

Determinant Factors of Postpartum Visit Attendance in Surakarta: A Retrospective Study

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ABSTRACT

Background: Women can experience complications and mortality in the postpartum period. Women are also burdened with the long-term consequences of complications after delivery. Access to high-quality care during the postpartum period is essential to improving maternal outcomes, but the number of postpartum visits has not met the standard. This study aims to analyze the determinants of postpartum visit attendance in Surakarta.

Method: A retrospective case-control study was conducted using secondary data. The database used in this study was derived from maternal and child health books and data from community health centers. All mothers who had completed the postpartum period (≥ 42 days postpartum) with the inclusion criteria of having a maternal and child health book and living in Surakarta were involved in this study. Data were analyzed descriptively and statistically. The relationship between the two variables was analyzed using the chi-square test. Multivariate analysis was performed using the logistic regression test. Statistical significance was set at $P < 0.05$.

Result: A total of 179 postpartum mothers' data were successfully collected. Most of them had incomplete postpartum visit data. (75.4%). The number of children and type of delivery were related to the status of the mother's postpartum visit ($p \leq 0.05$). Other variables, namely age, occupation, insurance ownership, complications during pregnancy, childbirth or postpartum, education, and place of delivery, were unrelated to the completeness of postpartum visits ($p > 0.05$). The results of multivariate analysis showed that the type of delivery simultaneously affected the mother's postpartum visit. Mothers who experienced a CS delivery compared to normal delivery had a 0.170 times greater chance of having a complete postpartum visit.

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INTRODUCTION

Maternal and neonatal mortality rates in low- and middle-income countries (LMICs) remain unacceptably high. In 2020, the global maternal mortality ratio was 223 deaths per 100,000 live births, far above the Sustainable Development Goals (SDGs) target of 70/100,000 live births.(1) WHO's standard definitions of pregnancy-related and maternal deaths only include deaths that occur within 42 days of delivery, termination, or abortion, with major implications for post-partum care and maternal mortality surveillance.(2) In low- and middle-income countries, approximately two-thirds of maternal deaths occur in the postpartum period.(3) Women experience mortality throughout the postpartum period, with the highest mortality rate on the first day due to postpartum hemorrhage and embolism. Most deaths

from postpartum eclampsia and hypertensive disorders occur within the first week. Most deaths from infection occur between the 8th and 42nd day.(4)

Women are also burdened with the long-term consequences of complications during the puerperium, especially in rural areas. A variety of postpartum issues have been documented during this period, including urine incontinence, constipation, depression, psychoses, post-traumatic stress disorder, anxiety, exhaustion, constipation, sleep disturbances, excessive or protracted postpartum hemorrhage, and nursing problems.(5) Women can experience long-lasting negative impacts after primary postpartum hemorrhage, including Post-Traumatic Stress Disorder (PTSD) symptoms and cardiovascular disease, which persist for years after delivery.(6)

Access to high-quality care during the postpartum period is essential to improving maternal outcomes and to continue reducing maternal mortality and morbidity worldwide.(4) Timely identification and appropriate treatment of life-threatening conditions in the postnatal period play an important role in preventing preventable deaths(1) Interventions during the postnatal period found to be associated with reduced maternal and newborn morbidity and mortality include family planning advice and support, early initiation support and promotion, and continuous breastfeeding; kangaroo mother treatment or care for premature infants and/or babies with low birth weight; hygienic care of the umbilical cord and skin after childbirth, training of health workers in basic neonatal resuscitation; and postnatal visits.(7)

Complications in the postpartum period pose a major risk to women and can result in significant maternal morbidity and mortality. However, there is much less attention to postpartum care compared to pregnancy and childbirth. (8) Postnatal care (PNC) coverage varies widely across countries but is generally low. An average of 58% of women and 28% of newborns in LMICs receive PNC within 42 days of delivery.(1) WHO recommends providing postnatal care in the first 24 hours to all mothers and babies—regardless of where the birth occurs, postnatal care in the first 24 hours to all mothers and babies—regardless of where the birth occurs, and all mothers and babies at least four postnatal checkups in the first 6 weeks.(9)

Data showed that maternal deaths occurred in Central Java in 2022, with as many as 359 cases, a decrease compared to 2021 of 976 cases. Despite the tendency to reduce maternal mortality rates, efforts are still needed to accelerate the reduction of AKI to achieve the SGDs target of 70 per 100,000 live births by 2030. The highest cause of maternal mortality that occurred in Central Java in 2022 was hypertension in pregnancy, namely 100 cases, bleeding 65 cases, and other causes, as many as 134 cases. Postpartum visits have also not reached the standard. Therefore, this study aims to analyze the determinant factors of postpartum visit attendance in Surakarta.

METHOD

This study has obtained approval from The Health Research Ethics Committee Dr. Moewardi with number 1.616/VI/ HREC I 2024. A retrospective case-control study was conducted using secondary data. The database used in this study was derived from maternal and child health books and data from community health centers, which contained information on maternal health before and during pregnancy, detailed information about

delivery and complications occurring intrapartum or postpartum, and information about newborns. The study population was all mothers who had completed the postpartum period (≥ 42 days postpartum) in the working area of the Health Centers throughout Surakarta during January-July 2024. The sample in this study was all postpartum mothers who had completed the postpartum period (≥ 42 days postpartum) with the inclusion criteria of having a Kesehatan Ibu dan Anak (KIA book) and living in Surakarta during the period. The sampling technique used was total sampling. This study used Anderson and Newman's theory of Societal and Individual Determinants of Medical Care Utilization. This study's dependent variable was a complete postpartum visit divided into two categories: yes and no. The dependent variables were age, occupation, number of children, type of delivery, insurance ownership, pregnancy complications, childbirth complications, postpartum complications, education, and place of delivery. Data were analyzed descriptively and statistically. Postpartum visits were calculated by number and percentage. The relationship/difference between the two variables was analyzed using the chi-square test. Multivariate analysis was performed using the logistic regression test. The data were analyzed using SPSS version 24. Statistical significance was set at $P < 0.05$.

RESULT AND DISCUSSION

Table 1 presents the characteristics of the A total of 179 data on postpartum mothers were successfully collected. The results of the demographic data show that most of the patients are less than 35 years old. More than half of all postpartum mothers have a high school education. Almost all postpartum mothers are Muslims. More than half of all postpartum mothers are not working. Most have several 1 child. More than half of all postpartum mothers give birth by cesarean section. Almost all of them give birth in hospitals. Most have incomplete postpartum visits, have insurance, no pregnancy complications, no childbirth complications, and no postpartum complications. Table 1 shows the characteristics of postpartum mothers.

Table 2 shows the factors that affect complete postpartum visits, namely the number of children and the type of delivery related to the status of maternal postpartum visits ($p \leq 0.05$). Other variables were age, occupation, insurance ownership, complications during pregnancy, childbirth, and postpartum, education, and place of delivery not related to complete postpartum visit ($p > 0.05$).

Table 3 shows the results of the multivariate analysis. Only the type of delivery affects the mother's

postpartum visit simultaneously. Mothers who experience SC childbirth compared to normal childbirth have a 0.170 chance of having a complete postpartum visit.

This study reveals that the number of children and the type of childbirth are related to the status of maternal postpartum visits, while other variables are not related. It differs from other studies that state formal education, antenatal care, institutional delivery, and

getting advice from healthcare providers were factors significantly associated with early postnatal care service utilization.(10) Other research found that women's age, place of residence, parity, education, occupation, number of antenatal care (ANC) visits, place of delivery, exposure to public media, the woman's role in decision-making, and needing permission to seek healthcare were associated with the level of utilization of PNC visits.(11) Moreover, this study resulted in the number of children affected by postpartum visits. A study by Iwanowicz-Palus et al. (2021) stated that more severe symptoms of mood disorders after childbirth occurred in respondents who had four or more children and who had a poor relationship with their partner compared to those who only had one child.(12) The number of children living is related to PNC Visits in rural Gambia. This is associated with the implementation of the family planning plan.(13) Women who gave birth between the ages of 25 and 34 years had fewer children, at least four prenatal visits, male births, and more likely to use PNC services for themselves and their children.(14)

The type of delivery affects the mother's postpartum visit simultaneously. Mothers who experience SC childbirth compared to normal childbirth have a 0.170 chance of having a complete postpartum visit. The number of cesarean deliveries continues to increase, which leads to an increase in the problems experienced. After a cesarean delivery, significant problems for both mother and baby can be seen. Pain, maternal death, breastfeeding problems, deteriorating sleep quality and comfort, anxiety, delayed recovery, prolonged hospitalizations, and infection rates in cesarean deliveries are higher than in vaginal deliveries.(15) In addition, a cesarean section may be associated with an increased risk of postpartum depressive symptoms, especially among childless women at first.(16) Postpartum women are at risk of morbidity, especially after a cesarean section and in women with hypertensive disorders during pregnancy. Scheduled visits to high-risk women to attend outpatient clinics early are recommended.(17)

Women who are at risk may not necessarily attend their postnatal care on schedule. Women are experts on their own needs and experience, even if members of the health care team have medical knowledge.(18) A study in Atlanta conducted on 1260 women found that in women who experienced hypertension problems during pregnancy, it turned out that most of the women did not attend blood pressure check visits within 10 days after giving birth.(19) There are barriers to postpartum care after women have had a cesarean section. A study in Uganda found that most women may have financial barriers to returning to health services after the operation, and most were unable to

Table 1. Characteristics respondents

Variable	n	%
Age		
<35 years old	142	79.3
≥ 35 years	37	20.7
Education		
Elementary school	9	5.0
Junior high school	36	20.1
Senior high school	107	59.8
College	27	15.1
Religion		
Islam	175	97.8
Christian	3	1.7
Roman catholic	1	0.6
Work		
Work	59	33.0
Not working	120	67.0
Number of Children		
1	142	79.3
2	37	20.7
Types of delivery		
SC	118	65.9
Vaginal delivery	61	34.1
Place of delivery		
Hospital	170	95.0
Public health center	4	2.2
Midwife's Independent Practice	5	2.8
Number of postpartum visits		
Incomplete visit	135	75.4
Full visit	44	24.6
Insurance ownership		
Exist	175	97.8
None	4	2.2
Pregnancy complications		
Exist	31	17.3
None	148	82.7
Complications of childbirth		
Exist	39	21.8
None	140	78.2
Postpartum complications		
Exist	15	8.4
None	164	91.6

explain the reason for the cesarean section, current complications, or the treatment prescribed afterward.(20) In addition, the number of efficient and effective postpartum visits is still uncertain. The addition of a 2-week postpartum visit to the 6-week postpartum visit did not increase the likelihood of patients attending a routine visit. Still, it did decrease the number of urgent clinic visits.(21) Additionally, women are more likely to attend care if they are seen at the same location and time as their

baby. Studies have found that 86%-94% of women will attend postpartum care at the same clinic location and time as their baby.(22) Postpartum visits are influenced by complex factors. Providers reported barriers to women's use of postpartum care on the patient, provider, and system levels.(23) A review found several themes related to complete postpartum visits, such as access and availability, physical and human resources, external influences, social norms, and experience of care.

Table 2. Factors affecting complete postpartum visit

Variable	Postpartum Visit				P-value
	Incomplete		Complete		
	n	%	n	%	
Age					
<35 years old	106	59.2	36	20.1	0.830
≥35 years	29	16.2	8	4.5	
Work					
Work	48	26.8	11	6.1	0.268
Not working	87	48.6	33	18.4	
Number of children					
1	113	63.1	29	16.2	0.017
2	22	12.3	15	8.4	
Type of delivery					
SC	101	56.4	17	9.5	0.000
Vaginal delivery	34	19.0	27	15.1	
Insurance ownership					
Exist	131	73.2	44	24.6	0.570
None	4	2.2	0	0	
Pregnancy complications					
Exist	21	11.7	10	5.6	0.358
None	114	63.7	34	19.0	
Complications of childbirth					
Exist	30	16.8	9	5.0	0.971
None	105	58.7	35	19.6	
Postpartum complications					
Exist	10	5.6	5	2.8	0.530
None	125	69.8	39	21.8	
Education					
Primary and secondary education	113	63.1	41	22.9	0.138
College	22	12.3	3	1.7	
Place of delivery					
Hospital	131	73.2	44	24.6	0.570
Others	4	2.2	0	0.0	

Table 3. Multivariate analysis

Variable	B	Sig.	Exp B	95% C.I. for EXP(B)	
				Lower	Upper
Age	-0.136	0.797	0.873	0.309	2.467
Education	0.732	0.305	2.080	0.513	8.430
Work	-0.245	0.579	0.783	0.330	1.857
Number of children	-0.633	0.154	0.531	0.223	1.267
Types of delivery	-1.775	0.000	0.170	0.071	0.407
Pregnancy complications	0.676	0.231	1.967	0.650	5.949
Complications of childbirth	0.112	0.832	1.118	0.399	3.133
Postpartum complications	0.734	0.260	2.083	0.581	7.470

Many women recognized the specific challenges of the postnatal period and emphasized the need for emotional and psychosocial support at this time, in addition to clinical care. While this is likely a universal need, studies on mental health needs have predominantly been conducted in high-income settings. Postnatal care programs and related research should consider these multiple drivers and multi-faceted needs, and the holistic postpartum needs of women and their families should be studied in a broader range of settings.(24) Other research stated that limited resources, including equipment, staff, and space, as well as long waiting times, hindered the delivery of high-quality care and contributed to a negative reputation of postnatal care services. (25)

This study has limitations, namely in terms of using secondary data. In secondary data assessment, researchers cannot know the real conditions when collecting data. In addition, this study was conducted in one area, so the use of research results in other populations may be different.

CONCLUSION

The number of children and the type of delivery are related to the status of maternal postpartum visits. Age, occupation, insurance ownership, complications during pregnancy, childbirth and postpartum, education, and place of delivery are not related to complete postpartum visits. In developing a program to increase postpartum visits, health facilities must consider the type of delivery and the number of children. During pregnancy, health workers need to provide health promotion related to the challenges of going through the postpartum period, especially for mothers who will undergo a Caesarean delivery, including education on the risks and differences with women who undergo vaginal delivery. Health workers need to provide education on family planning and the importance of postpartum visits to design a program that is suitable for families.

Conflict of Interest

The authors declare that there's no conflict of interest.

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