regency had normal height, normal BMI, and normal MUAC In addition, most of the adolescent girls were anemic. Based on the results of statistical tests, it was found that there was a relationship between height, BMI, and MUAC with anemia status in adolescent girls at Mambaus Sholihin Islamic Boarding School.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept in writing draf article.

Ethical Approval

Research Ethics Committee of Faculty o Medicine, Universitas Airlangga.

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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CORRELATION OF ADOLESCENT KNOWLEDGE ABOUT FREE SEX PRACTICES WITH THE RISK OF CERVICAL CANCER ON THE MOTIVATION OF HPV VACCINATION AT JUNIOR HIGH SCHOOL 6 SURABAYA

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Abstract

Background: Cervical cancer had the second position as the leading cause of cancer towards woman in worldwide. The prevalence of cervical cancer in Indonesia reaches 23,4 cases from 100.000 population (Kemenkes RI, 2019). To enhance awareness and knowledge about HPV vaccination and cervical cancer, it is imperative to disseminate information through early health promotion regarding cervical cancer prevention, including HPV vaccination, and avoiding behaviors that may elevate the risk of cervical cancer, such as engaging in unprotected sexual activities. The aim of this study is to determine the correlation between adolescents' knowledge of "Free Sexual Practices with Cervical Cancer Incidence Risk" towards motivation for HPV vaccination at 6 Junior High School Surabaya. **Method**: The quantitative cross-sectional approach involved 304 students from grades 7, 8, and 9, selected through stratified sampling and was analyzed using the Spearman analysis test. **Results**: The majority (83.1%) of adolescents in grades 7, 8, and 9 demonstrated good knowledge (83.1%) regarding free sexual practices with the risk of cervical cancer incidence. A considerable number of adolescents (29.9%) in grades 7, 8, and 9 showed a moderate level of motivation. There is a significant correlation between the knowledge level regarding cervical cancer and the risk of cervical cancer incidence concerning motivation for HPV vaccination, with a p-value of 0.000 ($p < 0.05$). **Conclusion**: There is a correlation between the knowledge level regarding cervical cancer and the risk of cervical cancer incidence concerning motivation for HPV vaccination at 6 Junior High School Surabaya.

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keyword : cervical cancer, adolescent, free sexual practices, HPV vaccination

INTRODUCTION

Cervical cancer ranks fourth globally among women, with a mortality rate of approximately 90% in developing countries, primarily due to a lack of public awareness regarding its etiology and consequential impact (Salim, 2020). Despite its severity, public knowledge pertaining to the causes and consequences of cervical cancer remains insufficient, particularly in underdeveloped nations. Global data

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reveals that annually, 500,000 women are diagnosed with cervical cancer, with 300,000 succumbing to the disease, positioning it as the second-leading cause of death among women worldwide (WHO, 2021). In Indonesia, cervical cancer presents a significant threat, ranking second in prevalence among women after breast cancer (Ministry of Health, Indonesia, 2021). Despite the high incidence of cervical cancer, early detection and screening coverage in certain regions, such as the Gubeng sub-district in Surabaya, remain low (Surabaya Health Profile, 2019). The elevated morbidity and mortality associated with cervical cancer are attributed to the slow progression of the disease and a lack of community motivation for early screening and self-examination (Khoirunisa et al., 2023).

Adolescents, as a vulnerable group, often lack comprehensive and consistent attention, particularly concerning reproductive health. Data indicate that adolescent sexual behavior is frequently influenced by their level of sexual knowledge (Lestari, 2020). Furthermore, insufficient knowledge about sex can be a risk factor for risky sexual behavior, which is one of the risk factors for cervical cancer (Purbosari et al., 2021). Studies show that an early age of initiation of sexual activity can increase the risk of cervical cancer (Louie et al., 2019).

In light of this situation, prevention efforts through HPV vaccination become paramount. The World Health Organization (WHO) recommends HPV vaccination as primary prevention for cervical cancer (Suryoadji et al., 2022). However, HPV vaccination coverage in Indonesia remains low, with only approximately 1.1% of the adult population having received two doses of the vaccine (Finocchario-Kessler et al., 2016). To enhance awareness and knowledge of HPV vaccination and cervical cancer, health promotion and health education are imperative (Dewi et al., 2021).

This study aims to explore the relationship between adolescents' knowledge of "Risky Sexual Practices and the Risk of Cervical Cancer Incidence" and their motivation to undergo HPV vaccination at SMPN 6 Surabaya. By highlighting the knowledge gap among adolescents regarding cervical cancer, this research aspires to make a significant contribution to cervical cancer prevention efforts in Indonesia, particularly among adolescents.

METHOD

This research constitutes an observational analytical quantitative study employing a cross-sectional approach, conducted from August to November 2023 at Junior High School 6 Surabaya. The study population comprised 1246 students, encompassing both females and males. The sample for this research consisted of 304 students who met the inclusion criteria. Inclusion criteria encompassed all willing respondents from grades 7,8, and 9 of SMPN 6 Surabaya, while exclusion criteria were applied if incomplete responses were identified in the questionnaire. The sampling technique employed was stratified sampling. The instrument utilized for data collection was a questionnaire. The validity test compared the calculated *r-value* with the *table r-value*. considering the instrument valid if the calculated r-value exceeded 0.602. The reliability test used Cronbach's alpha, with values ranging from 0.81 to 1.00, indicating high reliability. Both tests confirmed that the questionnaire was suitable for measuring knowledge and motivation regarding HPV vaccination at SMPN 6 Surabaya. Data analysis included both univariate and bivariate analyses. Bivariate analysis was conducted using the Spearman correlation method to assess relationships between variables.

RESULT AND DISCUSSION

The study encompassed a total of 304 participants from Junior High School 6 Surabaya, consisting of both male and female students. The demographics of the subjects, including age, gender distribution, and any relevant characteristics, are presented in Table 1.

Based on the data obtained (Table one), the characteristics of the respondents in this study include gender, age, HPV vaccination status, parent's occupations, and parent's income. Referring to Table 1, the distribution of respondent characteristics is as follows. The distribution of gender indicates that 55.2% of the total respondents are female. Based on age range, the distribution is nearly balanced, with 33.2% for the age of 14, 43.5% for the age of 15, and 32.2% for the age of 16.

HPV Vaccination Status. The total of 53.3% of the respondents have not yet received HPV vaccination, indicating that more than half of the students

have not been included in the vaccination program. A total of 281 students (92.4%) have parents who are not healthcare professionals, indicating that the majority of the respondents' parents do not come from a healthcare background.The distribution of parents' income is not significantly different, with 47.4% having an income of less than Rp. 3,499,999 and 52.6% having an income of more than Rp. 3,500,000

Table 1: Characteristics of Research Subjects

No.	Characteristic	Frequency (f)	Precentage (%)
	Gender		
1.	Male	136	44.7
2.	Female	168	55.2
	Age		
1.	14 years	101	33.2
2.	15 years	105	34.5
3.	16 years	98	32.2
	HPV Vaccination Status		
1.	Not vaccinated	162	53.3
2.	Incomplete vaccination (1 dose)	43	14.1
3.	Complete vaccination (2 dose)	99	32.6
	Parent's Occupation		
1.	Non-Health Workers	281	92.4
2.	Health Workers	23	7.6
	Parent's Income		
1.	Less than Rp. 3.499.999	144	47.4
2.	More than Rp. 3.500.000	150	52.6
	Total	304	100,0

This data provides an overview of the variation in respondent characteristics, serving as a basis for further analysis related to factors influencing knowledge and motivation regarding HPV vaccination in adolescents.

Univariate Analysis

Table 2 Knowledge Level of Free Sexual Practices with the Risk of Cervical Cancer Incidence

No.	Knowledge	Frequency (f)	Precentage (%)
1.	Good	247	81,3
2.	Moderate	46	15,1
3.	Poor	11	3,6
	Total	304	100,0

Based on table 2 if the results, the average correct answer is 6.71, the median is 7, and the mode is 8, with the smallest value being 2 points and the highest value

being 8 points. Therefore, it can be concluded that the respondent's knowledge classified into the good category. This is also evident from Table 2, which shows that the majority of respondents have a good level of knowledge about the practice of free sex with the risk of cervical cancer incidence, with a percentage of 81.3%.

Table 3 Motivation for HPV Vaccination

No	Motivation Level	Frequency (f)	Precentage (%)
1.	Very High Motivation	73	24,0
2.	High Motivation	83	27,9
3.	Moderate Motivation	91	29,9
4.	Low Motivation	45	14,8
5.	Very Low Motivation	12	3,9
	Total	304	100

Table 3 presents data on motivation for HPV vaccination. Based on the data, 91 respondents have moderate motivation for HPV vaccination. Subsequently, high motivation follows with a percentage of 27.7%, and very high motivation with 24.0%. The two lowest data points are occupied by low motivation, with a percentage of 14.8%, and very low motivation with a percentage of 3.9%

The analysis revealed a significant association between knowledge of risky sexual practices and the motivation for HPV vaccination among adolescents ($p < 0.05$). This finding supports the hypothesis that increased awareness of sexual practices correlates with higher motivation for preventive measures such as HPV vaccination.

Table 4 Correlation between Knowledge of Risky Sexual Practices and Motivation for HPV Vaccination

	Motivation for Hpv Vaccination											
Level of Knowledge	Very High Motivation		High Motivation		Moderate Motivation		Low Motivation		Very Low Motivation		p-value	r
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	0,000	0,541
Good	72	29,1	82	33,2	74	30,0	17	6,8	2	0,8		
Moderate	1	2,2	1	2,2	17	37,0	23	50,0	4	8,7		
Poor	0	0,0	0	0,0	0	0,0	5	45,5	6	5,4		

Table 4 displays the correlation coefficients between knowledge of risky sexual practices and motivation for HPV vaccination. The strong positive correlation ($r = xx$, $p < 0.01$) signifies a robust correlation between the variables

Discussion

Knowledge Level of Students Regarding Unprotected Sexual Practices and the Occurrence of Cervical Cancer at SMPN 6 Surabaya

The study categorizes knowledge levels into three categories: good, moderate, and poor among the 304 research respondents. Factors influencing adolescent girls' knowledge levels regarding cervical cancer include awareness of preventive measures. Analysis revealed a high correctness rate among Junior High School 6 Surabaya students regarding cervical cancer prevention methods.

The correlation between preventive measures and knowledge level is closely tied to individual understanding of actions that can be taken to prevent a specific condition or disease. An individual or community's knowledge level can influence their ability to adopt and implement effective preventive measures. This aligns with Rosenstock's Health Belief Model (HBM), stating that individuals adopt health prevention behavior when they perceive a risk of a particular disease and believe that specific preventive actions are effective in reducing that risk.

Further knowledge analysis includes understanding of unprotected sexual practices. Adolescents undergo cognitive maturation during puberty, fostering open-mindedness and information processing skills, including information about unprotected sexual practices, as per Windradini's theory on cognitive maturity during adolescence.

The study also explores knowledge regarding the benefits of HPV vaccination. Cross-tabulation data reveals that the majority of respondents answered correctly. Adolescents, undergoing behavioral and response changes, seek information about potential risks and threats in their surroundings. This resonates with the Stages of Change Model by Prochaska and DiClemente, indicating that adolescents are in the stage of behavioral change, including information acceptance, consideration, and action.

Other factors related to knowledge levels include gender, where more than half of the respondents are female. Research suggests a significant relationship between gender and knowledge levels, influenced by social experiences and gender norms. Fonte VRV et al.'s (2018) study on gender and knowledge about sexually transmitted diseases supports this correlation.

Another influential factor is age. Although age distribution shows the highest frequency at 15 years, it contradicts Notoadmodjo's theory on age influencing cognitive capacity and thinking patterns. However, the researcher argues that age distribution has limited influence on knowledge levels due to the narrow age range used in the classification and the presence of other influencing factors.

Motivation for HPV Vaccination

The study findings on HPV vaccination motivation at SMPN 6 Surabaya indicate varying levels of motivation among respondents: high, very high, sufficient, low, and very low. Gender significantly influences motivation, with females showing greater interest compared to males, consistent with gender socialization theory, which suggests that gender roles and socialization impact health attitudes and behaviors..

HPV vaccination status also affects motivation, with a majority of respondents indicating they have not been vaccinated. Motivation tends to be higher among females, reflecting their awareness of cervical cancer risks and their role in family health, supported by Expectancy-Value Theory, which emphasizes the influence of expectations and values on decision-making.

Age-related factors show a concentration of respondents at 15 years old, although age alone does not significantly influence health attitudes. Parental income, exceeding Rp. 3,500,000 for over half of respondents, serves as a health resource that may increase healthcare-seeking behavior.

Parental occupation type does not directly link to vaccination motivation. The majority of respondents have non-healthcare professional parents, suggesting that parental occupation does not significantly impact adolescent motivation for HPV vaccination, consistent with Rachmani's (2013) findings.

Correlation Between Knowledge of Unprotected Sexual Practices and Cervical Cancer Risk on Motivation for HPV Vaccination

Statistical analysis using Spearman's Rank test indicates a significant correlation between knowledge of cervical cancer and motivation for HPV vaccination. Higher knowledge positively correlates with motivation for HPV vaccination, consistent with existing literature. Lack of knowledge negatively influences preventive behavior and vaccination acceptance. The study aligns with previous research by Sinthia (2018) and Choi et al. (2020), emphasizing the impact of knowledge on vaccination motivation.

The study's findings imply that knowledge about the risks of unprotected sexual practices and cervical cancer correlates with motivation for HPV vaccination. This correlation emphasizes the importance of knowledge dissemination to enhance preventive behaviors and increase HPV vaccination acceptance among adolescents

CONCLUSION AND SUGGESTION

The study concludes that knowledge about unprotected sexual practices and cervical cancer among students at Junior High School 6 Surabaya is generally good, with a significant positive correlation between knowledge and motivation for HPV vaccination. Factors such as gender, age, parental income, and parental occupation contribute to variations in knowledge levels and vaccination motivation. The results underscore the importance of targeted educational interventions to enhance awareness and motivation for HPV vaccination among adolescents.

DECLARATIONS

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept until writing draff article.

Ethical Approval

Research Ethics Committee of Faculty o Medicine, Universitas Airlangga.

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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PERCEPTIONS AND EXPERIENCES OF MOTHERS WITH A HISTORY OF EPISIOTOMY ON BARRIERS AND SOCIAL SUPPORT IN BREASTFEEDING

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Abstract

Background: *Breastfeeding rates in Indonesia have decreased significantly in recent years. In 2021, less than half of babies in Indonesia (48.6 percent) were breastfed in the first hour of life, down from 58.2 percent in 2018. Only 52.5 percent were exclusively breastfed in the first six months, which is a decrease sharply from 64.5 percent in 2018. The success of breastfeeding is determined by several inhibiting and supporting factors, one of which is anxiety due to an episiotomy. Episiotomy is often performed to prevent more severe perineal tearing during labor, but there is controversy regarding the benefits and risks of episiotomy, as well as its impact on breastfeeding practices.* ***Objective:*** *To describe the perceptions and experiences of mothers with a history of episiotomy regarding barriers and support in providing breast milk at 7 days postpartum at Airlangga University Hospital, Surabaya City.* ***Method****: This research was conducted using qualitative methods with a phenomenological approach/Interpretive Phenome-logical Analysis (IPA). The method for taking subjects used purposive sampling. The population in this study were all postpartum mothers who gave birth vaginally at Airlangga University Hospital, Surabaya in August – November 2023. Research subjects who met the inclusion criteria were postpartum mothers in the first 7 days who gave birth vaginally with an episiotomy at UNAIR Hospital for the period August – November 2023. This research involved a total of 8 informants. The analysis method used is content analysis.* ***Results****: It was found that the perception of mothers with a history of episiotomy regarding breastfeeding and their intention to breastfeed was still low. The experience of providing breast milk varies greatly and mothers tend to be physically and emotionally uncomfortable. Social support is very important for mothers' behaviour in providing breast milk. There are physical and psychological barriers associated with episiotomy including pain, physical discomfort, anxiety about health and recovery so that breastfeeding behavior becomes disrupted.*

keyword : *Perception, Experience, Episiotomy, Barriers, Support, Breast Milk*

INTRODUCTION

A quality generation or what is usually called the golden generation can be determined in the first 1000 days of life (Victora et al., 2018). Breastfeeding rates in Indonesia have decreased significantly in recent years, therefore UNICEF and

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WHO are calling for more efforts to protect, promote and support breastfeeding (UNICEF, 2023). In 2021, less than half of babies in Indonesia (48.6 percent) were breastfed in the first hour of life, down from 58.2 percent in 2018. Only 52.5 percent were exclusively breastfed in the first six months, which is a decrease sharply from 64.5 percent in 2018 (UNICEF, 2023).

The success of breastfeeding is determined by several inhibiting and supporting factors. The results of previous research stated several obstacles and supports in breastfeeding, including family support, social support, medical personnel and government policies. Apart from that, there is one factor that influences the smooth flow of breast milk, psychological factors. Postpartum mothers are in the taking in and taking hold phase, where in the first week after giving birth they need emotional support from their husband and family and encouragement to breastfeed (Achmad & Wabula, 2023).

Anxiety about pain can also be caused by an episiotomy. Episiotomy is a surgical procedure commonly performed during labor to widen the birth canal by making an incision in the perineum (the area between the vagina and anus) to facilitate the birth of the baby. Episiotomy is often performed to prevent more severe perineal tears during labor. However, there is controversy regarding the benefits and risks of episiotomy, as well as its impact on exclusive breastfeeding practices. Post-episiotomy mothers said that they felt pain and discomfort when breastfeeding their babies (Smith, 2021).

It cannot be denied that in reality the exclusive breastfeeding coverage rate is still less than what was expected. Based on the health profile of Surabaya in 2020, data on the percentage of breastfeeding in the city of Surabaya was 73.5%. A preliminary study carried out in the RSUA delivery room in April 2023 showed that the number of normal births was 40 people and 25 of them had an episiotomy. Of the 8 people who gave birth by episiotomy, there were 6 people who were able to provide breast milk without any additional food. This means that there are still 25% postpartum mothers who cannot provide breast milk without any additional food, while Airlangga University Hospital Surabaya has received a BFHI (Baby-Friendly Hospital Initiative) certificate from AIMI in 2015. Baby-friendly hospital initiative (BFHI) is program that supports maternity and newborn service facilities

throughout the world to encourage breastfeeding with 10 steps towards successful breastfeeding (LMKM) (Gomez et al, 2018).

Based on the description above, it can be seen that the postpartum period is a period that is closely related to psychological aspects and anxiety can influence breast milk production so it is hoped that the results of this research can describe the perceptions and experiences of mothers with a history of episiotomy regarding obstacles and support in breastfeeding which can be used as a basis for development. appropriate interventions to increase exclusive breastfeeding coverage.

METHOD

This research used a qualitative method with a phenomenological approach. This research was carried out at Airlangga University Hospital, Surabaya. The population in this study were all postpartum mothers who gave birth vaginally at Airlangga University Hospital, Surabaya in August – November 2023. Research subjects who met the inclusion criteria were postpartum mothers in the first 7 days who gave birth vaginally with an episiotomy at UNAIR Hospital for the period August – November 2023, able to communicate verbally well, and stated that he was willing to be a research subject and met the exclusion criteria, the condition of the mother and baby being unhealthy in emergency cases. The sampling technique used was purposive sampling. The research variables are the perception of mothers with a history of episiotomy, the experience of mothers with a history of episiotomy, barriers for mothers with a history of episiotomy in providing breast milk, and Social support of mothers with a history of episiotomy in breastfeeding. Data were collected using in-depth interviews with a semi-structured question method obtained from the concepts of the theory of planned behavior (TPB) and social cognitive theory (SCT) to understand the supporting and inhibiting factors that can influence behavior change. To see whether this instrument can be used or not, a validity test was first carried out on 4 informants according to the inclusion and exclusion criteria. The results of the validity test include that the informant was able to understand and answer the questions asked by the researcher well. The analysis method used is content analysis. Ethical tests are carried out first before

the research. Ethical tests are used to see whether the research is appropriate or not. This research has received a letter of ethical feasibility from Airlangga University Hospital, Surabaya No. 086/KEP/2023.

RESULT AND DISCUSSION

A total of 8 informants were obtained according to the criteria whose characteristics were identified based on age, parity, baby age and occupation.

Table 1. General Description of Informants

Informant	01AJ	02SY	03NV	04FR	05SN	06EN	07AN	08ZR
Informant's age	19 years	27 years	30 years	31 years	26 years	39 years	30 years	28 years
Parity	1	1	2	2	2	2	3	1
Baby age	5 days	5 days	6 days	6 days	7 days	7 days	7 days	7 days
Occupation	Home maker	Home maker	Admin	Private sector employee	Home maker	Home maker	Home maker	Home maker

The following will explain the data on family type and residence which is presented in table form.

Table 2. Data On Family Type And Residence Of Informants

Informant	Family Type		Residence
	Nuclear Family	Extended Family	
01AJ		v	Private ownership
02SY	v		
03NV	v		
04FR	v		
05SN	v		
06EN	v		
07AN	v		
08ZR		v	

Based on the table above, family type and place of residence are assumed to play a role in the mother's choice to breastfeed her baby. Most informants live in privately owned houses with their nuclear families, their husbands and children. The following data on the health history of the mother and baby as well as the rooming in policy on the first postpartum day at the hospital are presented in tabular form.

Table 3. Data On Maternal And Infant Health History And Rooming-In Policy On The First Postpartum Day

Informant	Health History on the First Postpartum Day		Rooming in Policy on the First Day Postpartum
	Maternal Health History	Baby's Health History	
01AJ	Healthy	Healthy	v
02SY	Hypertension	Healthy	x
03NV	Healthy	Healthy	v
04FR	Healthy	Healthy	v
05SN	Healthy	Hyperbilirubin	x
06EN	Healthy	Healthy	v
07AN	Healthy	Healthy	v
08ZR	Healthy	Healthy	v

The research results contained 4 themes, the perception of mothers with a history of episiotomy regarding breastfeeding, the experience of mothers with a history of episiotomy in breastfeeding, social support, and barriers for mothers with a history of episiotomy in breastfeeding.

Table 4. Interview Questions

Interview Questions
1. Can you tell me, what do you know about breast milk? What about exclusive breastfeeding? Probing: a. Where did you get this information from? b. What do mothers think about mandatory breastfeeding without additional food? c. What is the mother's view on additional foods other than breast milk? d. What makes mothers intend to give breast milk? e. Does the mother intend to breastfeed exclusively for the next 6 months?
2. How much support does the mother get in breastfeeding? Probing: a. What is the attitude of the people closest to breastfeeding? b. When giving breast milk, what is the role of those closest to you (husband, in-laws, health workers in the hospital)?
3. How much support does the mother get in breastfeeding? Probing: a. What is the attitude of the people closest to breastfeeding? b. When giving breast milk, what is the role of those closest to you (husband, in-laws, health workers in the hospital)?
4. What problems or obstacles have mothers experienced during breastfeeding since birth until now?

Theme 1: Perceptions of Mothers with a History of Episiotomy Regarding Breastfeeding

Perceptions which include individual intentions and beliefs greatly influence a person's behavioral patterns. For example, (Khani Jeihooni et al., 2023)

stated that the theory of planned behavior was developed by Ajzen and Fishbein in 1980, which is a model of behavior change (social-cognitive model of value expectations). This theory states that intention is the main determinant of behavior. In addition, Social Cognitive Theory (SCT) is very useful in research that focuses on behavior change in health promotion research. (Islam et al., 2022). From these two theories, it can be seen how knowledge, beliefs and intentions are some of the factors that can shape a person to choose and decide whether or not to practice a behavior. The research results revealed that the majority of respondents in the study had knowledge about breast milk. However, the concept of exclusive breastfeeding is still not widely understood, so it is natural that there are informants who intend not to give exclusive breastfeeding to their babies**.**

Based on the results of in-depth interviews with informants, the intention or desire of mothers with a history of episiotomy to provide breast milk for their babies can be seen from the following aspects. From the results of in-depth interviews, it was found that almost all informants were able to provide explanations, although not in detail, regarding breast milk.

> *"If breast milk is important, sis"* (02SY).

The formation of breastfeeding behavior is of course based on strong intentions and reasons why the informant gives breast milk or cannot give breast milk. Several informants who gave breast milk to their babies stated the reasons, among others, because breast milk is important for the development of the baby, the importance of colostrum and its benefits, for the baby's immune system, it is more economical, and there are those who think that if they are given formula milk, they are worried that it will not be suitable and cause diarrhea, and the informant thought that his breast milk was smooth so he preferred to give breast milk. There are also those who state that because the initial goal is to give breast milk, no matter what the mother's physical condition is, she will still give breast milk. Apart from that, there is another reason, that the informant does not want the baby blues to happen again, such as when giving birth to her first child because she was unable to breastfeed.

> *"Breast milk is also important, isn't it? The child needs more development, especially if my child is small or not,"* (02SY).

Meanwhile, the mother's reasons for not or stopping giving breast milk to her baby include having finished taking leave from work, and the opinion of the informant that it depends on how long the baby wants to be given breast milk. Apart from that, because the baby often cried, the informant decided to give him formula milk.

"For the second time, I'm working so I'll be able to get breast milk, I'll help with milk because the leave is only 2 months" (03NV).

Perceptions regarding the age at which babies are only given breast milk, there are those who state that breast milk is given to babies when they are 1 - 2 years old, there are those who state that breast milk is given at least until the baby is 6 months old. However, there was one informant who stated that mothers who do not work can provide breast milk for their babies for 2 years without additional food at the age of 6 months.

"As far as I know, breast milk is mandatory if the mother is not active or working, up to 2 years, if without other intake up to 6 months, as far as I know," (06 EN).

Meanwhile, regarding the definition of exclusive breastfeeding, most informants did not know the definition of exclusive breastfeeding.

A person's beliefs have a significant influence on their decision-making process. In addition, mothers who breastfeed their babies believe that the breast milk they give is sufficient to meet their baby's needs, as they believe that breast milk is the best for their baby.

"Haven't heard of it and don't know about it either" (01AJ).

The results of this research are in line with the results of research conducted by Lindawati (2019) which states that mothers who have good knowledge about the importance of breast milk will provide more exclusive breast milk than those who have less good knowledge.

Theme 2: Mother's Experience with a History of Episiotomy in Breastfeeding

According to (Mardjun et al., 2019), in general, postpartum mothers often experience fatigue and mood changes such as anxiety, worry about themselves and

anxiety about their baby. This anxiety can have an impact on the smooth production of breast milk in postpartum mothers.

The research findings stated that after giving birth with a history of episiotomy, the informant experienced pain and discomfort when sitting or sleeping due to the presence of perineal suture wounds. However, the informant explained that the pain she felt was not as severe as when giving birth to her first child and the pain experienced by the informant had reduced after 6 - 7 days after giving birth.

> "*It's still painful, especially when you just come home and do your usual activities because there's no one to help you at home, and there's someone else taking care of you. Whether you like it or not, you have to take care of it, poor sis, you're going to run out. Yes, it still hurts, but it's not as bad... as bad as the first pregnancy, even without the ointment it's already good... only when I'm urinating there's just a little stinging like that"* (05SN).

From the results of the interviews, it can be seen that almost all informants have experience providing breast milk starting from the first day of birth. However, there was another statement from the informant, that on the first day his breast milk still did not come out, so he decided to give him formula milk by bottle and this was discovered by health workers at the hospital and received a warning so the informant decided to give him breast milk. Apart from that, there were two informants who stated that they started giving breast milk to their babies when they were in the hospital on the second day postpartum because on the first day, their babies were still in the nursery.

Some mothers admitted that they felt stressed and irritable during their first breastfeeding experience on the first to second day while still in the hospital. After the fourth day postpartum, the mother feels emotionally stable compared to the beginning after giving birth.

> *"So when I first started, I didn't breastfeed directly, gradually because the breast milk hadn't come out yet, so I didn't give breast milk straight away. Just don't give me a pacifier. Finally, the doctor said to me, sis, he said you can't give formula milk if something happens later... In the end, I didn't breastfeed slowly."* (04FR).

From the interview results, it was also found that there was one informant who shared his experience in providing breast milk not directly, but with ASIP (expressed breast milk).

> *"I'm using a pump because I'm big, sis, and the baby's mouth is small..."* (02SY).

Theme 3: Social Support

Social support is also believed to play a role in a mother's decision to breastfeed. Postpartum mothers are in the taking in and taking hold phase, where in the first week after giving birth they need emotional support from their husband and family and encouragement to breastfeed (Achmad & Wabula, 2023).

Based on the results of in-depth interviews conducted by researchers, it was found that social support came from people closest to the subject, including husbands, parents and health workers. At least the people closest to him made the informant feel helped in carrying out his duties of providing breast milk. However, the dominant role is just to provide information to facilitate breastfeeding, while the husband's role is to help with other tasks so as to lighten household duties. Apart from husbands, parents are part of the people closest to the informant who can encourage the informant's behavior in providing breast milk. One of them is by providing information to facilitate breastfeeding. The informant said that his mother asked him to perform wuwung and eat nutritious food.

> *"My husband is very supportive, supports sis. It's a matter of what, so that the child is healthy. So that it gets bigger" (02SY).*
>
> *"Yes, the doctor keeps getting scolded. If something happens to the baby, don't blame him... just get scolded. He said that the first time he was given breast milk. Eventually, your breast milk will gradually become soft" (04FR).*

Theme 4: Barriers to mothers with a history of episiotomy in breastfeeding

The obstacles experienced by mothers with a history of episiotomy in providing breast milk can vary. Episiotomy is a surgical procedure commonly performed during labor to widen the birth canal by making an incision in the perineum (the area between the vagina and anus) to facilitate the birth of the baby. Episiotomy is often performed to prevent more severe perineal tears during labor.

This action is not for all cases, but at certain times is based on experience. However, there is controversy regarding the benefits and risks of episiotomy, as well as its impact on exclusive breastfeeding practices. (Smith, 2021; Muniroh, 2019).

The results of this research revealed several obstacles experienced by mothers with a history of episiotomy regarding breastfeeding, including:

1. Pain or Discomfort

An episiotomy may cause pain or discomfort while breastfeeding, especially in positions that require pressure on the perineal area. The results of this study are in line with research by He et al (2019) which states that physical conditions such as pain due to episiotomy can influence breastfeeding behavior. Post-episiotomy mothers in the first month give breast milk to their babies in an uncomfortable position, which adds difficulty and fatigue to the breastfeeding process.

> *"Yes, because the stitches are finished, it hurts, but the pain isn't that great, sis, so it doesn't have the same effect as breastfeeding. But yes, I have to sit like this. So I can't act much"* (03NV).

2. Limited Mobility

After an episiotomy, the mother experiences difficulty in moving or sitting comfortably to breastfeed due to discomfort or pain in the perineal area.

> *"Yes, if you sit down. Before sitting down to breastfeed, it doesn't hurt, sis... the pain is when I move. "So it's like getting up from sitting and then sitting down again and it hurts... Yo, it's actually not very comfortable, sis, but how else can you stay comfortable and still be breastfed"* (07AN).

3. Psychological Disorders

One of the factors that influences the smooth flow of breast milk is psychological factors, anxiety. In general, postpartum mothers often experience fatigue and mood changes such as anxiety, worry about themselves and worry about their baby. This anxiety can have an impact on the smooth production of breast milk in postpartum mothers. (Mardjun et al., 2019).

The results of this study showed that mothers who were breastfeeding on the fourth to seventh day stated that they did not experience significant anxiety. However, mothers stated that in the first 3 days, mothers felt anxiety or fear related to breastfeeding, especially if they felt that pain or discomfort could be related to

breastfeeding activities. Apart from being worried about breastfeeding activities, the mother with a history of episiotomy explained that in the first 2 days postpartum she experienced stress because the baby was fussy, while breast milk had not yet come out. In fact, according to Demirchyan (2020) stated that the volume of breast milk only increases or is called breast milk during the transition period, on the fourth to tenth day. So mothers shouldn't be too anxious and worried about this.

Another research finding was that the informant felt there were obstacles because his condition was not yet stable, both physically and psychologically, at the time he was in hospital and this was a challenge for the informant in providing breast milk for his baby, so what he did was provide additional food in the form of formula milk.

> "I have to go along with it, sis, don't worry, my emotions are a bit high... my hormones are like I get emotional easily, I'm impatient... when I'm breastfeeding, my nervousness changes a bit, but I also get angry quickly" (07AN).

4. History of the condition of the mother and baby

The results of this study showed that mothers with a history of episiotomy were unable to breastfeed on the first day when they were in hospital because the baby was still being treated for hyperbilirubin and there was one other informant who stated that he could not breastfeed because the mother was still in the recovery stage and still unable to be admitted to hospital so babies are given formula milk.

> *"My blood pressure kept rising, sis, so the baby wasn't given to me. "Then my husband said that the midwife asked me to buy formula milk. I don't know why, because my husband didn't care... on the first day it seemed like he was given formula milk"* (02SY).

CONCLUSION AND SUGGESTION

Conclusion

The experience of episiotomy influences attitudes towards breastfeeding. Physical and psychological barriers related to episiotomy include pain, physical discomfort, anxiety about health and recovery, and feelings of lack of comfort can become

obstacles in the process of providing effective breastfeeding for mothers who have undergone episiotomy. Social and medical support plays an important role. This means that support from medical personnel, family and community has a significant impact in helping mothers overcome these obstacles. This support not only affects physical comfort but also gives mothers the confidence they need in providing breast milk.

Suggestions

Providing a holistic post-episiotomy approach involving psychological support, appropriate information, and better physical care for mothers who wish to breastfeed with an orientation towards Baby-Friendly Hospital Initiative (BFHI) status.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept in writing draf article.

Ethical Approval

Research Ethics Committee ofAirlangga Hospital Surabaya.

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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DIFFERENCES IN THE LEVEL OF ANXIETY OF PREGNANT WOMEN IN THE I, II, AND III TRIMESTER

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Abstract

Background*: Pregnancy is a physiological period that requires various adjustments to the changes that occur and can induce anxiety. Anxiety during pregnancy can be experienced from the first trimester to the third trimester. This anxiety can have negative impacts on both the mother and the fetus. This research aimed to determine the differences in the anxiety levels of pregnant women in the first, second, and third trimesters in the working area of the Gading Surabaya Health Center.* ***Method****: This was a quantitative research with an observational analytic method and a cross-sectional design. The study population consists of pregnant women in the first, second, and third trimesters in the working area of Gading Surabaya Health Center. The study involved 100 samples of pregnant women in the first, second, and third trimesters selected using the simple random sampling method. The instrument used is a questionnaire, namely the Perinatal Anxiety Screening Scale (PASS). The analysis method used is the Kruskal-Wallis test.* ***Results****: The statistical test results showed a p-value (0.023) < α (0.05), indicating a significant difference in anxiety levels among pregnant women in the first, second, and third trimesters. Most pregnant women in the first trimester (56.7%) and second trimester (70.7%) did not experience anxiety symptoms, while pregnant women in the third trimester (51.7%) experienced mild to moderate anxiety.* ***Conclusion****: There is a significant difference in anxiety levels among pregnant women in the first, second, and third trimesters.*
Keywords*: Anxiety level, gestational age, pregnant women*

INTRODUCTION

Pregnancy is a physiological period that requires various adjustments for women experiencing it. During pregnancy, women are not only faced with new situations but also enter a crucial period in their development as mothers, where somatic changes occur alongside psychological character changes, as well as changes in interaction with the social environment (Asmariyah et al., 2021). Pregnant women are a vulnerable group to psychological disorders, including anxiety disorders (Ainun et al., 2022). Pregnancy-related anxiety is defined as a type of contextual anxiety that includes maternal fears and specific concerns about pregnancy, childbirth, maternal and infant well-being, changes in maternal appearance, and future life and roles as a mother (Ziyadatul et al., 2023).

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Psychological reactions to pregnancy constitute a maturity crisis that can lead to and trigger anxiety to depression. Generally, anxiety that occurs during pregnancy will not have adverse effects if promptly addressed. However, it can have fatal consequences if appropriate interventions are not provided promptly (Alves et al., 2021). Pregnancy anxiety is often associated with incidents of prolonged labor (9%), low birth weight (15.5%), and premature birth (7-14%) (Ministry of Health, 2022).

The World Health Organization (WHO) indicates an increased risk of depression in pregnant women experiencing anxiety. The prevalence of anxiety and depression in pregnant women in developed countries reaches 7-20%, while developing countries have a higher prevalence, exceeding 20%. In Indonesia, there are 373,000,000 pregnant women, and 107,000,000 (28.7%) of them experience anxiety before childbirth (Ayu, 2021). Surabaya, as one of the cities with the densest population in Indonesia, faces similar issues. Research conducted by Nova (2022) on the description of anxiety in pregnant women in Surabaya City stated that 25% of pregnant women experience mild anxiety, 44% experience moderate anxiety, and 31% experience severe anxiety.

Public Health Sevices Gading is one of the Community Health Centers located in Surabaya. This health center ranked first with the highest incidence of neonatal complications, totaling 203 cases, and the highest incidence of pregnancy complications, totaling 298 cases in 2020. Alves (2021) states that anxiety during pregnancy is significantly associated with severe occurrences of low birth weight babies, premature births, prolonged labor, and other complications.

Based on the various descriptions above, there is a need to identify the level of anxiety in each trimester of pregnancy, especially among pregnant women in the Work Area of Public Health Sevices Gading, Surabaya City. Through this process, holistic and targeted care can be provided according to the needs and conditions of pregnant women, thereby avoiding various adverse effects of anxiety during pregnancy.

METHOD

This study was an analytical observational type with a cross-sectional design. The population in this study consisted of pregnant women in trimesters I, II, and III in the Work Area of Public Health Sevices Gading, Surabaya. The sample size was determined

using the Lemeshow formula with an unknown population size, resulting in a total of 100 samples . The inclusion criteria in this study were pregnant women at the first, second, and third trimesters in the work area of Public Health Sevices Gading , Surabaya City, who were willing to participate as respondents.The sampling technique used was simple random sampling, where each member of the population had an equal chance of being included in the study. The research was conducted in the Work Area of Public Health Sevices Gading, Surabaya City. Data collection was carried out from August to October 2023 using a questionnaire, namely the Perinatal Anxiety Screening Scale (PASS). This questionnaire has been translated into Indonesian and has undergone validity and reliability testing. Data processing techniques included editing, scoring, coding, tabulating, entry, and cleaning. Data were analyzed using univariate and bivariate methods, with the Kruskal-Wallis test using the SPSS program. In this study, an ethical review has been conducted at the Faculty of Medicine, Airlangga University.

RESULT AND DISCUSSION

The research results are presented in the form of a frequency distribution table of respondent characteristics in Table 1, as well as bivariate analysis tables using the Kruskal-Wallis test in Tables 2, 3, 4, and 5.

Table 1. Frequency Distribution of Respondent Characteristics

Respondent characteristics	Frequency	Percentage (%)
Age		
<20 year	2	2,0
20 - 35 year	93	93,0
>35 year	5	5,0
Education level		
Not attending school	0	0,0
Elementary school	16	16,0
Junior high school	2	2,0
Senior high school	65	65,0
D3/S1/more	17	17,0
Pregnancy age		
Trimester I	30	30,0
Trimester II	41	41,0
Trimester III	29	29,0
Gravid Status		
Primigravida	37	37,0
Multigravida	61	61,0

Grandemultigravida	2	2,0
Comorbidity		
Yes	29	29,0
No	71	71,0
Family opposition to pregnancy		
Yes	0	0,0
No	100	100,0
Economic status		
<Rp1.500.000	0	0,0
Rp1.500.000-Rp2.500.000	17	17,0
>Rp2.500.000	83	83,0
Total	100	100,0

In terms of age characteristics, it was found that the majority of pregnant women are within the safe age range for pregnancy, which is 20 - 35 years old. Age influences a person's personality maturity. Someone is considered to have personality maturity if they can cope with stress disturbances better. Individuals who are mature in age tend to have high adaptation abilities to various stress triggers (Dewi, et al., 2022).

Regarding the last educational level characteristic, most respondents have a high school education level. The level of education can enhance an individual's understanding of their health. Therefore, the higher the level of education a person has, the wider their knowledge and their ability to utilize available health services (Muzayyana & Saleh, 2021). Pregnant women with higher education levels tend to have a deeper understanding of pregnancy and are better able to manage stress during pregnancy.

Based on the pregnancy age characteristic, the majority of respondents are in the second trimester of pregnancy (13 - 27 weeks). Anxiety in pregnant women intensifies during the third trimester. In the third trimester, if the anxiety and fears of pregnant women are not addressed, stress hormones, such as catecholamines, can be released in high amounts. This can result in increased pain during childbirth, prolongation of labor duration, and tension during the childbirth process (Setiawati et al., 2022).

Regarding the gravid status characteristic, most respondents are multigravida pregnant women. Every woman experiences different experiences during pregnancy. There are differences in emotional atmosphere, physical condition, and psychosocial aspects between women experiencing their first pregnancy (primigravida) and those who have experienced pregnancy before (multigravida and grandemultigravida). Generally, psychological and emotional reactions in primigravida women are characterized by

anxiety, worry, fear, and panic related to pregnancy (Wulandari & Perwitasari, 2021). Factors such as support from family, physical condition, and readiness to face pregnancy also affect their psychological condition. Almost all pregnant women experience anxiety, especially those experiencing their first pregnancy, which differs from women who have experienced pregnancy before (Wulandari & Perwitasari, 2021).

In terms of comorbidity characteristics, 29% of pregnant women have comorbidities during pregnancy, including anemia, hypertension, asthma, lung disease, and hepatitis B. The connection between pregnancy and health status is one of the factors that can trigger feelings of anxiety (Dewi et al., 2022). Pregnant women who are experiencing health problems tend to be more vulnerable to anxiety than healthy pregnant women.

Regarding social support characteristics, the study examines whether there is family opposition to pregnancy. In this case, it was found that all pregnant women received full support from their families. Social support plays an important role in the emergence of anxiety, referring to both material and emotional assistance provided by individuals to each other.

Based on economic status characteristics, an assessment was made of the family's monthly income level. In this case, the majority of respondents have a monthly income of >Rp2,500,000 in their families. The level of worry felt by pregnant women is often influenced by the family's economic conditions (Setiawati et al., 2022). If the family's economy is inadequate, this can negatively impact the nutritional intake received by pregnant women and the growth of the fetus they are carrying.

Table 2. Anxiety Levels of First-Trimester Pregnant Women

Anxiety Level	Frequency	Percentage (%)
ıptomatic	17	56,7
·moderate symptoms	10	33,3
·e symptoms	3	10,0
	30	100,0

Severe anxiety experienced by pregnant women in the first trimester is related to factors such as age below 20 years old, primigravida status, and low income. Gravid status can impact the level of anxiety during pregnancy, with primigravida pregnant women generally experiencing higher anxiety levels compared to multigravida women (Setiawati

et al., 2022). This is due to the lack of experience in pregnancy. During the first pregnancy, most pregnant women are not familiar with coping with various changes in their bodies, which subsequently affects the level of anxiety in primigravida pregnant women (Dewi et al., 2022).

Additionally, age also influences the occurrence of anxiety. Kaplan and Sondakh (1997) in Situmorang et al. (2020) revealed that anxiety disorders can occur across various age ranges but tend to be more common in adults and are more often experienced by women aged 21 - 45 years old. Conversely, based on this research, women under the age of 20 have a higher likelihood of experiencing severe anxiety during pregnancy. Psychologically, pregnant women under the age of 20 have limited mental readiness.

In addition to age and gravid status, economic level also contributes to the occurrence of anxiety during pregnancy. A pregnant woman requires adequate economic support because pregnancy involves additional expenses such as antenatal care (ANC) costs, meeting nutritional needs for the mother and fetus, maternity clothes, childbirth expenses, and the needs of the baby after birth. According to Niven (2002) in Elsera et al. (2022), individuals with low economic status tend to experience higher levels of stress, while those with high economic status tend to be more relaxed.

Mild to moderate anxiety in this study is related to gravid status, occupation, comorbidities, optimal family support, and high economic status. In this study, the ratio of pregnant women who work and those who do not work is balanced. Working pregnant women may feel anxious about the risk of losing their jobs if their work is difficult to perform due to their pregnancy (Isnaini et al., 2020). Conversely, if a mother's job is not too strenuous and does not require much physical effort, she can continue working during pregnancy and the job may even have a positive impact (Isnaini et al., 2020).

On the other hand, pregnant women who do not experience anxiety symptoms are influenced by several factors, including being mostly multigravida mothers, having a high economic status, receiving optimal family support, and not having comorbidities. However, in this study, it was also found that 29% of pregnant women have low educational status. Based on previous research, low education is often associated with an increased risk of anxiety during pregnancy. If someone has a higher level of education, it will improve the quality of their knowledge and develop intellectual maturity (Situmorang et al., 2020).

A person's education level can affect their thinking process and cognitive abilities, allowing them to absorb and understand new information more quickly. However, in this study, anxiety during pregnancy can be avoided with other supportive factors that help mothers have a comfortable and happy pregnancy.

Table 3. Anxiety Levels of Second-Trimester Pregnant Women

Anxiety level	Frequency	Percentage (%)
Asymptomatic	29	70,7
Mild-moderate symptoms	12	29,3
Severe symptoms	0	0,0
Total	41	100,0

In this study, no pregnant women were experiencing severe anxiety in the second trimester. During the second trimester of pregnancy, the anxiety felt by mothers tends to decrease. This is related to the theory that during this period, mothers begin to be able to care for and meet the needs of the fetus in their womb (Sari et al., 2023). At this time, most women report an increase in energy and enthusiasm, along with the disappearance of nausea symptoms that may have been bothersome in early pregnancy. Many also feel that their abdomen begins to visibly show signs of pregnancy, often bringing feelings of joy and anticipation for the arrival of the baby (Dewi et al., 2022). However, it is important to continue monitoring the progress of pregnancy carefully, as well as paying attention to health and nutrition to ensure optimal well-being for both the mother and the developing fetus.

In pregnant women who do not experience anxiety symptoms, the majority have high economic status and are multigravida mothers, are within the safe age range for pregnancy, have a history of secondary to higher education, all pregnant women receive optimal support from their families, and 31% have comorbidities. Pregnant women with illnesses tend to double their risk (Dewi et al., 2022). Although this factor can trigger anxiety, other factors such as mature age, high income and educational status, optimal family support, and experience in previous pregnancies are factors that can reduce the risk of anxiety during pregnancy.

Several studies related to the relationship between social support and anxiety in pregnant women have shown that various forms of social support received by pregnant women have a significant impact on the level of anxiety they experience. Social support received by someone can result in feelings of calmness, confidence, and competence

(Kartika & Claudia, 2021). Research conducted by Kartika and Claudia (2021) shows that the higher the level of social support provided, the lower the level of anxiety experienced by pregnant women.

Tabel 4. Characteristics of Second-Trimester Pregnant Women with Mild to Moderate Anxiety

Respondent characteristics	Frequency	Total number of pregnant mothers at 2nd trimesters	Precentage (%)
Aged 20 - 25 year	38	41	92
Having comorbidities	17	41	41
Primigravida	21	41	51
Unemployed	30	41	73
Income > Rp2,500,000.00/month	27	41	65

In Table 4, it can be seen that pregnant women with mild to moderate anxiety levels, 41% have comorbidities, 50% are primigravida mothers, 83% are unemployed, 66% are in the high economic level, and 91% are in the safe reproductive age. Comorbidities are one of the risk factors for higher anxiety levels in pregnant women. Additionally, primigravida status makes pregnant women more anxious about their pregnancy due to their lack of knowledge and experience in pregnancy. However, this can be balanced by the mother's high educational status, adequate economy, and optimal reproductive age, so that anxiety levels experienced during the second trimester of pregnancy are limited to mild to moderate levels.

In cases of severe anxiety, all pregnant women are primigravida and unemployed, with high economic status and optimal family support. The third trimester of pregnancy is often referred to as a waiting period with alertness. Many concerns arise during this final trimester (Angesti, 2020). Prospective mothers may feel anxious about the health of the baby and themselves, such as concerns about the possibility of the baby being born with abnormalities, the labor process involving pain, and questions about whether they will be aware of when labor begins, or the risk of the baby not being able to come out smoothly, or the potential for injury to vital organs (Angesti, 2020). This can be exacerbated if the pregnant woman is a primigravida.

Table 5. Anxiety Levels of Third-Trimester Pregnant Women

Anxiety level	Frequency	Percentage (%)
Asymptomatic	12	41,4
Mild-moderate symptoms	15	51,7
Severe symptoms	2	6,9
Total	29	100,0

In cases of severe anxiety, all pregnant women are primigravida and unemployed, with high economic status and optimal family support. The third trimester of pregnancy is often referred to as a waiting period with alertness. Many concerns arise during this final trimester (Angesti, 2020). Prospective mothers may feel anxious about the health of the baby and themselves, such as concerns about the possibility of the baby being born with abnormalities, the labor process involving pain, and questions about whether they will be aware of when labor begins, or the risk of the baby not being able to come out smoothly, or the potential for injury to vital organs (Angesti, 2020). This can be exacerbated if the pregnant woman is a primigravida.

Tabel 6. Characteristics of Third-Trimester Pregnant Women with Mild to Moderate Anxiety

Respondent characteristics	Frequency	Total number of pregnant mothers at 2nd trimesters	Precentage (%)
Aged 20 - 25 year	15	15	92
Having comorbidities	6	15	41
Primigravida	12	15	51
Unemployed	11	15	73
Income > Rp2,500,000.00/month	13	15	65

In Table 5, it can be observed that in cases of mild to moderate anxiety, the majority of mothers are not working, 80% are multigravida mothers, 40% have comorbidities, 86% have a high economic status, and all pregnant women are within the safe reproductive age range. The presence of comorbidities during pregnancy is one of the factors contributing to increased anxiety during pregnancy. This is related to the psychological factor of the mother, where the presence of comorbidities makes the mother more worried about her pregnancy (Dewi et al., 2022).

The comorbidities suffered include hypertension, anemia, and asthma. Additionally, the mother's unemployed status is another factor causing anxiety.

Unemployed mothers tend to be unable to distract themselves from discomfort and anxiety during pregnancy, which can cause more significant disturbances compared to employed mothers (Setiawati et al., 2022). However, on the other hand, the anxiety experienced by mothers is still in the category of mild to moderate anxiety. This is related to high economic factors, multigravida mothers, and age characteristics that fall within the safe category for pregnancy.

Table 7. Differences in Anxiety Levels of Pregnant Women in Trimesters I, II, and III

	Trimester	N	Mean Rank
Tingkat Kecemasan	Trimester I	30	56,42
	Trimester II	41	40,95
	Trimester III	29	57,88

	Anxiety level
Kruskal-Wallis-H	7,576
df	2
Asymp. Sig.	,023

Based on the data analysis of the study, it is known that there is a significant difference in the level of anxiety among pregnant women in trimesters I, II, and III with a significance value of 0.023. Psychological reactions to pregnancy can become emotional crises leading to anxiety and depression. Anxiety during pregnancy generally begins in the first trimester and continues through the third trimester, with the final trimester often associated with anxiety related to the birthing process (Dominguez, et al., 2021). This anxiety is often caused by physical changes in the body during pregnancy and the discomfort that arises from these changes (Siregar et al., 2021). The psychological changes experienced during pregnancy are often a complex emotional journey for a woman. From early pregnancy, hormonal fluctuations can trigger sudden mood changes, which may occur with varying intensities for each individual. The psychological burden of rapid physical changes can also trigger feelings of anxiety, anxiety about fetal health, or even uncertainty about the new role as a mother (Siregar et al., 2021).

In this study, the difference in the level of anxiety in each trimester of pregnancy is influenced by various aspects, including different physiological changes, age, level of education, occupation, family support, economic status, gravida status, and the presence

of comorbidities. This is in line with Setiawati's study (2022), which shows a significant difference in anxiety levels in each trimester, caused by differences in education level, age, and family support (Setiawati, 2022).

In the first trimester of pregnancy, there is often a mix of feelings of happiness, sadness, and disappointment. In addition, attitudes of rejection, uncertainty, and lack of self-confidence are also often felt (Pulungan, 2022). Sometimes, there are conflicting ambivalent feelings, as well as changes in sexual life. The factors of being a primigravida and being unemployed are the main factors in the occurrence of anxiety in this trimester. Gravida status can affect the level of anxiety during pregnancy, where pregnant women are generally more prone to higher levels of anxiety if they are primigravida compared to multigravida pregnant women (Setiawati et al., 2022). Increased anxiety in primigravida can be caused by a lack of experience in dealing with pregnancy. In the first pregnancy, most pregnant women do not have enough experience in dealing with the changes that occur in their bodies, which in turn affects the level of anxiety (Dewi, et al., 2022).

In the second trimester of pregnancy, there are changes in the regulation of anxiety, strong emotional changes, and an increase in sexual drive. The second trimester of pregnancy can be divided into two phases, namely the pre-quickening phase and the post-quickening phase (Siregar et al., 2021). The pre-quickening phase is an important time for mothers to build emotional bonds with the fetus, where feelings of rejection can be seen in negative attitudes such as a lack of attention to the fetus (Veftisia, 2021). On the other hand, mothers are also developing their maternal identity. Meanwhile, in the post-quickening phase, maternal identity becomes clearer, and mothers will be more focused on pregnancy and preparing for their role as mothers (Veftisia, 2021). During this phase, pregnant women tend to be calmer and rely more on their partners as the fetus grows, resulting in a decrease in anxiety (Veftisia, 2021).

In the third trimester of pregnancy, pregnant women experience increasingly complex psychological changes compared to previous periods due to increasingly significant physical changes (Siregar et al., 2022). Various psychological conditions arise, including emotional changes and discomfort, so pregnant women need support from their husbands, families, and healthcare providers (Veftisia, 2021). These emotional changes are caused by feelings of anxiety, fear, doubt, and worry about the pregnancy condition to the birthing process (Yasin, et al., 2021).

High levels of anxiety in the third trimester are related to physiological and hormonal factors, unemployed mothers, the presence of comorbidities, and age over 35 years. During pregnancy, women experience various changes involving physiological and psychological aspects. Most of these changes are triggered by increases in estrogen and progesterone hormones, which are produced by the corpus luteum, which then develops into the corpus graviditatis and then continuously secreted by the placenta after it is fully formed (Ayu et al., 2021). The effects of hormonal changes cause discomfort for mothers during pregnancy, often triggering stress marked by anxiety (Ayu et al., 2021). This will increase during the third trimester of pregnancy, which is related to the upcoming birthing process (Ayu et al., 2021).

CONCLUSION AND SUGGESTION

Based on the results of this study, it can be concluded that there is a significant difference in anxiety levels among pregnant women in trimesters I, II, and III. To minimize pregnancy anxiety, midwives as healthcare providers need to provide holistic and continuous care.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept in writing draff article.

Ethical Approval

Research Ethics Committee of Faculty of Medicine, Universitas Airlangga.

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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THE INFLUENCE OF MOTHER'S KNOWLEDGE AND ATTITUDE ON BASIC IMMUNIZATION COVERAGE

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Abstract

Background: *Basic Immunization is the administration of vaccines to infants aged 0-18 months. The success of the basic immunization program in infants is supported by the important role of parents who are responsible for their babies* ***Objective:*** *To determine the influence of mothers' knowledge and attitudes on basic immunization coverage.* ***Methods:*** *The research design used was correlational analysis with a cross sectional approach. The sampling technique used is total sampling. The population and sample of all babies aged 12-59 months at the Mande Health Center in September 2023 amounted to 58 people. The instruments used are questionnaires and leaflets. Analyze data with Chi Square.* ***Results***: *58 mothers who had babies were obtained in 14 babies with incomplete immunization status, there were 3 (21.4%) mothers who had less knowledge and 11 (78.6%) mothers who had good knowledge. Meanwhile, in 44 mothers with complete immunization status, 42 (95.5%) mothers have a confident attitude towards immunization, while 2 (4.5%) mothers have an unsure attitude towards immunization.* ***Conclusion:*** *There is an influence of maternal knowledge and attitudes with basic immunization status in Jamali Village.*

Keywords: Knowledge, Attitude, Basic Immunization Coverage

INTRODUCTION

Immunization is an effort to increase the immunity of an active person against a disease that can be prevented by immunization, so that when one day the disease is affected will not be sick or only mildly ill (Ministry of Health, 2021). Meanwhile, Basic Immunization is the administration of vaccines to infants aged 0-18 months (Maternal and Child Health, 2023). According to Health Law Number 39 of 2009, every child has the right to get basic immunizations to protect his body from PD3I. Immunization is the provision of immunity to a disease by inserting something into the body so that the body is immune to diseases that are endemic or dangerous for a person (Cianjur Regency Health Profile, 2021).

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Basic Immunization Coverage in 2018-2021 tends to be lower than the target that has been set, while in 2019 it can successfully achieve a fixed target of 93.7%. However, in 2020-2021 there was a decrease in basic immunization coverage due to the COVID-19 pandemic, where basic immunization coverage at that time ranged from 84.2%-84.5%. Indonesia has significantly increased the achievement of basic immunization targets in 2022. The number of targets set is 90% and the scope of realization is 92.7% so that it can reach or even exceed the predetermined targets (Ministry of Health, 2022). Basic Immunization Coverage in West Java in 2020-2021 is 90% but did not reach the target due to the Covid-19 pandemic. In 2022, it has a target of 95% with a status that exceeds the target by 107% (Ministry of Health of the Republic of Indonesia, 2022). Meanwhile, Cianjur Regency, especially in Mande District, in 2021 has a complete basic immunization coverage of 77.02% at the Mande Health Center. Meanwhile, the Pademangan Health Center has a coverage of 93.24%. In 2022, it has basic immunization coverage of 105.7% of the target of 95% (Profile of Mande District, Jamali Village, 2022).

The reason for the unattained immunization coverage is parents' rejection of immunization, this is due to the wrong assumption about immunization that is developing in the community, namely parents' concerns about the impact other than immunization and the lack of parental awareness to immunize their children. The lack of attitude in making decisions to immunize children is also one of the influences on immunization coverage that is not achieved (Donsu J, 2019). Thus, this is in line with a study conducted by (Darian, 2019) entitled "Factors Influencing Mothers in Providing Basic Immunization to Infants in RT 09 and RT 10 Sawunggaling Village, Surabaya" that maternal support will encourage attitudes to make decisions in immunization. In addition, there is also a study conducted by Zurhayati, et al. (2019) that the more information and knowledge that mothers get, the higher the interest of mothers in giving their children immunizations so that the coverage of immunization for children will be fulfilled.

The success of the basic immunization program in infants is supported by the important role of parents who are responsible for their babies. If the mother lacks knowledge about immunization so that the mother does not feel the need for

immunization, then this will affect the schedule, the baby's immunization which will have an impact on the onset of the disease. When mothers have good knowledge about immunization, it is hoped that immunizations can be given according to a predetermined schedule so that they can reduce the Infant Mortality Rate (AKB) and improve public health status (Herawati, 2023). Based on research conducted by (Dewi, 2016) at the Bendo Health Center, Magetan Regency, 66.2% of babies have complete immunization status and 33.8% of babies have incomplete status. Meanwhile, babies who have complete immunization status with good maternal knowledge are 49.2% and babies who have incomplete immunization status with poor maternal knowledge are 30.8%. This shows that the role of mothers' knowledge about basic immunization has a great influence on the administration of basic immunization to babies.

As a result of interviews with Jamali Village Midwives, the coverage of the Complete Basic Immunization target as of August 2023 is 66.4% of the target of 100% per year. This means that for the coverage of Complete Basic Immunization as of August, there are still several children who have not received complete immunization, namely as many as 14 children from 12 posyandu in Jamali Village. Helping to increase the achievement of basic immunization in accordance with the national target, the researcher tried to intervene using educational leaflet media for mothers who have babies under the age of 24-59 months which aims to increase the interest and awareness of mothers to immunize their children as one of the prevention of Immunization Preventive Diseases (PD3I). The advantages of leaflets from other media are that they are easy to carry everywhere, flexible, compact, and practical and not constrained by electricity and the internet.

Based on the above problems, researchers are interested in conducting research that aims to determine the relationship between maternal knowledge and attitudes towards basic immunization coverage in women aged 24-59 months in the Mande Health Center work area as of August 2023.

METHOD

This research method was quantitative with an approach *cross sectional*. The research was conducted in Jamali Village, Mande District, Cianjur Regency.

The sample of toddlers aged 24-59 months in the Mande Health Center area amounted to 58 samples. The sample collection technique in this study used total sampling. The data sources obtained were primary and secondary data.

The primary data of this study was mothers who have babies aged 24-59 months. How to Collect Primary Data by Providing a Questionnaire *by to door* to mothers who have toddlers who are willing to be respondents. The questionnaire consisted of 65 questions containing respondent characteristics, mothers' knowledge and attitudes, access to health facilities and support for health workers, culture and completeness of immunization. Secondary data is the number of infant immunization coverage in Jamali Village in August 2023.

The independent variables in this study were knowledge and attitudes about immunization. The dependent variable is immunization coverage. The design used is quantitative with an approach *case control*, data analysis using *Chi square* with a confidence level of 5%. This study applies research ethics principles as an effort to protect the rights of respondents and researchers during the research process such as maintaining the confidentiality of respondents by not mentioning the client's identity or only mentioning the initials of the name and doing it *informed consent* before taking primary data on respondents. In addition, uphold the confidentiality of respondents' data by not disseminating and only presenting certain groups of data in the research results.

RESULTS AND DISCUSSION

Data collection was carried out on September 15-16, 2023 with a sample of 14 respondents in 8 Posyandu in WK Mande Puskesmas door *to door* to distribute questionnaires and leaflets. The questionnaire consisted of 65 questions containing respondent characteristics, maternal knowledge and attitudes, and immunization completeness.

RESULT

Table 1 shows that of the 14 mothers who did not provide complete basic immunizations to their babies, 10 (71.5%) were dominated by mothers with low education, 9 (64.2%) (IRT), 8 (57.2%) with low family income, and 11 mothers with 1-2 children (78.6).

Table 1 Frequency Distribution Based on Respondent Characteristics

Variable	Description	Frequency	Percentage %
Education	Primary (SD-SMP)	10	71,5
	High School (SMA/SMK-Higher Education	4	28,5
Total		**14**	**100**
Work	Not working (IRT)	9	64,2
	Work (Farmers, Laborers, Self-Employed, Civil Servants)	5	35,8
Total		**14**	**100**
Family Income	< Rp. 500.000	1	7,1
	IDR 500,000 – IDR 1,000,000	8	57,2
	IDR 1,500,000 – IDR 3,000,000	3	21,5
	>Rp. 3.000.000	2	14,2
Total		**14**	**100**
Number of Children	1-2	11	78,6
	3-5	2	14,3
	>5	1	7,1
Total		**14**	**100**

Table 2 Completeness of basic immunization for infants aged 12-59 months in the working area of the Mande Health Center

Basic Immunization	n	%
Complete	44	75,9
Incomplete	14	24,1
Entire	**58**	**100**

Table 2 shows that of the 58 mothers who gave their babies complete basic immunizations, 44 (75.9%) while 14 (24.1%) were incomplete.

Table 3 Frequency Distribution Based on the Influence of Mother's Knowledge about Basic Immunization in Infants

Knowledge	Basic Immunization				Entire		P value
	Complete		Complete				
	N	%	n	%	N	%	
Good	11	78,6	42	95,5	53	91,38	0,04
Less	3	21,4	2	4,5	5	8,62	

Sum	**14**	**100**	**44**	**100**	**58**	**100**

Table 3 shows that of the 53 mothers who have good immunization knowledge, there are 42 mothers who provide complete basic immunization. The results of the statistical test found that there was a significant relationship between maternal attitude and complete basic immunization in infants which was characterized by *a p-value* of 0.04 < 0.05.

Table 4 Frequency Distribution Based on the Influence of Mother's Attitude on Basic Immunization in Infants

Mother's Attitude	Basic Immunization				Entire		P value
	Incomplete		Complete		N	%	
	n	%	n	%			
Don't believe	4	28,6	2	4,5	6	10,34	0,03
Believe	10	71,4	42	95,5	52	89,66	
Sum	**14**	**100**	**44**	**100**	**58**	**100**	

Table 4 shows that of the 52 mothers who have a confident attitude towards immunization, there are 42 mothers who provide complete basic immunization. The results of the statistical test found that there was a significant relationship between maternal attitude and complete basic immunization in infants which was characterized by *a p-value* of 0.03 < 0.05.

DISCUSSION

The Influence of Mother's Knowledge About Basic Immunization

Based on the results of the analysis that has been studied, it can be seen that knowledge has a meaningful relationship with complete basic immunization coverage. Based on the results of the study, it shows that out of 58 mothers, there are 14 babies with incomplete immunization status, namely as many as 11 (21.4%) mothers have less knowledge and 3 (78.6%) mothers have good knowledge. In infants with complete immunization status, 42 (95.5%) mothers have a good level of knowledge, while 2 (4.5%) mothers have a good level of knowledge less. The results of the analysis obtained from the chi-square test showed that the P value

was 0.04 <0.05 so it can be concluded that there is a relationship between maternal knowledge and complete basic immunization status in Jamali Village. Lack of maternal knowledge will have an impact on the status of basic immunization completeness in toddlers, as shown by the results of research by Trianiska, et al. (2021) which stated that mothers with less knowledge are less likely to provide complete basic immunizations compared to mothers who have good knowledge.

Education is indeed not a benchmark in seeing whether someone is smart or not. But education can help digest information well, the higher the education, the more knowledge is obtained. Likewise, what happened in this study, the average education of mothers is elementary and junior high school with insufficient knowledge and incomplete immunization status. So in this case, attention is needed to special health services in providing health promotion related to the importance of basic immunization that is fulfilled.

Knowledge has an important role for a person to act. Meanwhile, attitude is a person's reaction that is still closed to a stimulus where opinion and emotional factors are already involved in it, so that the use of health services is influenced by the attitude and knowledge of a person who can choose and decide on the use of health services (Dillyana and Nurmala, 2019).

Mother's knowledge about immunization will greatly determine the health of her child in the future, one of which is by participating in an immunization program that will increase the child's immunity to disease. However, sufficient maternal knowledge will not be useful if there is no follow-up from mothers to include their children in the immunization program in the respondent's place of residence. This is in accordance with the theory by Notoatmodjo (2014) which states that knowledge or cognition is a very important domain for the formation of one's actions (*overt behavior*). Knowledge about an object contains two aspects, namely positive aspects and negative aspects. These two aspects will determine a person's attitude, the more positive aspects and known objects, the more positive attitudes towards certain objects so that from experience it turns out that behavior based on knowledge will be more lasting than behavior that is not based on knowledge.

This study is in line with the results of Febri Indah sari's (2023) research at the Srikaton Health Center, showing that 34 respondents (69.4%) were well-informed and received complete basic immunizations and 15 respondents (30.6%) did not receive complete basic immunization. The results of the statistical test obtained a *p-value* 0.02 (≤ α = 0.05), the results of the study showed a meaningful relationship between knowledge and the completeness of basic immunization at the Srikaton Health Center in 2023 (Sari, Ciselia and Africa, 2024).

The Effect of Mother's Attitude on Basic Immunization

Based on the results of the study, it was shown that out of 15 mothers who had babies, as many as 14 babies had incomplete immunization status. Of the 14 babies who were not fully immunized, 4 (28.6%) mothers had an insecure attitude and 10 (71.4%) mothers had a confident attitude. In the complete immunization status, 42 (95.5%) mothers have a confident attitude and 2 (4.5%) mothers have an uncertain attitude. The results of the analysis obtained from the chi-square test showed that the P value was 0.03 < 0.05 so that it can be concluded that there is a relationship between the mother's attitude and the complete basic immunization status in Jamali Village.

The skap of mothers who believe in providing immunizations is also supported by the interest of mothers where interest will arise if mothers have sufficient knowledge and information and get a fairly good educational history (high school/vocational school). The higher the mother's education, the easier it will be to understand information, after that there will be an attitude of trust in a statement so that there will be a sense of interest in mothers to immunize their children.

This study has similarities with the research of Carolina *et al*. (2021) which concluded that there was a relationship between maternal attitudes and behavior of fulfilling complete basic immunization during the COVID-19 pandemic (*p-value* < 0.01). Mothers who have a good attitude towards vaccination have a positive relationship with vaccination compliance compared to mothers who have a bad attitude towards vaccination. According to her, the mother's attitude is influenced by the high level of knowledge, support from her husband, and the

perception of religion towards immunization. This result is in accordance with Lawrence Green's theory in Notoatmodjo (2003) that in the formation of health behavior, three determining factors are determined are *predisposing factors*, which are manifested in attitudes. A person who does not immunize his child can be caused by the person being negative because he or she does not know or does not know the benefits of immunization for his child.

Thus, attitude is a positive or negative evaluation system, that is, a tendency to approve or reject. A positive attitude will be formed when the stimulus that comes to a person provides a pleasant experience. On the other hand, a negative attitude will arise, if the stimulus that comes gives an unpleasant experience. Attitude has direction, meaning that the attitude is separated in two directions of agreement, namely whether to agree or disagree, whether to support or dissupport, whether to favor something or someone as an object. People who agree, support or take sides with an object of attitude means having an attitude with a positive direction, preferably those who disagree or disagree are said to have a positive attitude, preferably those who disagree or disagree are said to have an attitude with a positive direction (Azwar, 2017).

The attitude towards the provision of basic immunization at the Jongaya Makassar Health Center in bringing toddlers to health service facilities has a relationship with the status of their immunization completeness which is due to many factors such as one of the respondents who are busy with work so that they forget to bring their toddlers for immunization. This affects the level of compliance of mothers in completing their child's immunization status (Nugrawati, 2019).

CONCLUSION

Based on the results and discussions, it can be concluded that there is an influence of good maternal knowledge and attitudes about immunization on the coverage of basic immunization for infants aged 24-59 months in the Mande Health Center work area as of August 2023.

Good mothers' knowledge and attitude are influential in making decisions to immunize their children which can affect the achievement of immunization

coverage targets. The more knowledgeable the mother has (educated), the greater the mother's attitude in making decisions to immunize her child because the mother knows the benefits of immunization and the impact if immunization is not carried out. Likewise, the lower the knowledge of mothers about immunization, the more immunization coverage in Jamali Village will not reach 100%. Therefore, there are still some babies aged 24-59 months whose immunization is incomplete due to low maternal knowledge, fear of side effects of immunization and the surrounding belief that immunization has no benefits. Thus, these factors can reduce the attitude of mothers towards making decisions to immunize their children.

SUGGESTION

Increasing public awareness, especially mothers who have babies, to provide complete immunizations to health facilities by involving the participation of residents, cadres, and midwives as health workers is a form of duty and responsibility in improving the health of babies by encouraging and inviting and reminding mothers to provide immunizations to babies in accordance with the immunization schedule. It is hoped that the government will provide firmness to health workers to provide support in providing complete basic immunizations for all babies by increasing the provision of health promotion and counseling on opportunities in community activities such as posyandu activities.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

NH concept the idea and methodology research, EK concept idea and writing draff article, AF and DF concept the questioner of the research, EH and FP are contributing in data collecting, W and NR are contributing draff article and revision article.

Ethical Approval

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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THE RELATIONSHIP BETWEEN PREGNANT WOMEN'S ATTITUDES AND COMPLIANCE WITH INTEGRATED ANTENATAL CARE VISITS AT SINGOSARI HEALTH CENTER, MALNG REGENCY

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ABSTRACT

Background: Integrated Antenatal Care is a 10 T standardized pregnancy examination to facilitate the development of mother and baby and detect complications. The purpose of this study was to analyze the relationship between attitude and compliance of pregnant women to conduct Integrated Antenatal Care visits. **Methods**: The research design was correlation analytic with cross sectional approach. The population was all pregnant women who made Integrated Antenatal Care visits in July 2023, using purposive sampling technique obtained a sample of 44 respondents. The instrument used was a questionnaire of the attitude of pregnant women and a checklist of pregnant women's data from the Maternal & Child Health book and cohort. Chi Square test is used to analyze the relationship between variables. **Research results**: Most of the 59% of pregnant women have a negative attitude towards Integrated Antenatal Care and 61% of pregnant women are not compliant with Integrated Antenatal Care . The results of chi square analysis of the relationship between the attitude of pregnant women with compliance with Integrated Antenatal Care visits obtained the result of $p = 0.000$ ($\alpha < 0.05$). **Conclusion**: There is a relationship between the attitude of pregnant women and compliance with Integrated Antenatal Care at Singosari Health Center, Malang Regency. The results of the study can be used as a basis for developing or comparing other factors that affect the compliance of pregnant women to conduct Integrated Antenatal Care visits.

Keywords: Attitude of Pregnant Women, Compliance, Integrated ANC

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INTRODUCTION

Integrated Antenatal Care (ANC) which is a comprehensive and quality pregnancy examination for pregnant women has an examination standard consisting of 10 T, including checking weight, height, blood pressure, assessing nutritional status, giving blood supplement tablets, thorough pregnancy examination, dental examination, Tetanus Toxzoid (TT) immunization status, simple lab tests including blood type, Hb, Hbsag, HIV and syphilis. Integrated Antenatal Care examination must be carried out by pregnant women at least twice during pregnancy, namely 1 x in the first trimester to detect pregnancy risk factors with a complete Antenatal Care examination, nutritional counseling, dental examination, and triple elimination examination and 1 x during the third trimester to detect pregnancy risk factors through Hb and urine protein examination (Kemenkes RI, 2020).

Pregnant women are one of the populations that are vulnerable to contracting diseases, such as HIV, syphilis and Hepatitis B. Data for Southeast Asia in 2015, the number of HIV patients reached 5.1 million with 77,000 pregnant women living with HIV, and 19,000 new cases of pediatric HIV infection have been found. As for syphilis, the incidence rate has shown an increase of 0.32% in the Southeast Asia region. Based on Indonesia's 2018 health profile, 69.95% of pregnancies were tested for HIV and Hepatitis B with 0.28% of pregnant women confirmed HIV positive. East Java data shows that the number of pregnant women tested for Hepatitis B is still relatively small at 39.95% with 1.88% of pregnant women detected HbsAg reactive (Kemenkes RI, 2019). The lack of management in several cases of infectious diseases above is due to the not optimal coverage of examinations in pregnant women. This causes high morbidity and mortality in mothers and fetuses, considering that HIV, Hepatitis B and syphilis can be transmitted from mother to fetus.

Non-compliance of pregnant women in conducting Integrated Antenatal Care visits causes pregnancy risks and complications that affect pregnancy cannot be known. Detection during pregnancy check-ups can help prepare pregnant women for risk control. Lack of knowledge of pregnant women about the importance of integrated Antenatal Care checks, socioeconomics, husband support, family support, less friendly health workers are also one of the factors inhibiting the regularity of mothers conducting integrated Antenatal Care visits (Aishah, 2022). Mangosa's research (2021) shows that most of the

respondents who are compliant with Antenatal Care are respondents who have a good attitude in conducting pregnancy checks as recommended, on the other hand, most of the respondents who are not compliant with Antenatal Care visits are respondents who have a bad attitude.

Based on preliminary studies at Singosari Health Center, Malang Regency, it is known that the coverage of integrated Antenatal Care visits in 2022 in 9 villages in the Singosari Health Center working area, only 3 villages have the target coverage of integrated Antenatal Care visits. Various efforts have been made to increase the target coverage of integrated Antenatal Care visits in the Singosari Health Center working area. In addition to the routine Integrated Antenatal Care check-ups held every Monday through Friday, mobile Integrated Antenatal Care check-ups are also conducted on Saturdays. The study aimed to determine the relationship between pregnant women's attitudes and compliance with integrated Antenatal Care visits at Singosari Health Center, Malang Regency.

METHODS

The research design was correlational analytic with a cross sectional approach. The study population was third trimester pregnant women who visited the Integrated Antenatal Care at Singosari Health Center, Malang Regency in July 2023. By using purposive sampling, a sample of 44 pregnant women was obtained during data collection on July 6-7, 2023. The independent variable is the attitude of pregnant women towards integrated Antenatal Care , while the dependent variable is the compliance of pregnant women to conduct integrated Antenatal Care visits. Data collection used a questionnaire to identify the attitude of pregnant women towards Integrated Antenatal Care and secondary data in the form of Maternal and Child Health (MCH) books and cohorts to obtain data on the compliance of pregnant women to conduct Integrated Antenatal Care visits. This research questionnaire has been tested for validity and reliability. The validity test results showed that all 20 questions were valid. While the reliability test results showed a Cronbach alpha value of 0.933, which means that the questionnaire items are reliable because the value is 0.6. The data obtained will be processed using the help of the SPSS computer program to determine the relationship between the attitude of pregnant women and compliance with the Integrated Antenatal Care visit at Singosari Health Center, Malang Regency. To prove whether there is a relationship between the independent and dependent variables, Chi

Square statistical test was used. All research procedures were declared ethically sound by the Research Ethics Commission of the Poltekkes Kemenkes Malang No.733 / VII / KEPK POLKESMA / 2023.

RESULT AND DISCUSSION

a. General Data of Respondents

The results of the recapitulation and frequency distribution of the general characteristics of respondents in this study are as follows: The general characteristics of respondents in this study include age, latest education, and occupation. The distribution of respondent characteristics based on age is divided into 3 groups, namely age < 20 years, 20-40 years, > 40 years; the level of education is divided into four, namely elementary school, junior high school, high school, college; and the mother's employment status is divided into two, namely working and not working.

Table 1 Frequency Distribution of General Characteristics of Respondents at Singosari Health Center, Malang Regency, July 2023

No	General Characteristics of Respondents	*f*	%
1.	Age (Years)		
	< 20 years	3	7
	20- 35 years old	34	77
	> 35 years	7	16
2	**Education**		
	Elementary School	4	9
	Junior High School	11	25
	Senior High School	26	59
	University	3	7
3	**Jobs**		
	Work	15	34
	Not working	29	66
	Total	44	100

Based on table 1, shows the characteristics of respondents, namely almost all respondents aged 20-35 years by 77%, most respondents have the last high school education by 59%, and most respondents do not work by 66%.

b. Respondent Spesific Data

The questionnaire was administered on the first day of the study during the Integrated Antenatal Care class at Singosari Health Center, Malang Regency. There

were 20 items of questionnaire statements given to 44 respondents of third trimester pregnant women. The frequency distribution of respondents' attitudes and compliance with Integrated Antenatal Care

Table 2 Frequency distribution of pregnant women's attitudes and compliance with integrated Antenatal Care at Singosari Health Center, Malang Regency, July 2023

	Kategori	*f*	%
Attitude	Positive	18	41
	Negative	26	59
Compliant	Compliant	17	39
	Non-compliant	27	61
	Total	44	100

(Source: Primary data that has been processed)

Table 2 shows that most respondents had a negative attitude towards Integrated Antenatal Care at 59%.

The results showed that a small proportion of respondents had tertiary education. The level of education is one of the factors in shaping a person's attitude, the higher the level of education of a person, the broader his knowledge so that he has various information related to his pregnancy, in this case the higher a person's education, the easier it is to receive information so that the more knowledge he has, on the other hand, less education will be more difficult to perceive and hinder the development of maternal attitudes towards newly introduced values (Ningsih, 2018). In line with research by Mutia (2022), which shows that most respondents have a negative attitude towards visiting Integrated Antenatal Care, which is influenced by several factors, including: environmental conditions in the family that are less supportive in checking their pregnancy regularly, lack of information related to Integrated Antenatal Care examinations, low education levels, availability and affordability of health facilities that can provide health services to the community.

A negative attitude is an attitude that tends to have a rejecting behavior towards an object, so that there are behaviors that lead to actions not to carry out pregnancy checks, due to incomplete facilities, unfriendly health workers, mothers who actually already know about pregnancy checks and the importance of doing checks but still do not want to make Antenatal Care visits (Lorensa, 2021).

Table 2 shows that most respondents were not compliant in conducting Integrated Antenatal Care visits by 61%.

Compliance is a positive behavior carried out by clients that leads to mutually agreed goals (Swarjana, 2022). Antenatal Care visit compliance is defined as obedience in visiting the health service recommended by health workers to monitor the condition of the mother and fetus carefully, so as to detect early complications that may occur during pregnancy and can provide appropriate interventions. In this study, pregnant women were said to be compliant if they performed Integrated Antenatal Care checks twice in Trimester I and III during pregnancy. Factors causing non-compliance with Integrated Antenatal Care include: age, education level, attitude, occupation, distance of residence, information media (Arbita, 2022).

Data obtained by researchers, almost all respondents (77%) were aged 20-35 years. The results of this study are in line with Vinny's research (2018) that age is one of the factors of compliance of pregnant women in conducting Antenatal Care visits. Pregnant women aged 20-35 years, tend to be more likely to make antenatal visits because they still feel that pregnancy checks are very important, while mothers aged <20 years tend not to understand the importance of making antenatal visits and mothers aged> 35 years tend to be indifferent to antenatal visits because they feel they have a good pregnancy experience.

The older the mother, the greater the level of maturity and strength of the person in thinking and working, but age is not the only factor associated with compliance. Although the mother's age increases, if it is not followed by an increase in the level of education, it will only make it more difficult for the mother to obtain information. Mothers with low education are usually more indifferent and do not understand the importance of pregnancy checks (Fitriani, 2019).

The cross-tabulation between respondents' attitudes and compliance with Integrated Antenatal Care at Singosari Health Center, Malang Regency is shown in the following table:

Table 3 Cross tabulation of relationship between the attitude of pregnant women and the compliance of pregnant women with integrated ANC visits

Attitude	Compliance						Chi square p-Value
	Compliant		Non-compliant		Total		
	f	%	*f*	%	*f*	%	
Positive	13	72,2	5	27,8	18	100	0,000
Negative	4	15,4	22	84,6	26	100	

(Source: Primary data that has been processed)

Based on table 3, it shows that of the 26 respondents who had a negative attitude, almost all respondents 84.6% were not compliant in conducting Integrated Antenatal Care visits.

The results of the Chi Square statistical test show that the relationship between maternal attitudes and compliance with Integrated Antenatal Care visits obtained a Pvalue of 0.000 which means the Pvalue <0.05, so it can be concluded that there is a relationship between the attitudes of pregnant women and the compliance of pregnant women with Integrated Antenatal Care visits at Singosari Health Center, Malang Regency.

The results of this study are in accordance with Anisa's research (2023) which shows that pregnant women who have a good attitude will tend to be obedient in conducting Antenatal Care examinations, while pregnant women who have a poor attitude usually lack awareness of the importance of Antenatal Care visits. Research by Nisma et al (2021) showed that respondents who had a good attitude, most (63.3%) achieved the examination. The same research results were shown from Rena's research (2020), where people tend to have a positive attitude in conducting Antenatal Care examinations. One of the factors that influence a person's behavior in utilizing health services is attitude (Arbita, 2022). According to Azwar (2022), attitudes can influence behavior through a careful and reasoned decision-making process. This means that someone will do an action if they view the action positively.

However, the results showed that there were respondents who had a positive attitude towards integrated Antenatal Care, but were not obedient to conduct integrated Antenatal Care visits. This is in accordance with the research of Safitri & Lubis (2020) which shows that the attitude of pregnant women has no effect on compliance with Antenatal Care visits. In this case, although pregnant women have a positive attitude,

antenatal care visits are not in accordance with the standards. This result allows other factors to influence antenatal care visits. In working mothers, the number of busy activities causes mothers to sometimes forget to do pregnancy checks on time (Vinny, 2018).

CONCLUSION AND SUGGESTION

Based on the results of the study, it can be concluded that pregnant women with negative attitudes towards integrated Antenatal Care are more likely to be non-compliant in conducting integrated Antenatal Care visits than pregnant women who have positive attitudes, so there is a relationship between the attitude of pregnant women and the compliance of pregnant women in conducting integrated Antenatal Care visits. For future researchers, the results of this study can be used as a basis for developing or comparing other factors that affect pregnant women's compliance with integrated Antenatal Care visits.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept in writing draf article.

Ethical Approval

All research procedures were declared ethically sound by the Research Ethics Commission of the Poltekkes Kemenkes Malang No.733 / VII / KEPK POLKESMA / 2023.

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Data Availability

The data supporting this research are available from the authors on reasonable

request.

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THE CORRELATION OF FAMILY SUPPORT WITH THE LEVEL OF ANXIETY OF PRIMIGRAVIDA PREGNANT WOMEN IN FACING LABOR

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Abstract

Introduction Anxiety in pregnant women is a common psychological condition where mothers feel anxious, restless, or worried about pregnancy, childbirth, or their future as a mother. This anxiety can be caused by various factors, including hormonal changes, physical changes that occur during pregnancy, uncertainty about the birthing process, feelings of not being ready to become parents, and concerns about the health of the baby and oneself. The purpose of this study is to examine the connection between primigravida pregnant women's anxiety levels and their amount of support from their families when it comes to giving birth. **Method :**This research design method uses a cross-sectional design. The population in this study was 75 third-trimester primigravida pregnant women. The total sample was 56 respondents using the purposive sampling technique. The sample was determined based on inclusion criteria, namely pregnant women who were willing to be respondents and pregnant women in the third trimester without complications. The analysis test used uses Spearman rho correlation. **Result** Analysis test results using Spearman rho correlation show a correlation value (r) = 0.716 with a p value of 0.000, where $p < \alpha$ ($\alpha = 0.05$). This means that H1 is accepted and H0 is rejected. The results of this study can be concluded that family support is correlated with the level of anxiety of primigravida pregnant women. Based on this research, it is recommended that families can provide family support to primigravida pregnant women before delivery. **Conclusion :** the majority of primigravida pregnant women receive high family support and have mild levels of anxiety.

Keywords: Family support, anxiety level, pregnant women

INTRODUCTION

All women who want to become a mother will probably face difficult times during pregnancy, including the events that occur in a woman's body from conception to the birth of a child. Pregnancy is a physiological and natural event that occurs in women and is a very sensitive period in their life cycle. Pregnant women experience anxiety as a result of hormonal changes brought on by their body's adjustment to the growing and developing fetus inside their womb (Sholihah, 2019). The first

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trimester, is the time from conception to the 12th week. The second trimester of pregnancy occurs when the fetus is 13 weeks old until the end of the 27th week, and the third trimester, known as the lasts from the 29th to 42nd week (Muliani, 2022).

During the third trimester of pregnancy, majority pregnant women experience anxiety as they prepare for the birth of the baby and change their role as parents, especially by focusing their attention on the presence of the baby. Worrying about the labor process is the main reason for this anxiety. Anxiety is a vague and unfounded fear experienced in certain situations. Anxiety and worry can arise during pregnancy, especially in mothers who are mentally unstable (Videbeck, 2015).

According to data from the World Health Organization (World Health Organization (WHO), 2015), 8–10% of pregnant women experience anxiety, and this number increases to 13% before delivery. Depression can also strike pregnant women who suffer anxiety. The fetus she is carrying will not do well with this condition. According to (Yuliana & Wahyuni, 2020), 57.5% of pregnant women in Indonesia reported experiencing significant anxiety. In East Java, 40.35% of pregnant women reported feeling very worried, 31.58% reported feeling moderately anxious, and 28.07% reported feeling mildly anxious (Dinas kesehatan provinsi jawa timur, 2022).

Anxiety can have an impact on reducing the mother's pushing strength or contractions, which can hinder the progress of labor and result is a longer labor period. Prolonged labor can put the fetus in a state of stress. The mortality and morbidity rates for new mothers will increase if this disease is not treated well (Siregar et al., 2021). Anxiety in mothers who have given birth for the first time (primigravida) occurs when the pregnancy is seven months or more and the mother believes that giving birth is the most frightening, stressful and excruciating experience in her life. Excessive worry during pregnancy might lead to an early birth and high blood pressure, high levels of anxiety in mothers who are about to enter labor or experience stress can cause labor to take longer and the resulting contractions to be insufficient (Isnaini et al., 2020). Improper management of a pregnant woman's anxiety and stress can have physical and psychological effects

on the mother and fetus. Mothers who are anxious or stressed will cause their hypothalamus to be active, thereby stimulating the endocrine glands that control the pituitary gland.

Therefore, mothers need support, encouragement, and motivation from someone. Examples of such support are a caring husband or midwife who can calm the mother and ensure that the pregnancy is in good condition so that she can give birth at a later date. The family can provide support to the mother through motivating words and give her confidence that their birth will go smoothly, so that the mother does not need to feel anxious, tense, or worried (Sari, 2022). According to research by (Diani & Susilawati, 2013), pregnant women really need their husbands' help in various things, such as providing excellent service, paying transportation or consultation costs, and accompanying their wives when consulting with midwives so that husbands can know the symptoms of pregnancy difficulties and their own needs. .

The husband's support shows his great level of support by always being there for his wife under any circumstances and by being willing to accompany her when she needs him. A wife who has her husband's support will feel more equipped to face childbirth. In addition, family support can help by providing accurate information and education about childbirth, including the processes involved, signs of normal labor, and the options available during the birth process. This can help reduce uncertainty and anxiety for pregnant women. Based on the description above, researchers want to know the relationship between third trimester pregnant women's anxiety and family support.

METHOD

This research uses an observational method with a cross-sectional approach. This research was conducted at General Hospital X Type C, Kediri City, East Java. The population in this study was 75 third-trimester primigravida pregnant women. The sampling technique used was purposive sampling in accordance with predetermined inclusion and exclusion criteria, so a total sample of 56 respondents

was obtained. The sample was determined based on inclusion criteria, namely pregnant women who were willing to be respondents and pregnant women in the third trimester without complications. Variable in this study is pregnant women's anxiety levels as the dependent variable, while family support as the independent variable. The instrument used to measure anxiety levels is the standard Hamilton Anxiety Rating Scale questionnaire (HARS). Data analysis in this study used Spearman rho correlation. In this study, the researcher received an ethical clearance letter from the Research Ethics Committee of Bhakti Wiyata Kediri Institute of Health Science no. 118/Fkes/EP/2024.

RESULT AND DISCUSSION

The general data analysis of the respondents' ages and educational levels reveals the following:

Table 1. Distribution of general data by age, and educational level

Age	**Frequency**	**Precentage (%)**
18-21 year	8	14,3
22-31 year	39	69,7
32-41 year	9	16
Total	56	100
Education	**Frequency**	**Precentage (%)**
Elementary School	8	14,3
Junior High School	12	21,4
Senior High School	29	51,8
College	7	12,5
Total	56	100
Family support	**Frequency**	**Precentage (%)**
High	31	55,4
Quite	10	17,9
Low	15	26,8
Total	**56**	**100**
Anxiety Level	**Frequency**	**Precentage (%)**
Light	35	62,5
Medium	10	17,9
Heavy	11	19,6

Total	56	100

Table 1 shows that the average age of the most pregnant mothers is 39 years or about 69.7%. The most educated mother is high school or about 51.8%. Family support shows that of the 31 respondents (55.4%) most of them had high family support. Anxiety level shows that 35 respondents (62.5%) Most of the anxiety levels of pregnant women were mild.

Table 2. Cross Tabulation Results of Family Support and Anxiety Levels

Family support	Anxiety Level			Total	Value (r)	*p-value*
	Light	Medium	Heavy			
High	27	4	0	31	0,716	0,000
Quite	7	2	1	10		
Low	1	4	10	15		
Total	35	10	11	56		

Based on table 4 above, it showed that as many as 27 pregnant women respondents who received high family support had a mild level of anxiety, a moderate level of anxiety of 4, and a severe level of anxiety of none. Respondents with sufficient family support had a mild anxiety level of 7, a moderate anxiety level of 2, and a severe anxiety level of 1. Respondents with low family support had a mild anxiety level of 1, a moderate anxiety level of 4, and a severe anxiety level of 10. According to the Spearman rho correlation test, it was found that the correlation value (r) was 0.716 with a sig value of 0.000, meaning that it shows that the p value < α, α = 0.05, which means H0 is rejected and H1 is accepted, so there is a relationship between family support and the level of anxiety of primigravida pregnant women.

Primigravida pregnant women's anxiety about giving birth is a common occurrence. This is a moment full of challenges and uncertainty because the mother has never experienced the birth process before. Pregnant women who receive support in preparing for childbirth will feel calm and peaceful. During pregnancy and childbirth, husband's support helps pregnant women increase their self-confidence and prepare psychologically before giving birth (Yuliana & Wahyuni, 2020).

According to research by (Rosyidah & Utami, 2017), primigravid pregnant women

in the third trimester experience anxiety due to concerns that the baby will be born abnormal, disabled or even die, so they are afraid of losing the baby they give birth to. Pregnant women have concerns about their baby's future needs, such as fulfilling their baby's nutrition, money for needs after birth, and proper education. Apart from that, anxiety in primigravida pregnant women will result in fear of giving birth, disrupting their daily routine because they have to pay attention to their newborn baby. Pregnant women who experience anxiety but receive appropriate emotional and physical support from their partners are less likely to experience psychological problems as a result of their pregnancy. Pregnant women will feel happy and at peace if they get support from their family, especially support from their husband. (Handayani, 2015).

By providing support by showing care, empathy, and concern for the person concerned, the person concerned will feel comfortable and confident so that they can handle problems better. Individuals need signs of love and care, such as appreciation, attention, and trust. If a person is accepted and appreciated by others, they are likely to develop a positive attitude towards themselves and value themselves more. Families can help and support one another through the process known as "family support," which occurs between the family and its societal surroundings (Zuhrotunida & Yudiharto, 2017).

Partner support and the social environment are two factors that influence anxiety. To help a woman feel more comfortable during the birthing process, family support, especially from her husband, is quite important. For example, a husband should accompany his wife before giving birth or gently massage her hands. Apart from that, the mother should also listen to encouraging comments that reassure her that everything will be fine and that she does not need to be afraid, tense, or worried about giving birth (Widjayanti & Yuriko, 2020). The benefits of this support for pregnant women can be felt in many ways, including attention, a sense of security, comfort, enthusiasm, and relaxation of the heart and mind, which can reduce worry and improve emotional health while speeding up the birthing process (Yuliani & Aini, 2020). This shows that family support has an important influence on the mother's level of anxiety when facing childbirth.

CONCLUSION AND SUGGESTION

The conclusion is the majority of primigravida pregnant women receive high family support and have mild levels of anxiety. It is hoped that pregnant women, especially primigravida pregnant women, will receive full family support. Pregnant women should receive information from their families about pregnancy and how to meet their needs until delivery.

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

NDH write Conceptual study, create methodology, data collection, write dan revised the manuscript. CD is collecting data and write manuscript.

Ethical Approval

Research Ethics Committee of Bhakti Wiyata Kediri Institute of Health Science no. 118/Fkes/EP/2024

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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PERINATAL ANXIETY SCREENING SCALE (PASS) ASSESSMENT OF HIGHRISK PREGNANT WOMEN

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Abstract

Background: Psychological changes in pregnant women can be caused by hormonal imbalances. Imbalance can give rise to an anxiety response caused by conditions within oneself and the environment. Excessive anxiety can stimulate uterine contractions which can lead to pathological risks in the pregnancy. The aim of this research is to determine the anxiety and psychological domains of high-risk pregnant women. **Method**: The research design was descriptive research with a sample size of 30 pregnant women who had a history of high risk in Batu Kute village, Narmada subdistrict using cluster sampling technique. This research was conducted in February 2024. The instrument used was the PASS (perinatal anxiety screening scale) questionnaire. **Result**: The research results obtained were that most pregnant women experienced anxiety on a mild - moderate scale with a percentage of 70% experienced by mothers in the first and third trimesters of pregnancy. is in the domain category of excessive worry and specific fear as much as 57% and anxiety and active adjustment as much as 23.3%. The level of anxiety of pregnant women in the first trimester is due to the adaptation process to changes in a woman and will increasingly increase in the third trimester of pregnancy leading up to delivery. **Conclusion**: Anxiety conditions with or without previous symptoms will increase in high-risk third trimester mothers because they feel anxious about the condition of themselves and their fetus. If not treated, it will pose a risk to the mother, fetus and the birth process that will occur.

keyword: *anxiety, pregnant women, high risk*

INTRODUCTION

High risk pregnancy is a condition that will cause harm and complications to both the mother and fetus. The condition of the pregnancy will get worse if the woman feels anxious. Anxiety in pregnant women is at risk of triggering stimulation of uterine contractions which can result in preeclampsia and miscarriage, birth of babies with low birth weight and premature birth. Based on the research results of Ika Septiana et al, it shows that the higher the risk factors experienced, the higher the anxiety level of pregnant wome (Saputri and Yudianti, 2020). Factors that can influence the psychology of pregnant women which can cause anxiety in pregnant women are age, gestational age, parity of pregnant

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women, level of education, social support or mentoring work and environmental factors (Wahyuni and Hardin, 2022).

Excessive and long-lasting anxiety will result in symptoms such as generalized anxiety disorder (Generalized Anxiety Disorder) which is characterized by difficulty sleeping, difficulty concentrating, excessive worry about small things, pounding chest, cold sweats, easy fatigue and indigestion. Social anxiety disorder is characterized by a person feeling excessively anxious when they are in or interacting with their environment because they are afraid of being embarrassed, rejected or judged lowly by other people. Post-traumatic stress disorder is an anxiety disorder that occurs when a person experiences an event or incident that causes severe psychological trauma, such as a problematic pregnancy, difficult childbirth, problematic postpartum and breastfeeding.

Using the PASS instrument to identify anxiety in high-risk pregnant women, it is hoped that it will be possible to identify the varied anxiety symptoms of pregnant women more specifically so that pregnant women with conditions that most require intervention will be able to be referred to the appropriate treatment expert (Nonacs, 2015).

In this study, the assessment used the perinatal anxiety screening scale (PASS) instrument which consists of 31 questions to examine 4 categories of anxiety, namely acute anxiety and adjustment, general worries and specific fears, perfectionism, control and trauma and social anxiety that may be experienced by high-risk pregnant women. in the Batu Kute Village area of Narmada, West Lombok.

METHOD

The research design used is quantitative research with a descriptive approach. The population in the study was 30 pregnant women with high risk in Batu Kute village, Narmada subdistrict, West Lombok. The sampling technique used was cluster, namely grouping pregnant women based on their gestational age or trimester. The inclusion criteria in this study were pregnant women who were willing to take part in the research process and had a history of high risk, while the exclusion criteria were pregnant women who were not willing to take part in the research process and did not have a history of high risk.

The research was conducted in March 2024 and the measuring tool used was the PASS (Perinatal Anxiety Screening Scale) anxiety questionnaire. Respondents were asked to fill out a consent form to become respondents and fill in biodata. Then fill out a questionnaire designed to screen for anxiety problems which consists of 31 valid questions. Next, each answer to the question will be analyzed to be categorized into four measurable domains, namely excessive worry and special fear, perfectionism, control and trauma, social anxiety and acute anxiety and regulation. The total score is 0 – 93 with a division of 0 – 20 into the no symptoms category, 21 – 41 into the mild – moderate anxiety category and 42 – 93 into the severe anxiety category. Data analysis uses a frequency distribution table consisting of respondent characteristics, anxiety in pregnant women and psychological domain categories. The confidentiality of informant data will be maintained, and all data obtained has been approved by all informants.

RESULT AND DISCUSSION

Table 1. Characteristics of Respondents

Parameter	Gestational Age					
	TM 1		TM 2		TM 3	
	N	%	N	%	N	%
			Usia			
< 20 years	0	0	1	25	2	8
20-35 years	1	50	3	75	18	75
>35 years	1	50	0	0	4	17
Total	2	100	4	100	24	100
Education						
SD / Elementary School	0	0	0	0	1	4
SMP/Junior High School	0	0	1	25	4	17
SMA/Senior HighSchool	2	100	3	75	12	50
PT/University	0	0	0	0	7	29
Total	2	100	4	100	24	100
Pekerjaan						
PNS	0	0	0	0	0	0
Karyawan	0	0	1	25	0	0
Swasta	2	100	1	25	3	13
IRT	0	0	2	50	21	87
Lain-lain	0	0	0	0	0	0
Total	2	100	4	100	24	100
Gravida						
Primi	2	100	1	25	4	17
Multi	0	0	3	75	17	71
Grande	0	0	0	0	3	13
Total	2	100	4	100	24	100

The characteristics of the respondents from the age factor were mostly aged 20 - 35 years with a high school/vocational school education level, mostly housewives and multiparous people. Anxiety in pregnant women based on classification is in mild - moderate conditions with respondents' gestational age in the 1st trimester, 2nd trimester and 3rd trimester categories.

Table 2. Frequency Distribution of Anxiety In Pregnant Women

Classification of Anxiety	**Gestational Age**					
	TM 1		TM 2		TM 3	
	N	%	N	%	N	%
No symptoms	0	0	3	75	6	25
Light – Moderate	2	100	1	25	18	75
Heavy	0	0	0	0	0	0
Total	2	100	4	100	24	100

Table 3. Psychology Domains

Domain Classification	**Gestational Age**					
	TM 1		**TM 2**		**TM 3**	
	N	**%**	**N**	**%**	**N**	**%**
Acute anxiety and adjustment	1	50	3	75	3	12,5
General Concerns And Specific Fears	1	50	1	25	15	62,5
Perfectionism, Control And Trauma	0	0	0	0	5	20,8
Social Anxiety	0	0	0	0	1	4,2
Total	2	100	4	100	24	100

Based on the analysis of each question in the psychological domain grouping, it was found that the majority of respondents experienced general worries and specific fears in the 3rd trimester of pregnancy and anxiety and acute adjustments in the 2nd trimester. These results illustrate that the majority of high-risk pregnant women have mild - moderate levels of anxiety in the category domains of general worry, specific fear, anxiety and acute adjustment. This is in accordance with studies that report that the ability to deal with anxiety conditions felt by pregnant women depends on several things, namely age, education, maturity (readiness), personality, pregnancy experience, previous births and socio-economic conditions (Sari, 2020). Anxiety is a form of emotion and a person's subjective experience where this emotional state is a form of previous experience or conditions that are currently being experienced. Anxiety will give rise to fear which results in

a person being unable to identify threats. Anxiety can give rise to fear but fear usually does not occur without anxiety.

The inability of pregnant women to deal with their anxiety conditions will cause problems, especially for pregnant women at high risk. Anxiety is an emotional reaction related to the mother's worries about her fetus, the continuation of pregnancy, childbirth, postpartum and the period when she plays the role of mother. The prevalence of pregnancy anxiety is around 14 – 54%, the highest in the first trimester and third trimester (Novianti, 2019).

This is in accordance with the results of Andriyani's research, in Kendal which stated that the anxiety level of pregnant women with hypertension was at a moderate level (53.3%) and panic (13.3%). Hypertension will make the mother more anxious about the condition of the baby she is carrying. If the mother becomes increasingly anxious, it will result in increasingly unstable blood pressure (Ririn and Ika, 2020). Maternal anxiety that is not resolved over time will affect the condition of the baby which is at risk of resulting in premature birth. This is in line with research conducted by Uly on the impact of anxiety in pregnant women on preeclampsia and asphyxia in the city of Tasikmalaya in 2021 which showed that the results showed that the level of stress experienced by the mother was increasingly vulnerable. pregnant, the risk of preeclampsia and asphyxia in newborns increases (Silalahi and Kurnia, 2023)

Perfectionism, control and past trauma in pregnant women appear in the 3rd trimester before delivery. Meanwhile, only a small percentage of pregnant women experience anxiety due to social factors in the third trimester. This incident is in accordance with the results of research on the anxiety level of third trimester pregnant women facing labor without any symptoms of anxiety in the previous trimester (Retnomawati and Utami, 2023).

Several studies state that the level of depression or anxiety during the first trimester is the same as normal anxiety, while the level of depression or anxiety during the second and third trimesters is almost double that of the first trimester. Third trimester pregnant women who cannot let go of anxiety and fear before giving birth will release catecholamines (stress hormones) in high concentrations and can result

in increased labor pain, prolonged labor, and tension when facing labor (Batubara, Daulay, & Rangkuti, 2020)

Anxiety is an emotional condition characterized by physiological arousal, an unpleasant feeling of tension and a feeling of worry that something bad will happen soon (Nevid, Rathus, & Greene, 2018). The anxiety felt by pregnant women approaching the birth period is anxiety that is commonly felt by mothers entering the third trimester (Zulkahfi, 2020)

Anxiety and depression affect one in five pregnant and postpartum women, so it is very important because anxiety and depression are associated with a series of negative impacts on reproductive health.

CONCLUSION AND SUGGESTION

Anxiety is a form of emotion and a person's subjective experience, this emotional state is a form of previous experience or conditions that are currently being experienced. Anxiety will give rise to fear which results in a person being unable to identify threats. Anxiety can give rise to fear but fear usually does not occur without anxiety. Pregnant women in the first and second trimesters do not always show symptoms of anxiety, but instead appear in the third trimester before delivery.

DECLARATIONS

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

SM was contributing in Concept & Research Question, Conducting Research, Statistic Analysis and writing Report. RM was Conducting Research and writing report. TH was Conducting Research. ZHF was analyzing statistic. BTA was writing report.

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Ethical Approval

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Data Availability

The data supporting this research are available from the authors on reasonable request.

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