

Postpartum care knowledge and its determinants during the COVID-19 pandemic in mothers in Indonesia

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ABSTRACT

Background: Maternal deaths based on obstetric status in Semarang city, Indonesia, in 2018 occurred a lot during the postpartum (15 cases). Therefore, knowledge of postpartum care is essential in improving maternal health during the postpartum. This study aims to examine the picture of postpartum care knowledge during the COVID-19 pandemic and its determinants in Indonesia. Method: Cross-sectional research design. The study involved 92 postpartum mothers in 2 Puskesmas areas in Semarang City, Indonesia. The sample size was determined using the Cochrane formula with the inclusion criteria of pregnant women with a gestational age of 32-34 weeks. The study was conducted in January 2021. The instrument uses questionnaires and purposive sampling techniques. The Chi-Square and Fisher-Exact tests in this study are used to analyze the relationship between variables. Backward stepwise logistic regression test to determine determinants of postpartum care knowledge. Result: Mothers who had poor knowledge of postpartum care were 45.7%. Poor knowledge is found mainly in the aspects of nutritious food (65.2%), vitamin A (46.7%), and personal hygiene (47.7%). Mothers exposed to digital information are more likely to have knowledge of postpartum care (OR= 2.6; CI 95%= 1,100-6,018; p=0.029). Conclusion: Knowledge of postpartum care during the COVID-19 pandemic in Indonesia is still low and needs to be improved. The use of digital media as a medium for promoting postpartum care has an opportunity to improve maternal and infant health.

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INTRODUCTION

The global maternal mortality ratio caused by complications during pregnancy decreased by 38%. Those deaths occurred from 2000 (342 per 100.000 live births) to 2017 (211 deaths per 100.000 live births). Despite the decline, every 11 seconds, a pregnant woman or newborn dies somewhere in the world. As many as 94% of maternal deaths occur in lower-middle-income countries, including Indonesia (Dinas Kesehatan Kota Semarang Puskesmas, 2020), (World Health Organization, 2023).

Maternal mortality in Indonesia from 1991-2015 decreased from 390 cases to 350 cases (Dinas Kesehatan Provinsi Jawa Tengah, 2019). However, the reduction in deaths has not reached the Millennium Development Goals (MDGs) target of 102/ per 100.000 live births (in 2015). The 2015 Inter-Census Population Survey results showed that maternal mortality reached three times greater than the target MDGs. Data from the recording of the family health program of the Ministry of Health of the Republic of Indonesia showed an increase in maternal mortality every year. The trend of growth began in 2018 (4226) cases until 2021 (7389 cases) (Kemenkes RI., 2021). The causes of maternal death in Indonesia in 2021 were primarily due to COVID-19 (2982), bleeding (1320), others (1309), pregnancy hypertension (1077), heart disease (335), infections (207), metabolic disorders (80) and circulatory system disorders (65) (Kemenkes RI., 2021).

According to WHO, pregnancy, childbirth, and postpartum examination services are essential things that must continue to run amid the COVID-19 pandemic (Asfaw M, Tolu LB, Urgie T, et al, 2021), (Dashraath P, Wong JL, Lim MXK, et al, 2020). The COVID-19 pandemic has had an impact on the low utilization of postpartum care services in some countries (Aye YM, Kim SJ, Suriyawongpaisal W, et al, 2022), (Jardine J, Relph S, Magee LA, et al, 2021), (Wagner M, Falcone V, Neururer SB, et al, 2022). Restrictions on the movement and closure of health services led to a low number of recipients of postpartum health services, especially in socially deficient groups in Thailand (≥ 2 times; 30.7% and ≥ 3 times ;12.9%) (Aye et al., 2022). In the UK, 56% of mothers dropped the appointments for postnatal check-ups and 89% used the remote consultation method (Jardine J, Relph S, Magee LA, et al, 2021).

Maternal mortality during the postpartum period can be prevented through practical activities, namely pregnancy checks, adequate nutrition, supervision of complications during childbirth, and postpartum care (Eldawati, 2015). The Indonesian government's policy regarding handling pregnant, childbirth, and postpartum women during the COVID-19 period states that there is a limit on the number of pregnancy check-up visits and postpartum examinations in healthcare facilities. Home visits by health workers are only carried out for emergencies. Likewise, the class for pregnant women during the COVID-19 pandemic is temporarily closed (Dinas Kesehatan Kota Semarang, 2020). The concern of the policy is the insufficient knowledge of postpartum care. This is because one of the sources of information about postpartum care in mothers is obtained from counseling at health checks in health facilities, home visits by health workers, and classes for pregnant women. The purpose of this study is to find out an overview of maternal knowledge about postpartum care during the COVID-19 pandemic in Indonesia. In addition, the study also aims to know the determinants related to the mother's knowledge of postpartum care.

RESEARCH METHOD

Research setting and design

This research was conducted in Semarang City, the capital of Central Java Province, Indonesia, in November 2020-January 2021. The research design uses a cross-sectional approach. Purposive sampling technique, with inclusion criteria for pregnant women with a gestational age of 32-34 weeks. The calculation of the number of samples using the Cochran formula with a confidence interval of 95% and a maximum error rate of 10%. The calculation results show a minimum number of samples of 97 respondents. However, after the questionnaires were collected,

there were five respondents who had incomplete data, so the total sample analyzed was 92 respondents. The sample was a mother registered at 2 Community Health Centers (Puskesmas) located in the working area of the Bandarharjo health center and the Bangetayu health center, Semarang City, Indonesia.

Variables and Measurements

Data collection in this study used a structured questionnaire created by researchers who had been tested for validity and reliability. The variables measured in this study include characteristics and knowledge, which include aspects of postpartum visitation, early initiation of breastfeeding, exclusive breast milk, consumption of vitamin A, consumption of Fe tablets, contraceptives, consumption of nutritious foods, personal hygiene and postpartum danger signs. The question consists of 30 questions coded 1 if true and 0 if false. Knowledge is categorized as good knowledge (if the answer is correct $\geq 75\%$) and knowledge is not good (if the answer is correct $< 75\%$).

Statistical Analysis

The data results were checked for correctness and analyzed using SPSS version 23.0. The characteristic picture is presented in frequencies and percentages. Likewise, the concept of good/poor knowledge of various aspects of postpartum care is summarized in frequency and percentage. The relationship between characteristic variables and knowledge was analyzed using the Chi-Square and Fisher Exact tests. The backward stepwise logistic regression analysis determines the magnitude of the distinctive variable chance of postpartum care knowledge.

RESULTS AND DISCUSSIONS

Result

Table 1 shows the characteristics of the respondents. Most respondents were aged 20-35 and educated in Upper Secondary School through College. More than 75% of respondents are housewives with 1-2 children and health insurance. More than half of the respondents received postpartum care information from digital media.

Table 1. Respondent characteristic

Variable	n (92)	(%)
Age		
< 20 yr	4	4.3
20-35 yr	79	85.9
> 35 yr	9	9.8
Education		
Low (Elementary School-Junior High School)	24	26.1
High (Senior high School-College)	68	73.9
Income		
Low income (< IDR 2.700)	42	45.7
High income (\geq IDR 2.700)	50	54.3
Occupation		
Housewife	72	78.3
Informal Workers	5	5.4
Formal Workers	15	16.3
Health Insurance		
Equipped	83	90.2
Unequipped	9	9.8
Parity		
0	34	37.0
1 to 2	52	56.5
> 2	6	6.5
Information Exposure		
Non-digital	39	42.4

Digital	53	57.6
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An overview in table 2 regarding the calculation of the number of respondents based on aspects of postpartum knowledge has shown that the lack of postpartum care knowledge that was still lacking in respondents was mainly in the aspects of consumption of healthy food (65.2%), consumption of vitamin A (46.7%), personal hygiene (45.7%), and early initiation of breastfeeding (40.2%). Overall, respondents with adequate postpartum knowledge still lacked (45.7%).

Table 2. Aspects of respondents' knowledge about postpartum care

Knowledge Aspect	Good		Poor	
	n=92			
	n	%	n	%
Postpartum visits	75	81,5	17	18,5
Initiation of early breastfeeding	55	59,8	37	40,2
Exclusive breastfeeding	72	78,3	20	21,7
Vitamin A consumption	49	53,3	43	46,7
Fe tablet consumption	82	89,1	10	10,9
Contraceptives	90	97,8	2	2,2
Personal hygiene	50	54,3	42	45,7
Postpartum danger signs	70	76,1	22	23,9
Consumption of nutritious foods	32	34,8	60	65,2
Overall postpartum care knowledge	50	54,4	42	45,7

Table 3 shows the relationship between respondents' characteristics and postpartum care knowledge. This study's exposure to information was related to postpartum care knowledge ($p=0.047$).

Table 3. The relationship between respondents' characteristics and postpartum care knowledge

Variable	Postpartum Care Knowledge N=92				P
	Good		Poor		
	n	%	n	%	
Age					
<20 yr	2	2,2	2	2,2	0,172
20-35 yr	48	52,2	31	33,7	
> 35 yr	5	5,4	4	4,3	
Education					
Low (Elementary School-Junior High School)	1	1,1	3	3,3	0,462
High (Senior high School-College)	71	77,2	17	18,50	
Income					
Low income (< IDR 2.700)	20	21,7	22	23,9	0,577
High income (\geq IDR 2.700)	35	38,0	15	16,3	
Occupation					
Housewife	44	47,8	28	30,4	0,490
Informal workers	2	2,2	3	3,3	
Formal workers	9	9,8	6	6,5	
Health Insurance					
Equipped	51	55,4	32	34,8	0,611
Unequipped	4	4,3	5	5,4	
Parity					
0	22	23,9	12	13,0	0,819
1 to 2	30	32,6	22	23,9	
>2	3	3,3	3	3,3	
Information Exposure					
Non-digital	16	41,0	23	59,0	0,047*
Digital	34	64,2	19	35,8	

The logistic regression analysis results (Table 4) showed that mothers exposed to digital information had a higher chance of having good knowledge of postpartum care (AOR= 2.6; CI 95%= 1,100-6,018; p=0.029).

Table 4. Effect of information exposure on respondents' knowledge of postpartum care

Variable	B	AOR (95% CI)	p-value
Information Exposure	0.945	2.6 (1.100-6.018)	0.029*

Discussion

This study aims to find out a picture of the mother's knowledge about postpartum care and the factors that influence it. Aspects of postpartum care knowledge measured in this study include postpartum care, early initiation of breastfeeding, exclusive breastfeeding, consumption of vitamin A, consumption of Fe tablets, contraceptives, personal hygiene, postpartum danger signs, and consumption of nutritious foods. However, the results showed that the number of respondents with good knowledge of postpartum care was still low (50%). This can be seen in the aspects of consumption of nutritious foods (34.8%), consumption of vitamin A (53.3%), personal hygiene (54.3%), and early initiation of breastfeeding (59.8%).

Knowledge of postpartum care is needed to help mothers perform postpartum maintenance correctly and adequately (Wulandari R, Suwandono A, Kartasurya, et al, 2022). Therefore, postpartum care is vital to improve the health of mothers and babies. Some factors related to postpartum care knowledge include education level, occupation, income level, age, gravida, and location of residence (Mirzaee K, Ghadikolaee SO, Shakeri MT, et al, 2015), (Beraki, Tesfamariam EH, Gebremichael A, et al, 2020). Logically, the higher one's education, the easier it will be to digest the response in the form of information received, compared to someone with a lower level of education. This is proven by the research from Beraki, which states that knowledge of postpartum care in mothers is increasing with increasing education, gravida, and age (Beraki et al., 2020). These results are also supported by research in Iran that found that mothers with low levels of education, unemployed and poor have inadequate knowledge of postpartum care (Mirzaee K, Ghadikolaee SO, Shakeri MT, et al, 2015). Nonetheless, highly educated mothers sometimes ignore information about postpartum care.

The number of respondents who had a good knowledge of the consumption of nutritious foods during the puerperium was quite low (34.8%). However, some respondents still have the assumption that 1) avoiding fishy foods (fish, chicken and eggs), 2) reducing beverage intake 3) reducing fruit consumption and 4) consuming herbs that are considered to have a healthy impact on mothers and babies. This shows that cultural factors still apply in the research area. Several previous studies in Indonesia (Jepara Regency, Buton Regency, Southeast Sulawesi, and Aceh) proved the same thing, namely the presence of local cultural elements in postpartum care in mothers, such as abstinence from fish, meat, eggs, and drinking herbal medicine (Trisna & Rahayuningsih, 2016), (Usman & Sapril, 2018), (Mudatsir, 2017).

In this study, a small percentage of respondents possessed good knowledge about vitamin A consumption and hygiene (53.3% and 54.3%). Personal hygiene and self-care during the postpartum become an inseparable whole. Bathing, shampooing, and changing clothes during the postpartum are common things ingrained through habit. However, the question of how often it is best to change the sanitary napkin is still not adequately understood. This is similar to the research results in Nepal on personal hygiene knowledge, especially changing sanitary napkins; only a tiny percentage of them answered correctly (27.04%) (Probandari et al., 2017). Likewise, the question of washing hands properly and consuming vitamin A after childbirth has not been well understood by most respondents.

Some of the questions asked related to initiation of early breastfeeding include understanding, benefits, when, how long initiation of early breastfeeding is done, colostrum, and

advantages of colostrum for mothers and babies. Unfortunately, only 52 of this study's total 92 respondents (59.8%) had good knowledge of initiation of early breastfeeding. These results were lower than in the India study, where maternal knowledge of initiation of early breastfeeding was 85.2% (Vijayalakshmi, 2015). The low number of mothers well informed about initiation of early breastfeeding in this study was possible because there was still a perception to smear the baby's lips with honey and give formula before the first milk came out. This habit has been ingrained in society for generations.

The poor knowledge of postpartum care in some of the aspects above is possible due to the lack of optimal functioning of the Maternal and Child Health (MCH) book. This is supported by Indonesian National Health Research that MCH book ownership in Indonesia is still 60% (Kementerian Kesehatan RI, 2018). The Maternal and Child Health book ownership is only read by 17.5% of families. Even then, they only read MCH books occasionally (58.77%) as family readings (Khuzaiyah et al., 2018). Meanwhile in the City of Semarang the ownership of MCH books is almost 100%. Even so, only 50% of mothers have good knowledge about pregnancy and postpartum periode (Pandori, Kartasurya MI, Winarni S, 2018). Some mothers said they were unaware of the information contained in the MCH book. Although the MCH book is always carried out when the mother makes a pregnancy or postpartum visit, to the respondent's knowledge, the book is only filled/written by health workers (midwives) (Wulandari R, Suwandono A, Kartasurya, et al, 2022).

The analysis results in this study showed that exposure to information was related to postpartum care knowledge ($p = 0.047$). The odd ratio value of the logistic regression analysis results is AOR= 2.6; CI 95%= 1,100-6,018; $p=0.029$. This means that mothers exposed to postpartum care information through digital media have a higher chance of being better informed of postpartum care by 2.6 times than mothers who get exposure to postpartum care information through non-digital media.

This research was conducted during the COVID-19 pandemic. Pre-pandemic postpartum care information is usually obtained during pregnancy check-ups, postpartum examinations, and classes for pregnant women. Government policies during the COVID-19 pandemic impact the closure of pregnant women's classes and restrictions on visits in health services and field visits by midwives (Dinas Kesehatan Kota Semarang, 2020). The anxiety, worry, and fear of mothers at that time caused mothers to postpone pregnancy and postpartum check-ups at health centers and hospitals (Jabeen N, Zaheer F, Ali K, et al, 2021), (Wu H, Sun W, Huang X, et al, 2020). The need for postpartum care information during the COVID-19 pandemic has resulted in many mothers preferring to have remote postpartum consultations (Jardine J, Relph S, Magee LA, et al, 2021). Digital media is a choice of how to get information about pregnancy, including the puerperium. The COVID-19 pandemic brought opportunities for the digital popularization of pregnancy and puerperium care programs (Wu H, Sun W, Huang X, et al, 2020), (Du L, Gu YB, Cui MQ, et al, 2020). The availability of infrastructure allows information through digital media to be more accessible. Information through digital media also has many advantages compared to non-digital media, namely interactive, broad reach, and provides social support (Moorhead et al., 2013). Information obtained through digital media has also cost- and time-effective (Liu, Chen S, Zhang G, et al, 2015), (Wulandari R, Suwandono A, Kartasurya, et al, 2020)

CONCLUSION

This research provides an overview of postpartum care knowledge among mothers in Semarang, Indonesia, particularly during the COVID-19 pandemic. Knowledge regarding some aspects of postpartum care still needs improvement. This study demonstrates that exposure to digital information significantly affects postpartum care knowledge. This presents both an opportunity and a challenge regarding the digital information delivery method for mothers to enhance their postpartum care knowledge.

This research was conducted during the COVID-19 pandemic. Government regulations, in the form of restrictions on social mobility, led to limitations in respondent recruitment. Future research should involve samples within a broader scope, thus enabling a representation of the entire population.

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