



Utilization of postnatal care in Bangladesh: Evidence
form DDHS 2017-18

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Abstract

Background: Postnatal care utilization with is a significant part of maternal and child health care. Utilization of health services is a complex behavioral phenomenon. Empirical studies of preventive and curative services in Bangladesh have often showed that the use of health services is related to the availability, quality and cost of services, as well as to social structure, health beliefs and personal characteristics of the users. Postnatal care is an important part of the reproductive health system. It is connected with the physical, nutritional and emotional well-being of mothers and new born. The determinants of utilization of PNC services are not the same across different cultures and socioeconomic status within a society. Thus, assessing factors affecting utilization of postnatal care service in different setup area is very important to improve maternal and child health services.

Methods: Determinants of postnatal care in Bangladesh that can effectively incorporate fixed effect covariates, and attempt has been made to examine the factors affecting postnatal care in Bangladesh using the data extracted from Bangladesh Demographic and Health Survey (BDHS) 2017-2018 the nationally representative that followed and stratified, multi-stage cluster sampling design, conducted in urban and rural contexts. Frequency, Chi-square test, regression analysis were done by IBM SPSS Statistics 22 software to understand the appropriate method for the dataset.

Results: All of the independent factors are included in the findings. However, every Variable has a significant effect on PNC coverage. Sample size 5012. Out of all independent variables p-value= .000 are significant. Only Sex of the child (Male) variables p-value is .049. The level of education, higher education group has higher PNC coverage that is 78.9% and the secondary and primary group have 31.7% and 52.5% PNC coverage respectively. No education group has lowest PNC coverage which is 24.0% and p-value =.000 is significant and impact on PNC coverage. In case of place of delivery, PNC coverage is higher for those who were delivered in hospital (98.8 %) and lower in non- hospital delivered children which is (0.5%) and p-value=.000 is significant and impact on PNC coverage.

Conclusion: Lack of care during time may cause neonates to die or develop impairments. This issue was highlighted in the study, which sought to identify any probable causes of postnatal care visits. It is crucial to place a strong emphasis on educating women if we want to significantly enhance maternal and child health outcomes. Making sure health care services are accessible to all people, regardless of where they live or their financial situation, is crucial.

Key Word: Postnatal care, BDHS, Bangladesh

Acronyms

PNC - post natal care

ANC- Antenatal care

WHO- World Health Organization

UNICEF- United Nations Children's Fund

ESP- Essential services package

LBW- low birth weight

BDHS- Bangladesh Demographic and Health Survey

BBS- Bangladesh Bureau of Statistics

ICF- International Classification of Functioning, Disability and Health

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Chapter 1

Background

Postnatal care utilization is a significant part of maternal and child health care. It is connected with the physical, nutritional and emotional well-being of mothers and new born (WHO, 2012) [1]. Postnatal care (PNC) is the care given to the mother and her newborn baby immediately after the birth and for the first six weeks of life. There are six components of postnatal care such as (i) postpartum examination, (ii) medical care, (iii) follow up, (iv) health education, (iv) family planning service and (vi) psychological and social support. PNC interventions have proven to be key health interventions to decrease maternal mortality. A health care system striving to reduce morbidity and mortality related to pregnancy must focus on maternal and newborn health. The postnatal period is a critical phase in the lives of mothers and newborn babies. Most maternal and infant deaths occur during this time. Yet, this is the most neglected period for the provision of quality care. PNC are very important for pregnant women. This care includes any type of medical, mental, emotional and social opportunity to mothers. Information and counseling on infant care and nutrition are provided to mothers. WHO recommended that a pregnant woman should make at least four antenatal visits during pregnancy but very few pregnant women have the access to this service (WHO, 2007) [2].

A lot of studies have focused on the issues of maternal and neonatal mortality because of the great impact they have on the national health scenario. Healthcare system in Bangladesh has been achieved a changed and improved status now. A continuous significant progress in many areas of maternal as well as child health has been obtained during the last decade. But there is still a field where we are to work a lot and that is the slow progress in improving neonatal survival in Bangladesh as neonatal mortality still remains unacceptably high at 37 per 1000 live births (WHO, 2003) [3]. Almost two-thirds of the newborns die within 7 days of birth and more than 50% within 24 hours (WHO, 2003) [3]. Thus, we will have to pay an extra attention on postnatal care to reduce the morbidity and mortality of the mothers and newborns. Mothers and their newborns are vulnerable to illnesses and deaths during the postnatal period. More than half a million women each year die of causes related to pregnancy and childbirth. The majority of deaths occur in less developed countries. The health of mothers is mostly regarded as an indicator the health of the

society. A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery (WHO, 2007) [2]. Thus, postnatal care (PNC) is important for both the mother and the child to treat complications arising from the delivery, as well as to provide the mother with important information. Every year, four million infants die within their first month of life, representing nearly 47 % of all deaths of children under age 5-year-old (WHO, 2022) [4]. During PNC, women were much more likely to receive a temperature check than counseling on danger signs, breast exams or vaginal discharge exams. Very few women received all four interventions. In the situation where Bangladesh is experiencing a shortage of high-level providers, training more types of providers, particularly informal village doctors, may be an important strategy for improving the quality of PNC. The World Health Organization (WHO) describes the postnatal period as the most critical and yet most neglected phase in the lives of mothers and babies. Lack of care in this time period may result in death or disabilities of newborns [20]. Safe motherhood and neonatal care have been identified as a major concern under reproductive health care element of essential services package (ESP). WHO (2004) [20] in the report of Country profile on Reproductive health in Bangladesh describe the component of GOB's maternal health policy "The Government's maternal health strategy includes reductions in maternal mortality and morbidity, social mobilization, caring practices, decision-making at home level acronym and service delivery through provision of emergency obstetric care services, promotion of women's access to resources and ensuring quality of services".

Postnatal care is a vital element of safe motherhood. Postnatal care provides an opportunity to assess and treat delivery complications and to advise mothers about the care for themselves and their children. Although the improvements can be seen in the infant and child health status through a number of indicators over the years, a high number of neonatal deaths are becoming a public-health concern in developing countries, including Bangladesh (Syed et al., 2006) [6]. Postnatal care, an important part of the reproductive health system is associated with the physical, nutritional and emotional well-being of mothers and new born. Maternal and neonatal deaths have a great impact on national health scenario and these issues have been focused in many studies. To improve the health system of mothers and the newborn, it is high time to sort out problems relating postnatal care service delivery in Government facilities [17].

Research shows that a proportionate number of maternal and neonatal deaths occur during the 24 hours after delivery, research also indicates that four million infants die every year in the first month of their birth and most of them occur in developing countries, notably, representing highest from South Asia and Sub-Saharan Africa (Sines et al., 2007) [5]. The most developing countries like Bangladesh, postnatal care may be implemented if provided through home visits, because due to geographic, financial, and cultural barriers it gets really tough to provide facilities outside the home during the early postnatal period. Strategies must be taken by countries considering unique cultural and social contexts, available financial and human resources, and existing health systems. In addition, strategies to provide postnatal care within a country should vary or be modified to target the hard-to-reach, minor, and poorest groups of women and newborns. There is no established evidence-based protocol that defines the most favorable timing and number of postnatal care. The World Health Organization (WHO) guidelines on postnatal care recommend postnatal visits within six to 12 hours after birth, three to six days, six weeks, and at six months (WHO 1998) [7]. Most maternal and newborn diseases occur during the first few hours and days after birth, especially within the first 24 hours and two or three days after childbirth. Early postnatal care is needed to encourage preventive behaviors and practices, such as warming of the infant. Life-threatening complications in both newborns and mothers are required to detect, refer, and treat as early as possible. As per research/studies, the proportion of women receiving postnatal check-up from a medically trained provider within two days of giving birth depend on women's age, birth order, urban-rural residence, division, education, and wealth quintile. Challenges can also been seen in identifying appropriate cadres, training and other facilities required for the successful implementation of the program. Therefore, it is mandatory to identify the gap between policy and implementation (WHO 2003) [3]. Postnatal period is very critical time for the survival of both mother and child. It is the most risky time for the mothers and her newborns. The early postnatal period, especially the time just after the delivery and following seven days is the time when postnatal care can bring a difference to the health and life chances of mothers and newborns. Mothers and newborns should be visited more frequently whenever the need arise at this period. Early postnatal care for all newborns is a must. This care should include immediate and exclusive breastfeeding, warming of the infant, hygienic care of the umbilical cord, and timely identification of danger signs with referral and treatment (WHO 1998) [7]. Since the majority of newborn deaths occur among low birth weight (LBW) babies, extra care is needed for LBW newborns for

breastfeeding, warmth, and early identification of danger signs. For mothers, recommended care includes monitoring and referral for complications such as excessive bleeding, pain, and infection; counseling on breastfeeding; and advice on nutrition during breastfeeding, newborn care practices, and family planning (WHO, 1998) [7].

For safe motherhood and neonatal health, postnatal care is a crucial component. Postnatal exams offer the chance to identify and address delivery-related issues and to give women advice on how to care for both themselves and their new baby. A lot of maternal and neonatal deaths happen within 24 hours of delivery (UNICEF 2012) [8]. The World Health Organization (WHO) recommends that women should receive a postnatal health check within 24 hours after delivery (WHO 2015b) [12]. In addition, the first 2 days following delivery are critical for monitoring complications among both mothers and their newborns. The 4th Health Population and Nutrition Sector Program (HPNSP) aims to increase coverage of PNC from a medically trained provider within 2 days of birth for non-institutional deliveries from 5% (the figure reported in the 2014 BDHS) to 10% by 2022 [10].

Utilization of health services is a complex behavioral phenomenon. Empirical studies of preventive and curative services in Bangladesh have often showed that the use of health services is related to the availability, quality and cost of services, as well as to social structure, health beliefs and personal characteristics of the users. PNC services utilization is affected by several factors including maternal age, educational level of the women, occupational status of women and husbands, place of delivery, mode of delivery, number of pregnancies, awareness about obstetric related danger sign, and awareness about PNC services [15]. Utilizing postnatal care services gives women the chance to learn about healthy habits that are essential for the survival of maternal and child health. This contains guidance on how to care for an infant, how to breastfeed exclusively, and how to use family planning. Mothers could also be treated for health conditions like postpartum hemorrhage, infection/genital tract sepsis and pre-eclampsia/eclampsia that may be picked up within the postnatal period while babies who have jaundice or thrush can also be treated. However, the determinants of utilization of PNC services are not the same across different cultures and socioeconomic status within a society. Thus, assessing factors affecting utilization of postnatal care service in different setup area is very important to improve maternal and child health services.

An attempt has been made to examine the factors affecting postnatal care in Bangladesh using the data extracted from Bangladesh Demographic and Health Survey (BDHS) 2017-2018 [10]. The main objective of this study is to investigate the effect of socioeconomic, demographic, and anthropometric factors on Bangladeshi mothers of reproductive age who receive PNC services in contrast to those not receiving PNC services in Bangladesh [16.]

General Objective:

To explore the determinants of postnatal care utilization Bangladesh in order to make the maximum utilization

Specific Objective:

- 1) To find out whether educational level has significant effect on PNC utilization.
- 2) To identify other factors behind PNC utilization Bangladesh.

Chapter 2

Methodology

Study design:

It is a cross sectional study based on the secondary data analysis using the nationally representative data from Bangladesh Demographic and Health Survey 2017-2018 (BDHS) [10]. This is the seventh DHS survey in Bangladesh. This was conducted by NIPORT and implemented by Mitra & associates.

Data and Method:

This study uses data from the Bangladesh Demographic and Health Survey (BDHS) 2017-2018 [10]. The BDHS 2017-2018 [10] survey was performed under the authority of the National Institute for Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare. The survey used a list of enumeration areas (EAs) from the 2011 Population and Housing Census of the People's Republic of Bangladesh, provided by the Bangladesh Bureau of Statistics (BBS), as a sampling frame (BBS 2011). The primary sampling unit (PSU) of the survey is an EA with an average of about 120 households [10].

The survey is based on a two-stage stratified sample of households. Based on this design, 20,250 residential households were selected. Completed interviews were expected from about 20,100 ever-married women age 15-49. In addition, in a subsample of one-fourth of the households (about 7-8 households per EA), all ever-married women age 50 and older, never-married women age 18 and older, and men age 18 and older were weighed and had their height measured. In the same households, blood pressure and blood glucose testing were conducted for all adult men and women age 18 and older [10].

Variables:

Here eleven variables have been considered, one of which is dependent and seven is independent. Postnatal care is a dependent variable, and it has two categories, i.e., yes and no. Yes, means receive the service, and no means not receive the service. Independent variables are: Level of education: four levels of education: no education, primary education, secondary education and higher education group; Place of residence: two groups that are urban and rural; Media exposure: Exposed and non-exposed to the media; Place of delivery: two groups that are hospital or institutional delivery and non-hospital delivery; Birth order: three groups, 1st birth, 2nd-4th birth and 5th or more; Sex of the index child: male and female; Religion: two groups, Muslims and non-Muslims, Division: Dhaka, Barisal, Chittagong , Khulna, Mymensingh, Rajshahi, Rangpur, Sylhet.

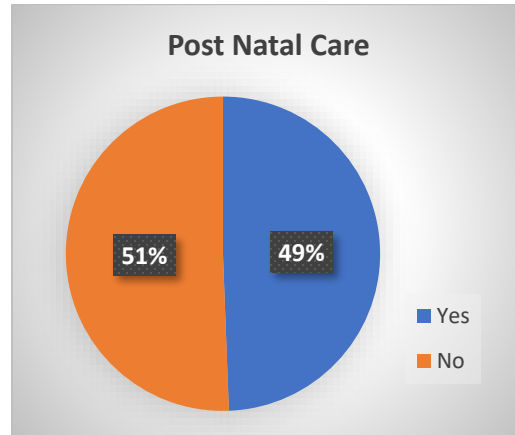
Analysis Plan:

The analysis was done into three steps. Firstly, univariate analyses were done for both dependent and independent variables. Then, bivariate analysis was done to examine the association between the dependent variable and all other independent variable separately. Finally, multivariate analysis was done by fitting the logistic regression model for PNC to examine the impact of maternal education after controlling the other factors. This was done logistic regression and the factors in the logistic regression model those are found to be statistically significant in the bivariate analysis. It was discovered that the PNC and level of education, with reference to those with no formal schooling, meant elementary, secondary, and higher. Include place of home as rural along with PNC and make mention of an urban area. PNC, birth order as the first birth and the fifth and above birth with the reference of the second to fourth birth, and religion. Birth place as hospital with reference to non-hospital. In the aforementioned factors, we take media exposure into account both as exposed and as non-exposed.

Chapter 3

Results

Table 1 describes the profile of both dependent and independent variables. Post Natal Care (Dependent Variables) 2491 taken by the post-natal care (49.1%), 2521 not taken by the post-natal care (50.3%). Among the independent variables, Educational Level-312, No education (6.2%), 1392 Primary (27.8%), 2402 Secondary (47.9%), 906 Higher (18.1%). Religion-4589 Muslim (91.6%), 423 Others (91.6%). Place of Delivery -2507 Institutional (50.0%), 2505 No Institutional (50.0%). Division- 741 Dhaka (14.8%), 533 Barisal (10.6%), 835 Chittagong (16.7%), 524 Khulna (10.5%), 603 Mymensingh (12.0%), 527 Rajshahi (10.5%), 559 Rangpur (11.2%), 690 Sylhet (13.8%). Type of place of Residence-1725 Urban (34.4%), 3287 Rural (65.6%). Sex of Child-2624 Male (52.4%), 2388 Female (47.6%), Media Exposure-20555 Exposure (45.6%), 2285 Not Exposure (41.0%) and Number of Child-2009 the 1st birth group consists of (40.1%), 2792 the 2nd to 4th birth group consists of (55.7%), while 3.2% are in (161) the 5th and more birth groups.



Utilization of PNC Pie Chat

Table 1. Frequency distribution of selected independent and dependent variables

No	Variables	Category	Frequency	Percentage %
01	Post Natal Care (Dependent Variables)	Yes	2491	49.1
		No	2521	50.3
02	Educational Level	No education	312	6.2
		Primary	1392	27.8
		Secondary	2402	47.9
		Higher	906	18.1
03	Religion	Muslim	4589	91.6
		Other Religion	423	8.4
04	Place of Delivery	Institutional	2507	50.0
		No institutional	2505	50.0
05	Division	Dhaka (ref)	741	14.8
		Barisal	533	10.6
		Chittagong	835	16.7
		Khulna	524	10.5
		Mymensingh	603	12.0
		Rajshahi	527	10.5
		Rangpur	559	11.2
Sylhet	690	13.8		
06	Place of Residence	Urban	1725	34.4
		Rural	3287	65.6
07	Sex of Child	Male	2624	52.4
		Female	2388	47.6
08	Media Exposure	Exposure	20555	45.6
		Not Exposure	2285	41.0
09	Number of Child	1 (ref)	2009	40.1
		2-4	2792	55.7
		5 and above	161	3.2

Table 2. Examining the association between measles vaccination and selected independent variable: A bivariate analysis

Variables	Post Natal Care (%)		P-value
	Yes	No	
Educational level			
No education	24.0	76.0	.000
Primary	31.7	68.3	
Secondary	52.5	47.5	
Higher	78.9	21.1	
Religion			
Muslim	48.7	51.3	.000
Other Religion	60.8	39.2	
Place of Delivery			
Institutional	98.8	1.2	.000
No institutional	0.5	99.5	
Division			
Dhaka	58.6	41.4	.000
Barisal	41.3	58.7	
Chittagong	46.5	53.5	
Khulna	62.4	37.6	
Mymensingh	42.1	57.9	
Rajshahi	54.5	45.5	
Rangpur	51.2	48.8	
Sylhet	42.8	57.2	
Type of place of Residence			
Urban	62.3	37.7	.000
Rural	43.1	56.9	
Sex of Child			
Male	51.0	49.0	.049
Female	48.2	51.8	
Media Exposure			
Exposure	63.3	36.7	.000
No Exposure	36.0	64.0	
Number of Child			
1	60.5	39.5	.000
2-4	43.7	56.3	
5 and above	18.0	82.0	

Table 2 represents the results obtained from the bivariate analysis for PNC with all independent variables. Out of all independent variables p-value is .000. Only Sex of the child (Male) variables p-value is .049. Out of remaining others significant variables, under the level of education, higher education group has highest PNC coverage that is 78.9% and the secondary and primary group

have 31.7% and 52.5% PNC coverage respectively. No education group has lowest PNC coverage which is 24.0%.

PNC coverage is slightly higher in rural area (62.3%) in comparison to urban area. Those who are in exposure with media have higher coverage (63.3%) in comparison to those who are not in exposure (36.0%) with media. In case of place of delivery, PNC coverage is higher for those who were delivered in hospital (98.8 %) and lower in non- hospital delivered children which is 0.5%. Considering the birth order PNC coverage is highest in first birth group which is 60.5 % and lowest among the 5th and more birth group which is 18.0 %. Coverage among the 2nd to 4th birth group is 43.7%. PNC coverage is slightly higher in Other Religion (60.8 %) in comparison to Muslim.

Table 3. Logistic regression models for PNC coverage

No	Variables	Category	OR	P-value
01	Education	No education (ref)		
		Primary	4.802	.023
		Secondary	3.741	.041
		Higher	4.751	.038
02	Religion	Muslim (ref)		
		Others	1.036	.951
03	Type of place of Residence	Urban (ref)		
		Rural	.436	.033
04	Division	Dhaka (ref)		
		Barisal	.783	.744
		Chittagong	.267	.030
		Khulna	.684	.596
		Mymensingh	.718	.638
		Rajshahi	.591	.459
		Rangpur	1.087	.908
		Sylhet	.599	.453
05	Number of Child	1 (ref)		
		2-4	1.240	.551
		5 and above	.316	.159
06	Sex of Child	Male (ref)		
		Female	.713	.315
07	Place of Delivery	Institutional (ref)		
		No institutional	20748.921	.000
08	Media Exposure	Exposure (ref)		
		No Exposure	1.090	.810

Table 3 represents the logistic model for PNC where all the independent Variables are included. With the reference of institutional delivery, no institutional delivery is 20748.921 times than non-institutional delivery which is significant (p-value=0.000) impact on PNC coverage. With the reference of No Education group, primary education group has 4.802 times PNC coverage which is not significant (p-value=0.23) impact on the PNC coverage respectively. While secondary education group 3.741 and Height education group has 4.751times higher PNC coverage respectively which are (p-value=0.41) (p-value=0.38) are not significant. With the reference of Muslim, other religion has 1.036 times coverage PNC which is not significant (p-value =0.951) impact on the PNC coverage.

The reference of Urban, Rural has 436 times coverage PNC which is not significant (p-value=0.33) impact on the PNC coverage. With the reference number of Child 1, 2-4 number of child 1.240 times and 5 and above.316 times coverages PNC which are not significant(p-value=0.551) (p-value=.159) impact on the PNC coverage respectively. The reference of Sex of child male, female has .713 times coverages PNC which is not significant (p-value=.315) impact on the PNC respectively. With reference of Media exposure, no media exposure 1.090 times coverage PNC which is not significant (p-value=.810) impact on the PNC coverage. The reference Division of Dhaka, Barisal (p-value=.744), Chittagong (p-value=.030), Khulna (p-value=.596), Mymensingh, (P-value=.638), Rajshahi. (p- Value=.459), Rangpur (p-value=.908), Sylhet (P-value=.453) all division are not significant and its impact on PNC respectively.

Chapter 4

Discussion

Public health interventions to increase the utilization of postnatal care services should target women who are poor, less educated, from rural areas and who use untrained birth attendants. Strategies to improve the availability and accessibility of antenatal care services and skilled birth attendance including focused financial support and health promotion programs, particularly in the rural areas, should increase utilization of postnatal care services in Bangladesh.

In summary, Fifty-two percent of mothers in Bangladesh received postnatal care from a medically trained provider within 2 days after delivery. Nearly half (49%) of women received a postnatal checkup within the first 4 hours after delivery, 2% received a checkup between 4 and 23 hours after delivery, and 1% received a checkup 1 to 2 days following delivery. Thirty-three percent of women received care from a qualified doctor within 2 days after birth, while 19% received care from a nurse, midwife, paramedic, or family welfare visitor (FWV). The percentage of mothers receiving a postnatal checkup from a medically trained provider within 2 days of delivery increased from 16% in 2004 to 52% in 2017-18 [10].

Through this study the relationship between education and PNC utilization was shown in different angles. From Variables its show that PNC seeking behavior in secondary education level was higher than others levels of education. Muslim was higher than others religion that PNC seeking behavior. Institutional and no Institutional are same range. The divisional variation also became prominent here which is the rate of PNC seeking increased with Chittagong is higher range to the others range like Khulna is low one. Its show that rural is higher than urban area of PNC seeking. Male is also higher range than female range of PNC. Media exposure is higher of PNC seeking. Number of child 2-4 is higher than others two ranges. PNC was positive (49.1%), negative was (50.3%). The level of education, secondary education group has highest PNC coverage that is (47.9%) and the primary and higher group have (27.8%) and (18.1%) PNC coverage respectively. No education group has lowest PNC coverage which is (6.2%). Urban area (34.4%), rural area (65.6%) slightly higher in rural area. The media exposure have higher coverage (63.3%) in

comparison to no exposure. Those who were delivered in hospital (50.0%) and non- hospital (50.0). PNC coverage is slightly higher in Other Religion (8.4 %) in comparison to Muslim. In division Chittagong is higher (16.7%) comparison others division like Khulna is lowest (10.5%). Sex of the child male was (52.4%) and female was (47.6%). Number of Child 2-4 was higher (55.7%) comparison 5 and above (3.2). In this study all the variables level have a significant (p-value=0.000) positive impact on the PNC coverage.

In BDHS data the proportion of women receiving postnatal care from a medically trained provider varies considerably by place of delivery. Nearly all mothers (97%) who delivered at a health facility received PNC within 2 days, as compared with only 7% of mothers who delivered elsewhere [10]. To improve the health system of mothers and the newborn it is high time to sort out problems relating postnatal care service delivery in Government facilities. And it is crucial to place a strong emphasis on educating women if we want to significantly enhance maternal and child health outcomes.

The World Health Organization (WHO) describes the postnatal period as the most critical and yet most neglected phase in the lives of mothers and babies [13]. Lack of care in this time period may result in death or disabilities of newborns. The study emphasized this issue and aimed to determine the potential factors those are responsible for receiving postnatal care visits. To improve maternal and child health outcomes to a great extent, it is important to emphasize on educating women. It is equally important to ensure health care services available to all geographical and economical accesses. Promotion of health related programs in rural areas targeting lower educated women are vital to increase awareness among mothers about the importance of postnatal care services. Women should be encouraged to read newspaper and also access to electronic media should be made easily available to them. Moreover, complete ANC visits (visits ≥ 4) for mothers should be pursued as much as possible [19]. However, government should take necessary prompt actions to implement new strategies that can increase awareness among women regarding child and maternal health care to elevate the adverse consequences of avoiding postnatal care.

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