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ORIGINAL ARTICLE

UTILIZATION OF POSTNATAL CARE SERVICES AND ITS DETERMINANTS AMONG WOMEN WHO GAVE BIRTH IN THE LAST TWELVE MONTHS: A CROSS-SECTIONAL STUDY IN TWO DISTRICTS OF PUNJAB, PAKISTAN

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ABSTRACT

Background: Utilization of complete postnatal care is an essential part of the continuum of care for maternal health. The study aimed to determine the utilization of complete postnatal care services and recognize its determinants among women who gave birth in the last one year in the two districts of Punjab, Pakistan.

Materials & Methods: An analytical cross-sectional study was carried out in district Sargodha and district Mianwali from August 2023 to March 2024, using a self-structured questionnaire. Convenience sampling method was performed to include 262 women who gave birth during the previous 12 months in the sample. Data entry and analysis were carried out using SPSS version 22. Chi-square test was employed to find association between the variables and p value ≤ 0.05 was set for statistical significance.

Results: The participant's mean age was 29.7 ± 4.3 years. Only 69 (26.3%) women received all four recommended post-natal visits. Approximately 93%, started postnatal care within 24 hours of delivery. Most postpartum clients were recommended to take folic acid and iron supplements. Area of residence ($p=0.05$), husband's educational status ($p=0.001$), husband's occupation ($p=0.007$), average monthly income ($p<0.001$), preceding birth interval ($p=0.004$), place of delivery ($p<0.001$), mode of delivery ($p<0.001$), receiving post-natal care counseling ($p=0.03$), and utilization of complete postnatal care showed a significant association.

Conclusion: A low practice of complete postnatal care utilization was observed. Significant association was found between residence, husband's educational status, husband's occupation, monthly income, preceding birth interval, place of delivery, mode of delivery, being counseled and utilization of complete PNC.

KEY WORDS: Cross-sectional Study; Maternal Health; Postnatal Care; Utilization; Women.

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INTRODUCTION

Postnatal care (PNC) service plays an integral part in the continuum of care for maternal health. Apart from preventing morbidity and disabilities, it is one of the most significant maternal health care services for reducing maternal mortality.[1]

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The World Health Organization (WHO) reports that every year, 289,000 women worldwide die due to problems relating to pregnancy, childbirth, and the postpartum period.[2] It was reported that more than 65% of maternal deaths occur during the first 42 days of postnatal period and about 99% of these deaths occur in developing countries.[3] Majority of maternal deaths can be prevented with appropriate medical care by skilled health care professional throughout the antenatal, intra-partum and early postnatal phases.[4] Postnatal care has been defined as healthcare received in the first 42 days after birth. WHO supports this care as one of the key indicators for enhancing maternal health.[5] United Nations Sustainable Development Goal no 3 and the Global Strategy (2016-2030) for Women's, Children's and

Adolescents health profoundly approve postnatal care.[5,6]

In the six weeks following delivery, all mothers and newborns should receive postnatal care according to WHO guidelines, which address the timing, frequency, and place of postnatal contacts as well as the type of care that should be provided. Additionally, iron supplements should be given to women and newborns, and they should receive counseling on safe sex, family planning, hygiene, nutrition, and exclusive breastfeeding.[7] WHO guidelines suggest, postnatal care should be subject to four visits; the first 24 hours after delivery, the second to third days, the sixth to seventh days, and the sixth week.[8]

The postnatal period is often overlooked in many developing nations, even though it is a crucial phase during which mothers should receive critical attention from a qualified health care professional. Approximately 40% of women worldwide do not receive postnatal visits, and fewer than half of them receive treatment within 24 hours of giving birth.[9] Ethiopia showed a prevalence of 19.6% regarding complete postnatal care utilization.[1] Whereas in a study in Nepal only 22% women availed complete PNC.[10] In the Pakistan Demographic and Health Survey (PDHS) 2006 and PDHS 2018, there has been an increase in the utilization of PNC by mothers in Pakistan, with a rise from 43.5–63.6%.[11] However, there are significant differences in use of PNC amongst various urban and rural areas, cities, and ethnic groups.

Lack of appropriate care during the critical period of 42 days after childbirth can result in increased number of morbidities and mortalities as most maternal deaths occur during this time. As compared to provision of antenatal care and presence of skilled birth attendant at time of delivery, research on complete postnatal care is limited in developing countries like Pakistan. According to WHO recommendation, even PDHS 2018 and previous research conducted at national level do not provide information about the utilization of complete postnatal care. Pakistan showed a paucity of data regarding utilization of complete postnatal care. Therefore, this community-based study was conceptualized to determine postnatal care service utilization among women, residing in Chashma, district Mianwali and district Sargodha. The findings of this study will contribute to existing body of literature. Recommendations based upon findings of this study will be shared with policy makers at national level. The objective of the study was to determine the utilization of complete postnatal care services and its determinants among women who gave birth in the past 12 months.

MATERIAL & METHODS

A community-based analytical cross-sectional study was conducted at periurban area of district Mianwali (Chashma) and district Sargodha (Sabarwal colony, Chak71 NB and Aslam Colony) from August 2023 to March 2024 after obtaining approval from the ethical review board of National University of Medical Sciences, Rawalpindi vide letter number 06/IRB&EC/NUMS/39.

A convenience sampling technique was conducted including 262 study participants with a 22% prevalence of complete postnatal care utilization, using Raosoft sample size calculator with 5% margin of error and 95% confidence level.[10] The study included women aged 15–49 years who delivered during last 12 months residing at disrict Mianwali (Chashma) and district Sargodha (Sabarwal colony, Chak71 NB and Aslam Colony). Women having mental/psychological disorders and suffering from life threatening complications and not willing to participate were excluded.

Operational Definition: Complete postnatal care was labelled if a woman completed the four recommended postnatal visits (first visit within the first 24 hours after delivery, second visit on second to third days, third visit on sixth to seventh days, and fourth visit at sixth week).

Data was collected using a structured and pre-tested questionnaire. The research questionnaire comprised questions from previous studies, following a thorough literature review. The first section of the questionnaire included socio-demographic details, while obstetric data and utilization of post-natal care were recorded in the second and third sections, respectively.

Data entry and analysis were carried out using, SPSS Version 22. Descriptive statistics such as percentage and frequency were employed for categorical/qualitative variables and mean and standard deviation for continuous/quantitative variables. The Chi square test was used to determine the association between independent and dependent variables and p-values ≤ 0.05 was taken as statistically significant.

RESULTS

The study participants showed a mean age of 29.7 ± 4.3 years. Majority were rural residents (n=230, 87.8%) and only 7 (2.7%) were working women. Among total participants, 199(76%) were multiparous women. Fifty (19.1%) respondents did not receive recommended four antenatal checkups during pregnancy. Most of the participants (n= 202, 77%) were residing at less than one hour distance from health facility. Medical complications were faced by 11 (4.2%) participants during their last pregnancy. Details are mentioned in table 1.

Table 1: Sociodemographic characteristics of women enrolled in the study (n=262)

Sociodemographic characteristics	Frequency (n)	(%)age
Age		
Less than 25 years	33	12.6
25-35 years	210	80.2
More than 35 years	19	7.3
Residence		
Urban	32	12.2
Rural	230	87.8
District		
Mianwali	162	62
Sargodha	100	38
Educational Status of participant		
Illiterate	57	21.8
Primary	62	23.7
Secondary/Higher secondary	126	48.1
Graduate or above	17	6.5
Educational Status of husband		
Illiterate	28	10.7
Primary	50	19.1
Secondary/Higher secondary	160	61.1
Graduate or above	24	9.2
Occupation of husband		
Public sector employee	15	5.7
Private sector employee	77	29.4
Labourer	144	55
Businessman/shopkeeper/ self employed	26	9.9
Average Monthly income		
Less than 25000	61	23.3
25000-50000	174	66.4
More than 50000	27	10.3
Parity		
1	63	24
2-4	156	59.5
5 or above	43	16.4
Nature of Pregnancy		
Planned and wanted	213	81.3
Unplanned but wanted	23	8.8
Unplanned and unwanted	26	9.9
Preceding birth interval		
First birth	43	16.4
Less than 2 years	156	59.5
More than 2 years	63	24
Ante natal visits during last pregnancy		
Less than 4 visits	50	19
4 or more visits	212	81
Decision maker about seeking health care		
Herself	30	11.5
Husband	227	86.6
Others	5	1.9
Place of delivery		
Home	4	1.5
Public sector health facility	181	69.1
Private sector health facility	77	29.4
Mode of delivery		
SVD	192	73.3
Caesarean Section	70	26.7
Gender of last-born child		
Boy	140	53.4
Girl	122	46.6
Received Counseling about PNC		
Yes	249	95
No	13	5

A significant majority 249(95%) received counseling about postnatal care during their antenatal visits. About 244(93.1%) knew about one or more danger signs which can occur during puerperium. Although 249(95%) women attended at least one postnatal visit, only 69(26.3%) received complete post-natal care comprising of four recommended visits after child birth. One third (33.6%) women received post-natal care by a doctor. Postnatal care was initiated within 24 hours after delivery by 243(92.7%) participants. Lack of awareness was the main reasons of not receiving postnatal care, reported by 6 (2.3%) respondents.

Utilization of complete postnatal care was higher among urban residents, the women whose husbands had secondary or higher secondary education, women whose husbands were public sector employee, whose family income was more than 50000/- per month, having low parity, who attended 4 or more antenatal visits, who delivered in private sector health facilities, had caesarean section and received counseling about postnatal care. Significant association was found between area of residence, educational status of husband, occupation of

husband, average monthly family income, preceding birth interval, place of delivery, mode of delivery, being counseled about post-natal care and its utilization. (Table 2).

Table 2: Determinants of full PNC utilization: Bivariate analysis

Variables	Total n (100%)	Received complete PNC n (%)	Did not receive complete PNC n (%)	p-value
Age				
Less than 25 years	33	8(24.2)	25(75.8)	0.27
25-35 years	210	53(25.2)	157(74.8)	
More than 35 years	19	8(42.1)	11(57.9)	
Residence				
Urban	32	13(40.6)	19(59.4)	**0.05***
Rural	230	56(24.3)	174(75.7)	
District				
Mianwali	162	11(6.8)	151(93.2)	**<0.001***
Sargodha	100	58(58)	42(42)	
Education of participant				
Illiterate	57	12(21.1)	45(78.9)	
Primary	62	10(16.1)	52(83.9)	0.06
Secondary/Higher secondary	126	42(33.3)	84(66.7)	
Graduate or above	17	5(29.4)	12(70.6)	
Education of husband				
Illiterate	28	5(17.9)	23(82.1)	
Primary	50	5(10)	45(90)	**0.001***
Secondary/Higher secondary	160	56(35)	104(65)	
Graduate or above	24	3(12.5)	21(87.5)	
Occupation of husband				
Public sector employee	15	8(53.3)	7(46.7)	
Private sector employee	77	27(35.1)	50(64.9)	**0.007***
Labourer	144	29(20.1)	115(79.9)	
Business man/shopkeeper/self employed	26	5(19.2)	21(80.8)	
Average Monthly income				
Less than 25000	61	6(9.8)	55(90.2)	**<0.001***
25000-50000	174	43(24.7)	131(75.3)	
More than 50000	27	20(74.1)	7(25.9)	
Parity				
1	63	19(30.2)	44(69.8)	0.4
2-4	156	42(26.9)	114(73.1)	
5 or above	43	8(18.6)	35(81.4)	
Nature of pregnancy				
Planned and wanted	213	56(26.3)	157(73.7)	0.99
Unplanned and wanted	23	6(26.1)	17(73.9)	
Unplanned and unwanted	26	7(26.9)	19(73.1)	

Preceding birth interval				
First birth	43	19(44.2)	24(55.8)	**0.004***
Less than 2 years	156	31(19.9)	125(80.1)	
More than 2 years	63	19(30.2)	44(69.8)	
Ante natal visits during last pregnancy				
Less than 4 visits				0.07
4 or more visits	50	8(16)	42(84)	
	212	61(28.8)	151(71.2)	
Decision maker for health care				
Herself	30	9(30)	21(70)	0.68
Husband	227	58(25.6)	169(74.4)	
Others	5	2(40)	3(60)	
Place of delivery				
Home	4	1(25)	3(75)	**<0.001***
Public sector health facility	181	28(15.5)	153(84.5)	
Private sector health facility	77	40(51.9)	37(48.1)	
Mode of delivery				
SVD	192	30(15.6)	162(84.4)	**<0.001***
Caesarean Section	70	39(55.7)	31(44.3)	
Gender of last-born child				
Boy	140	37(26.4)	103(73.6)	0.97
Girl	122	32(26.2)	90(73.8)	
Received Counseling about PNC				
Yes	249	69(27.7)	180(73.3)	**0.03***
No	13	0	13(100)	

*Statistically significant

Majority of the clients were prescribed iron and folic acid supplementation during the postnatal period. Counseling about contraception was provided to 238 (90.8%) post-partum women.

DISCUSSION

Postnatal care services play a pivotal role in identifying and managing issues for both mother and the newborn in the first six weeks following delivery using a combination of preventative care, assessment and practices. Studies reveal that despite the recognized importance of PNC, its utilization remains low in many regions, particularly in low- and middle-income countries (LMICs). The current study emphasizes the key determinants of complete PNC utilization. In the current study, 26.3% women received complete post-natal care comprising of four recommended visits after childbirth. These findings are consistent with the study conducted at Ethiopia showing overall uptake of complete postnatal care services up to 23.9%.[12] According to another study conducted in India about 34.4% mothers were able to complete postnatal visits.[13] In Punjab India, only 25.9% women availed complete PNC.[14]

According to the findings of present study, initiation of postnatal care within 24 hours after delivery was reported by 92.7% participants and 93.9% in another study conducted in India.[15]

Present study showed that utilization of complete PNC was more among women who were residing in urban areas. Similar results were revealed by a study conducted at Nigeria which indicated that urban dwellers used PNC more frequently.[16]

Education fosters a habit of seeking health care by raising health-related awareness and improving service accessibility. In this study, utilization of complete PNC was higher among those women who have education up to secondary or higher secondary level. However, this association was not significant. Another study conducted in Malawi indicated the significant association between attainment of secondary education and above and practice of complete postnatal care.[17]

Husband's education showed an important influence regarding women getting PNC care. Educated men are better able to recognize the importance of PNC care and encourage their spouses to seek out mater-

nal health services. Present study found that women whose husband has secondary or higher secondary qualification were more likely to get all recommended postnatal care. Upadhyai et al., also described that husband's education was an important factor on women getting PNC care.[18]

This study found that PNC utilization significantly increased with higher monthly income. This result may be explained by the fact that mothers from lower-income families often lack the funds to attend a medical facility and receive the necessary care. Higher income level was also found to be a predictor of postnatal care service consumption in a study conducted in Myanmar.[19]

The current research revealed that complete postnatal care practice among mothers (44.2%) who delivered their first child and lowest among those multiparous women whose preceding birth interval was less than two years. The findings of another study conducted in India showed that the utilization rates of PNC services were significantly higher among primiparous mothers (82%).[20]Although there is significant association between independent and dependent variables in both studies, but these studies differ in proportion of primiparous women who utilized PNC.

Women who delivered at any private sector health facility had a higher prevalence of getting complete postnatal care. This finding was supported by another study conducted by Chhetri et al., which showed respondents who delivered their last child at a private hospital were more likely to have complete PNC in comparison to those who delivered in a public hospital.[10]

In this study about 56% of women who had caesarean section utilized complete postnatal care which showed a significant association with mode of delivery. The findings of another study conducted in Indonesia also supported that percentage of utilization of PNC was higher among those who delivered by c/section.[21]

Effective health education and counseling during antenatal visits and delivery significantly impact postnatal care utilization. This was observed in the current study that women who received counseling about the importance of postnatal care by health care personnel during their pregnancy utilized complete postnatal care. Similarly, a study conducted in Tanzania also revealed that mothers who received counseling during ANC were almost 4 times more likely to utilize adequate PNC services than their counterparts (AOR=3.73).[22]

This study observed no significant association between birth planning status and utilization of complete PNC. However, another research found that standard maternal continuum of care was higher in those respondents whose pregnancies were planned as compared to those who had mistimed pregnancies.[23]

It is important to provide all components of PNC to the mother and her baby in an integrated holistic manner. In current study iron and folic acid supplementation was given to more than 95% women and contraceptive counseling was provided by 90.8% respondents. However, according to another study conducted in Myanmar lesser number of postnatal clients received their services. Breastfeeding counseling, nutritional supplements and family planning counseling was provided to 78.6%, 65.5% and 58.4% participants, respectively.[24] This disparity might be explained by the socio-demographic differences among the study participants as well as variations in access to healthcare and health education.

This study revealed the main reason was lack of awareness about the significance of PNC which caused its non-utilization. This was consistent in another study, about 74% of respondents stated that the reason for not using PNC service was lack of awareness.[25]

The study has some limitations as there is a chance of recall bias, as it relies on retrospective information provided by the respondents. The cross-sectional nature of the survey prevents drawing inferences or establishing cause-and-effect relationships among variables. Despite these limitations, the study findings will be valuable for planning and implementing maternal health programs in similar settings within the country.

CONCLUSION

It was realized that the utilization of complete PNC was low among women who gave birth in the last 12 months, although it was frequently reported of having at least one PNC visit. Significant association was found between area of residence, educational status of husband, average monthly income, preceding birth interval, place and mode of delivery, being counseled about post-natal care and its complete utilization. In developing countries, maternal healthcare services should be intensively promoted. Enhancing complete PNC usage requires health education campaigns emphasizing the relevance and accessibility of postnatal care services.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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None declared.

AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	SM, HS
Acquisition, Analysis or Interpretation of Data:	SM, HS, HM, LS, HM, UN
Manuscript Writing & Approval:	SM, HS, HM, LS, HM, UN

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.