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Do mothers who meet the minimum standard of antenatal visits have better knowledge? A study from Indonesia

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Abstract:

BACKGROUND: Maternal knowledge is one of the indirect causes of maternal mortality in Indonesia. Maternal knowledge that mothers must possess includes knowledge about pregnancy, childbirth, and postpartum. Maternal knowledge should be provided during pregnancy. The aim of this study is to identify maternal knowledge in postpartum women who have a history of the frequency of pregnancy visits according to the minimum standard.

MATERIALS AND METHODS: A descriptive quantitative design was performed by assessing maternal knowledge to postpartum mothers using an online questionnaire which conducted in 2020 at two public health centers of Surabaya, Indonesia. A sample of this research involved postpartum mothers who completed inclusion criteria, namely physiological postpartum mothers and had regular pregnancy at least 6 antenatal care (ANC) visits. In contrast, the exclusion criteria were postpartum mothers who were not included in the target areas of research. It uses random sampling techniques and performs an analysis using descriptive statistics.

RESULTS: Three research questions showed a large percentage of wrong answers, namely preparation to face complications (64%), contraceptive methods in breastfeeding mothers (50%) and the first time using contraception during childbirth (42%). Meanwhile, all the correct results (100%) are exclusive breastfeeding and supplementary feeding for babies.

CONCLUSION: Completing minimal standards of ANC visits cannot ensure adequate maternal knowledge, particularly crucial health information that influences maternal and neonatal health status.

Keywords:

Health policy, midwifery, maternal health, postpartum, pregnancy, maternity care

Introduction

In 2015, the Department of Health in Indonesia reported 5,000,000 deliveries per day or around 13,800 babies born every day. In addition, Maternal Mortality Rate (MMR) is one of the leading indicators of a country's health status. Indonesia is one of the most populous countries that have a high MMR. Indonesian National Population Survey results show that MMR in Indonesia is 305 per 100,000 live births, even though the target in 2024 is 232 per 100,000 live births. Meanwhile, the global

target of MMR, which stated in Sustainable Development Goals in 2030, is for MMR 70 per 100,000 live births.^[1,2]

Several studies that have been conducted in Indonesia to identify the causes of maternal mortality showed that risk factors that can contribute to maternal mortality are complications in pregnancy, childbirth, and postpartum, including maternal age, previous medical history, quality of antenatal care (ANC), and delay in getting emergency management.^[3,4] The causes of maternal death can be divided into two direct and indirect causes. For this direct reason, it can be found three significant

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issues: delayed decision-making, delayed transfer to the hospital, and delayed management of the complications. Indirect causes include completeness of antenatal visits, the presence of pregnancy risk factors, maternal knowledge, and the mother's employment status.^[5,6]

Maternal knowledge is one of the fundamental factors that have an indirect role in the incidence of maternal mortality.^[7,8] The mothers are expected to perform an active function in improving their health status with sufficient information. Therefore, they can make the right decision for their pregnancy. ANC or pregnancy visits have the fundamental objective to prepare mothers during pregnancy, childbirth, and postpartum. Mothers need to be given knowledge about preparation for birth and postpartum.^[9] ANC visits were carried out at least four times in Indonesia, namely once in the first trimester, once in the second trimester, and twice in the third trimester. However, during the COVID-19 pandemic, the minimum standard of visits was six times through offline and online visits. The visiting method is adjusted to the COVID-19 area zone.

Therefore, identifying maternal knowledge in postpartum mothers is a vital component in preventing maternal mortality during this critical time since during the COVID-19 pandemic, there are many restrictions about health services that are given to mothers. Moreover, if mothers have an adequate understanding about their postpartum health, it can increase their self-awareness in detecting emergency situations. This study aims to assess the maternal knowledge of postpartum mothers by evaluating the ANC visit during pregnancy so that it is supposed to be the basic recommendation for improvement in providing health education and counseling to mothers, especially those that receive it since pregnancy.

Materials and Methods

Study design and setting

The study used a descriptive quantitative approach and the location of the study is two public health centers, namely Puskesmas Krembangan Selatan and Puskesmas Tenggilis Surabaya, East Java, Indonesia.

Study participants and sampling

The study participants involved postpartum mothers. We determined the inclusion criteria as follows, physiological postpartum mothers and had regular pregnancy visits or at least 6 ANC visits. In contrast, the exclusion criteria were postpartum mothers who were not included in the target areas of our public health centers. Sampling using random sampling techniques and obtaining a sample size of 50 postpartum mothers matches the inclusion and exclusion criteria.

The researchers collected data on postpartum mothers based on cohort book data from the puskesmas (health centers) and then selected samples according to predetermined inclusion and exclusion criteria. After that, the authors selected a sample using a simple random sampling technique and obtained 50 selected postpartum mothers. Then the researcher contacted the mother and the puskesmas midwife through a video call to inform consent and sent a link to the research questionnaire through WhatsApp chat. The researcher guides filling out the questionnaire through a video call.

Researchers received approval after explaining essential information to prospective research respondents. The researcher guarantees the confidentiality of the respondents by asking respondents not to write their names on the questionnaire. The authors have obtained ethical approval from the Faculty of Public Health, Universitas Airlangga, with the number 02/EA/KEPK/2020.

Data collection tool and technique

The study conducted an assessment of maternal knowledge of postpartum mothers using an online questionnaire. The results of the assessment will be explained based on the topics/questions in the questionnaire. The questionnaire contains questions about specific topics that mothers should know during pregnancy, childbirth, and postpartum. Then, the results of the assessment are analyzed using descriptive statistics using percentages.

The study used a questionnaire instrument where 12 topics described the mother's knowledge. The questionnaire content has been tested for validity and reliability. The validity test used the Person Correlation statistical analysis, and it was found that all the questions on the mother's knowledge questionnaire had a *P* value of 0.00 at α 5%, so it can be concluded that all the questions in the questionnaire are valid. Meanwhile, the reliability test used the Cronbach's Alpha test and obtained a value of 0.981 to conclude that the research instrument has absolute reliability.

Results

Based on Table 1, it can be explained that most of the postpartum mothers are between the ages of 20 and 35 years, where this age is categorized as a healthy reproductive age. Meanwhile, based on the job, it is found that more than half of the respondents are not working or as housewives.

Moreover, the assessment result of maternal knowledge in postpartum mothers with 12 questions related to the minimum knowledge that the mother must have is shown in Table 2.

Table 1: Characteristics of respondents

Category	Total, n (%)
Age (years)	
20-35	45 (90)
>35	5 (10)
Occupation	
Work	16 (32)
Does not work	34 (68)

Table 2: Description of mother's answers related to maternal knowledge of postpartum mothers

Question topic	True, n (%)	False, n (%)
Pregnancy emergency sign	44 (88)	6 (12)
Sign of childbirth	42 (84)	8 (16)
Prepare for complications	18 (36)	32 (64)
Preparation for childbirth	40 (80)	10 (20)
Nutrition	45 (90)	5 (10)
Myths about postpartum dietary restrictions	42 (84)	8 (16)
Method of contraception for breastfeeding mothers	25 (50)	25 (50)
The first-time using contraception was during the puerperium	29 (58)	21 (42)
First-time breastfeeding	43 (86)	7 (14)
Exclusive breastfeeding	50 (100)	0
First-time supplementary feeding	50 (100)	0
How to care for the umbilical cord?	40 (80)	10 (20)

Based on Table 2, it can be explained that three topics have a large percentage of wrong answers, namely preparation for facing complications (64%), contraceptive methods in breastfeeding mothers (50%) and the first-time using contraception during childbirth (42%). The data also explains that the question with 100% correct answers is only two topics: exclusive breastfeeding and supplementary feeding.

Discussion

Regarding the findings, it can be found that there are still a few postpartum mothers who are wrong in answering a question related to emergency signs of pregnancy even though this is an essential knowledge that mothers must possess so they can independently screen problems or complications during pregnancy. The maternal-child health (MCH) handbook provides basic health information that pregnant women should understand. The MCH handbook is a vital tool for mothers. If the mother has not explained the risk signs of pregnancy during an ANC visit, the mother and family can read the MCH book independently.

Other studies also show similar results: many pregnant women do not recognize or comprehend the emergency signs of pregnancy. This can cause pregnant women to delay getting care during pregnancy.^[10] Pregnant women who have complications sometimes have difficulty explaining the problem they are experiencing.

This is due to ignorance and anxiety. Therefore, health workers have a vital role, especially in effectively communicating, so that mothers will feel comfortable conveying their problems.^[11,12] Research on pregnant women who experience bleeding also reveals that almost half of them do not know the danger signs they are experiencing. Therefore, they are at risk of experiencing delays in treatment.^[13,14] Determinant factors that can affect the mother's knowledge of the dangerous signs of pregnancy are age, education, occupation, marital status, socioeconomic, parity, health autonomy, current pregnancy status, and exposure to mass media.^[15]

On the question of maternal preparation for dealing with complications, it was found that more than half of postpartum mothers answered incorrectly, even though during pregnancy, health workers had to provide education to mothers about the Program for Birth Plan and Complication Prevention (P4K). P4K is a project facilitated by midwives to increase the active role of husbands, families, and society in planning safe childbirth and preparation for possible complications in pregnancy, childbirth, and postnatal period, including preparing to follow-up postpartum family. P4K is carried out using a P4K sticker which the midwife will fill in, and then the mother will stick the P4K sticker on the front of the house so that the surrounding community also knows that there are pregnant women in the house who might need help if an emergency occurs. Several studies have evaluated the implementation of P4K, and it was found that some parts of P4K are not yet optimal, mainly for maternal financial savings, transportation for referring, and the readiness of blood donors. Another study also demonstrated that filling in the P4K sticker was still incomplete^[16] so that monitoring and evaluation of the P4K program are needed to contribute to the reduction of MMR in Indonesia.

Furthermore, in the childbirth preparation question, it was found that there were still mothers who answered the topics wrongly. If the mother's preparation for labor is lacking, it can affect anxiety during pregnancy and childbirth. Factors of age can influence insufficient knowledge of labor preparation, whether or not you have received knowledge about preparation for labor, ethnicity, place of residence, and previous childbirth history.^[17,18]

Moreover, the question nutrition topic is found that there are still a petite number of mothers who answer questions wrongly. The wrong answer they chose was that during pregnancy, childbirth, and puerperium, some foods became taboo or should not be eaten. These results can also be explained that the respondent is incorrect in answering because they have not received sufficient education about nutrition and still have beliefs

in myths due to specific cultures. This is also proven in the topic of food myths in postpartum mothers; it was found that there were still some respondents who inaccurately responded because they thought that the myth about some foods during pregnancy, childbirth, and postpartum mothers should not eat truly. Pregnant women in developing countries are considered to have a higher risk of malnutrition due to stress, and they tend to follow certain dietary restrictions. Therefore, it is crucial to provide nutritional education to eat a diverse diet and a healthy diet.^[19]

Surabaya is the second-largest city in Indonesia, whose people are dominated by immigrants from various regions and tribes, so food myths can still be found related to the culture where they came from before. Mothers' knowledge of nutrition can be influenced by work and household income.^[20] Well-informed mothers will also determine a good diet, attitude to be given, adequate education during pregnancy, incredibly balanced nutrition, and food variation.^[21] It is important to monitor and evaluate the nutrition education provided, primarily through eating practices done by mothers.

In addition, the topic of contraceptive methods in postpartum mothers showed that breastfeeding mothers could be found in half of the respondents. In addition, some of them answered the question incorrectly; even this is crucial information because if the postpartum mother misunderstands the contraception they use, it can affect the milk produced. Many respondents also answered incorrectly about the first-time postpartum mothers used contraception. There are still mothers who answer that using contraception for the first time is waiting for the mother to menstruate even though the mother and husband were probably ready to have sexual intercourse before menstruation. This can impact contraceptive users' failure and lead to unwanted pregnancies. Knowledge assessment results about the contraceptive method follow the achievement of postpartum contraceptive coverage in Indonesia in 2019, which explains that postpartum contraception is 35.1%. The most widely used contraception method is an injection.^[22] It is necessary to make more intense efforts to increase the participation of contraceptive acceptors, primarily through providing adequate education during pregnancy. It is expected that there will be decisions and readiness to use the right contraception during the postpartum period.

In the breastfeeding questionnaire, breast milk was first given to a newborn, and we found that some mothers could answer falsely. Breast milk should be given as soon as possible through Early Breastfeeding Initiation (IMD) because IMD has many benefits for mothers and babies.

Nevertheless, mothers who answer that breastfeeding for the first time are 2 and 6 h after birth. It could also be correlated to the postpartum mother may not have had IMD experience. Nonimplementation of IMD may be caused by contraindication or lack of support from health workers or the surrounding environment. However, this factor can be minimized by explaining the importance and procedures of IMD earlier during ANC visits. Factors that can affect early breastfeeding success are geographical location, socioeconomy, residency, education, occupation, income, age, gender of the baby, mothers, and baby status during childbirth.^[23]

Inquiries about exclusive breastfeeding and supplementary feeding were found to answer all postpartum mothers correctly. This topic is crucial, especially in the success of exclusive breastfeeding to prevent malnutrition in infants. This is the initial capital controlled by the mother in supporting the successful program of exclusive breastfeeding. The realization of Indonesian exclusive breastfeeding in 2019 was 67.74%, and Surabaya is a city with a higher performance than the national number.^[8,22]

The question topic of umbilical cord care, especially about how to perform umbilical cord care, found that there were still postpartum mothers who answered that umbilical cord care used gauze and alcohol, which was compressed on the umbilical cord. Currently, there is no evidence to show that routine umbilical cord care using antiseptics will be a safer and better outcome. The recommendation for umbilical cord care is dry umbilical cord care, but in an area with a high incidence of umbilical cord infection, chlorhexidine is recommended. In 2010, Indonesia published a pocketbook for essential neonatal health services, which explains that umbilical cord care is carried out using dry techniques or not applying any liquid or material to the umbilical cord. Treatment of the umbilical cord by compressing alcohol is not recommended because it can cause the umbilical cord to be moist and increasing the risk of infection in the umbilical cord.

Limitations of the study

The research could be the initial investigation in assessing the level of postpartum mothers' knowledge in the highest COVID-19 spread area who completed the minimum antenatal visit standard in low-middle income countries. ANC visits have an essential goal that prepares the mother during pregnancy, childbirth, and postpartum, so the knowledge must be provided at least according to the standard. This study can describe maternal knowledge problems, but the specific causes of the problem were not explored. The study would be improved if it was equipped with observation data during pregnancy and postpartum care to identify the

problem cause in more detail. Furthermore, it can be recommended to collect a wider sample population and involve a higher number of participants for further study. Thus, the data will be varied and comprehensive.

Conclusion

Even though mothers complete the minimum standard frequency of ANC visits, several postpartum mothers answered incorrectly, especially regarding pregnancy complications and contraceptive methods. Therefore, ANC needs to be considered for quality, not just quantity. The quality of ANC should be improved by good maternal health education, which empowers mothers and their families, so it is expected to reduce MMR.

Ethical approval

The research has received approval from the ethical body of the Faculty of Public Health, Universitas Airlangga, with the number 02/EA/KEPK/2020.

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Conflicts of interest

There are no conflicts of interest.

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