

A Study on Prenatal Care and Complications During Pregnancy Among Muslim Women of Purba Medinipur District, West Bengal

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KEYWORDS Maternal Health. Prenatal Care. Pregnancy. Reproductive Health. Rural Area. Family Planning

ABSTRACT Proper preventive and diagnostic care during pregnancy and delivery can prevent many unexpected problems or deaths of mothers and children. This study aimed to examine the utilisation of prenatal care services (PCS) and complications during pregnancy and the associated factors influencing the utilisation of PCS. It is a cross-sectional study on Muslim women in rural Purba Medinipur district, West Bengal, India. A total of 149 women were selected through purposive sampling. Data was collected through a structured schedule and interview method. While statistical testing p -values < 0.05 were considered statistically significant. Most women (89.93%) registered their pregnancy within 12 weeks (early registration). Most participants (75.84%) utilised more than four prenatal check-ups. Except few participants, all others took TT injections (97.99%), IFA tablets (98.66%), calcium tablets (99.33%), blood pressure check-ups (97.32%), urine tests (95.30%), and haemoglobin tests (95.30%). Full prenatal check-ups (all tests were done) are used by 21.50 percent of women. Few women had complications during pregnancy like excessive swelling (5.37%), urination problem (2.68%), jaundice (2.01%), low blood pressure (1.35%), anaemia (1.34%) and others. The women's age group and education were significantly associated with total prenatal care. Though most women are taking prenatal and pregnancy care services, few still do not utilise these essential services, and this problem may be solved by increasing awareness through different awareness programs and mass media.

INTRODUCTION

Maternal health care services, including prenatal, delivery, and postnatal care, play a crucial role in protecting the health of women and their unborn children. The seeking behaviour for these services is influenced by various socio-economic and demographic factors such as education, occupation, income, and empowerment (Kifle et al. 2017; Jaiswal et al. 2022). Prenatal care not only provides clinical care but also educates women about health behaviours, helps them recognise warning signs during pregnancy and childbirth, and offers social, emotional, and psychological support during this critical period (UNICEF 2021).

The Millennium Development Goals (MDGs) 4 and 5, set between 1990 and 2015, aimed to reduce child mortality and improve maternal

health. The goal was to reduce infant mortality by two-thirds, the under-five mortality rate by three-quarters, the maternal mortality ratio by three-quarters, and ensure universal access to reproductive health by 2015 (WHO 2018). The proper utilisation of maternal and child health care services is instrumental in improving maternal and child health and significantly improving the lives of many mothers and their children.

There was inequality present in structural determinants of maternal and reproductive health in India. Access and use of maternal and reproductive health services are disadvantaged in Indian society (Mohanty 2012; Sanneving et al. 2013; Jaiswal et al. 2022; Dandona et al. 2022; Shree et al. 2023; Shimray et al. 2023; Singh et al. 2023). Though maternal and child healthcare services are not per expectation, India has made considerable progress in this area in the past few decades. The country had been witnessing a progressive reduction in the Maternal Mortality Ratio (MMR) from 130 in 2014-2015, 122 in 2015-2017, 113 in 2016-2018, 103 in 2017-2019, and 97 in 2018-2020. With this persistent decline, India was on the verge of achieving the National Health Policy (NHP) target of 100/lakh live births by 2020 and certainly on track to achieve the Sustainable Development Goal (SDG) target

Declaration: This is original research. This paper was never sent to any other journal for consideration

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of mortality of less than 70/lakh live births by 2030 (Ministry of Health and Family Welfare 2022). At the same time, a report by Roy (2022) suggested that West Bengal registered an alarming 10-point jump in the Maternal Mortality Ratio, going from 98 to 109. The report shows that 76 percent of mothers had four or more prenatal care visits in West Bengal. Urban women were more likely to have four or more prenatal care visits than rural women. Meanwhile, 57 percent of mothers had prenatal care visits during their last births in Purba Medinipur district (NFHS-5 2021).

Maternal health care services were highest in Kolkata, Howrah, Darjeeling, and Nadia, and the worst implemented districts of West Bengal are Uttar Dinajpur, Maldah, and Murshidabad. These differences in usage were probably due to differences in the availability and accessibility of services (Sen et al. 2018) and lack of general awareness. Maternal health facilities were found high among Kochbihar (1st), Darjeeling, and 24 Parganas (2nd), a third position for the Howrah, Hooghly, and Bardhaman districts of West Bengal. Purulia, Purba Medinipur, Paschim Medinipur, Maldah, and Dakshin Dinajpur districts were low-ranked in the health facility index (Ghosh and Mistri 2015).

Considering the above background and disparities among different populations, the current study aims to examine the utilisation of prenatal care services and the factors associated with complications of women during pregnancy among Muslim Women of Purba Medinipur District in West Bengal, India.

Objectives

The present study examines the utilisation of prenatal care, pregnancy-related complications, and related factors. The specific objectives of the study are as follows:

- ♦ To examine the utilisation of prenatal care services (PCS) among Muslim women
- ♦ To find complications during pregnancy in the study population
- ♦ To study the associated factors influencing the utilisation of prenatal care services

METHODOLOGY

This community-based cross-sectional study was conducted during the latter half of 2022 in

rural areas of the Nandakumar block of Purba Medinipur district of West Bengal, India. Participation in the study was voluntary. Data was collected after explaining the purpose of the study and obtaining consent from each participant. This study focused on Muslim women from rural areas. Only women with children aged between 1 and 5 years (excluding adopted children) were selected. A total of 149 Muslim women participated in this study. Villages and participants were selected through purposive sampling, considering the availability of the participants. Data were collected using a structured schedule and interview methods during fieldwork. The schedule had two parts with Part 1 containing the socio-demographic profile, and Part 2 was for prenatal care services and complications during pregnancy. The prenatal care-related data was collected through health cards from participants (a total of 15 services were included as prenatal care services). Complete prenatal care coverage included those women who had four or more prenatal visits and had taken tetanus toxoid (TT), iron-folic acid (IFA) supplements, and calcium tablets for at least 100 days (Lodha 2022).

The collected data was entered and analysed using Statistical Software for Social Science (SPSS 16.0). Pearson chi-square test was performed to determine the association between variables. Fisher's exact test values were considered for variables where one or more boxes had an expected value of less than 5. Categorical variables were expressed as frequencies and proportions. For statistical testing, p values <0.05 were considered statistically significant.

RESULTS

The average age of the participants is 25.77 (SD±4.94) years. The mean age at marriage was 16.62 (SD ± 2.01) years, which was very concerning. The educational status of the participants was equally concerning, as only 13.40 percent of the participants attained higher secondary or above education. The educational status of the husbands of the women in this area is even more concerning as only 6 percent of them attained higher secondary or above education. The Muslim women in the study area are predominantly homemakers. Only two exceptions

were found, that is, one involved in daily labour and one in the government job. After understanding the educational and occupational status of the participants and their husbands, it is clear that most families in the area are not economically affluent. Most families (31.50%) earn between INR 5,000 and INR 10,000. More than half of the families (68.50%) in this study had lower income than INR 20,000 (Table 1).

All the study participants registered for pregnancy in nearby health centres. Most women (89.93%) registered their pregnancy within 12 weeks (early registration). Though a healthy percentage of women registered their pregnancy early, many of the women (10.07%) failed to register their pregnancy early and took more than 12 weeks to register. Most women (75.84%) attend more than four prenatal check-ups in health centres. Most of the women (71.11%) practice family planning methods, but a considerable number of them (28.89%) have yet to use family planning methods in the study population (Table 2).

Most of the women in this study received prenatal check-ups. Most participants took TT

injections, IFA tablets, calcium tablets, blood pressure check-ups, urine tests, and haemoglobin tests. Though a substantial percentage of the participants took pulse rate check-ups, complete blood count, HbsAg, sugar, HIV, and abdomen examinations, many failed to do those check-ups. The most neglected tests that a large number of women did not get were breast check-ups, syphilis tests, and thyroid tests (Table 3). 11.40 percent of women received low prenatal check-ups, 23.50 percent of women received medium, and the largest share of women (43.60%) received high prenatal check-ups and full prenatal check-ups used by 21.50 percent of women (Table 4).

Fewer women had complications during pregnancy. Fade away of the body (0.67%), anaemia (1.34%), jaundice (2.01%), and urine problems (2.68%) were faced by some women during their pregnancy period. During pregnancy, most women experience sudden and/or excessive swelling in some body parts, mainly in the ankle, feet, and fingers. Almost all women felt foetal movement during pregnancy. Though

Table 1: Socio-demographic profile of the study women

Variables	n	%	Variables	n	%
<i>Age group (years)</i>			<i>Age at Marriage (years)</i>		
15-24	68	45.6	<18	110	73.80
25-34	74	49.7	>18	39	26.20
> 35	7	4.7	<i>Family Type</i>		
<i>Occupation</i>			Nuclear	123	82.55
Govt. job	1	0.67	Joint	26	17.45
Labour	1	0.67	<i>Family Income (monthly)</i>		
Housewives	147	98.66	5000-10000	47	31.50
Agriculture	2	1.30	10001-15000	40	26.80
Self-employment	21	14.10	15001-20000	30	20.20
Mason	33	22.10	> 20000	32	21.50
<i>Education</i>			<i>Husband's Education</i>		
Pre-literate	15	10.10	Pre-literate	33	22.10
Primary	86	57.70	Primary	95	63.80
Secondary	28	18.80	Secondary	12	8.10
H.S. and above	20	13.40	H.S. and above	9	6.00

Table 2: Pregnancy Registration, prenatal check-ups and family planning

Variables	n	%	Variables	n	%
<i>Pregnancy Registered</i>			<i>Prenatal Check-Ups</i>		
Yes	149	100.00	< 4	36	24.16
No	0	0	>4	113	75.84
<i>Registration of Pregnancy</i>			<i>Family Planning Practiced</i>		
< 12 weeks	134	89.93	Yes	96	71.11
>12 weeks	15	10.07	No	39	28.89

Table 3: Utilisation of PCSs among the Muslim women of Purba Medinipur

Utilisation of prenatal care	Yes		No	
	n	%	n	%
Taken TT injections	146	97.99	3	2.01
Taken IFA tablets	147	98.66	2	1.34
Taken calcium tablets	148	99.33	1	0.67
Blood pressure check-up	145	97.32	4	2.68
Pulse rate check-up	132	88.60	17	11.4
Breast check-up	106	71.10	43	28.9
Urines test	142	95.30	7	4.70
Haemoglobin test	142	95.30	7	4.70
Blood test	135	90.60	14	9.40
HbsAg	120	80.54	29	19.46
Blood sugar test	128	85.91	21	14.09
Syphilis test	96	64.43	53	35.57
Thyroid test	79	53.02	70	46.98
HIV test	124	83.22	25	16.78
Examination of abdomen	133	89.3	16	10.7

Table 4: Completion of PCSs among the Muslim women (15 check-ups included)

Completed check-ups	Low (<10)		Mid (11-12)		High (13-14)		Full (All 15)	
	n	%	n	%	n	%	n	%
	17	11.40	35	23.50	65	43.60	32	21.50

most women reported normal foetal movement, few reported very slight movement (4.03%). Blood pressure conditions among the study women during pregnancy were very good, with 97.97 percent having normal blood pressure (Table 5).

Table 6 represents the association between socio-demographic factors and full PCSs utilisation among the participants. Women's age group ($\chi^2=8.374$; $p<0.05$) and education ($\chi^2=7.976$; $p<0.05$) were significantly associated with total prenatal care (Table 6).

DISCUSSION

Prenatal care, an umbrella term, is crucial in detecting any problems of mother and child during pregnancy. It is provided by a formal health care system and skilled attendants at birth (Narayana Health 2022) and plays a pivotal role in the long-term growth and development of the child. This is particularly significant as it falls within the critical "1000 days" window, during which the foundation for a child's future health

Table 5: Complications during pregnancy among the participants

Complications	n	%	Complications	n	%
<i>Fade Away Of Body</i>			<i>Blood Pressure</i>		
Yes	1	0.67	Low	2	1.35
No	148	99.33	Normal	145	97.97
<i>Anaemia</i>			High	1	0.68
Yes	2	1.34	<i>Sudden or Excessive Swelling</i>		
No	147	98.66	Yes	8	5.37
<i>Jaundice</i>			No	141	94.63
Yes	3	2.01	<i>Foetal Movement</i>		
No	146	97.99	Normal	143	95.97
<i>Urination Problem</i>			Slight	6	4.03
Yes	4	2.68	-	-	-
No	145	97.32	-	-	-

Table 6: Socio-economic, demographic factors and full PCSs utilisation

Variables	Categories	Full PCSs utilisation				÷2
		Yes (n = 111)		No (n=38)		
		n	%	n	%	
Age group (years)	15-24	55	80.9	13	19.1	#8.374*
	25-34	44	59.5	30	40.5	
	>35	4	57.1	3	42.9	
Marriage age (years)	<18	78	70.9	32	29.1	.625
	>18	25	64.1	14	35.9	
Women's education	Pre-literate	7	46.70	8	53.30	#7.976*
	Primary	60	69.80	26	30.20	
	Secondary	24	85.70	4	14.30	
Husband's education	High Secondary and above	12	60.0	8	40.0	#3.969
	Pre-literate	19	57.60	14	42.40	
	Primary	70	73.70	25	26.30	
Family income (monthly)	Secondary	7	58.30	5	41.70	6.308
	High Secondary and above	7	77.80	2	22.20	
	5000-10000	26	55.30	21	44.70	
Family type	10001-15000	30	75.0	10	25.0	0.897
	15001-20000	22	73.3	8	26.7	
	> 20000	25	78.1	7	21.9	
Birth interval (years)	Nuclear	83	67.5	40	32.5	1.449
	Joint	20	76.9	6	23.1	
	<3	99	70.2	42	29.8	
	>3	4	50.0	4	50.0	

*p<0.05; #=Fisher's exact test

and development is laid. Prenatal care is not just an option but a necessity for every woman, promoting the utilisation of healthcare services (Kumar et al. 2019). However, despite its importance, many women do not get the chance to utilise prenatal care and delivery services (WHO 2023).

The present study explored the utilisation of prenatal care services and complications during pregnancy among women. The finding shows that the mean age of the participants were 25.77 ± 4.94 years, and the mean age at marriage was 16.62 ± 2.01 years. Child marriage is a huge problem and needs immediate attention in the area. More than 73 percent of the participants were married before reaching adulthood. The result is shocking and immensely troubling and needs immediate action. Only 26.20 percent of the participants got married after 18 years. Most participants were homemakers and had no primary occupation or earning source. This study found that all participants registered for pregnancy and had health cards. This study explored that 71.1 percent of women practised family planning. Though most of the participants were using family planning methods, many of them did not use

family planning methods. In this study, more than 90 percent of women used prenatal care services. The majority of the participants completed different health check-ups during the pregnancy period. Instead of being an option, prenatal care services are essential for every woman to ensure the safety of the mother and children. Though most women utilised prenatal care services, few of them did not complete four check-ups, and many missed some of the check-ups, which is concerning.

Early prenatal care visits provided screening and tests that were most effective during the pregnancy and ensured optimal care and health outcomes for mother and child (Moller et al. 2017). The majority of the women (89.93%) registered pregnancy within the first trimester (< 12 weeks). High percentages of early registrations are also reported by other studies like Kardalkar and Sherkhane (2018) (84.74%), Bose et al. (2020) (86%) and Lodha (2022) (87.2%), suggesting an improved awareness about the importance of PCS. Though other studies reported comparatively fewer (41.7%, 52.7%) early registration, for instance Varma et al. (2011) (41.7%) and Fulpa-

Table 7: Comparison of prenatal care services utilisation with other studies

Study	Early registration	>4 prenatal visits	TT vaccination	IFA supplements
Varma et al. 2011	41.7	67.2	94.4	69.2
Kardalkar and Sherkhane 2018	84.74	63.68	59.47	100
Fulpagare et al. 2019	52.7	*	69.4	67.3
Singh et al. 2019	*	61.1	96.1	7.9
Bose et al. 2020	86	80	100	92
Kumar et al. 2020	75.5	74.1	89.9	85
Chethana et al. 2020	78.9	91.5	98.6	91.6
Lodha 2022	87.2	93.6	98.4	100
Present study 2023	89.93	75.84	97.99	98.66

* = Data not available

gare et al. (2019) (52.7%), suggesting regional disparity. It is recommended to at least complete four prenatal visits during pregnancy to prevent malnutrition in mothers and reduce the risk of low birth weight (Denny et al. 2022). This study finds that most participants (75.84%) visit more than four times for prenatal check-ups. Few others also reported similar findings in their study (Kumar et al. 2020; Singh et al. 2019). However, Bose et al. (2020) (100%) and Lodha (2022) (93.6%) reported higher, that is, >4 prenatal visits during pregnancy (100%, 93.6%) than in the present study. This suggests that the utilisation of prenatal care services is average among the study women compared to other local populations and has a significant potential for improvement. Good prenatal care requires proper nutrition, health habits, and necessary vaccination routines that safeguard mothers and children. TT vaccine is recommended for pregnant women because it prevents tetanus and enhances a healthy life (Dagdeviren et al. 2020). Many women still do not take the TT vaccine in India (Kardalkar and Sherkhane 2018; Fulpagare et al. 2019; Kumar et al. 2020). In the present study, women (97.99%) received the TT vaccine. The present study and other studies (Bose et al. 2020; Chethana et al. 2020) showed an improving trend in the utilisation of TT vaccination among women. IFA is to provide micronutrients and is very important in preventing many complications during pregnancy (Bora et al. 2022; Rai et al. 2022). Most women (98.66%) consumed IFA supplements, and 99.33 percent consumed calcium tablets. Other studies also found higher consumption of IFA (Varma et al. 2011; Kardalkar and Sherkhane 2018; Fulpagare et al. 2019; Singh et al. 2019; Bose et al. 2020; Kumar et al. 2020;

Chethana et al. 2020; Lodha 2022) suggesting better utilisation of IFA during pregnancy.

Socio-economy and demography influence the utilisation of PCS (Bashir et al. 2023). In the study population, socio-demographic factors, including age group ($\chi^2=8.374$; $p<0.05$) and women's education ($\chi^2=7.976$; $p<0.05$) were significantly associated with the utilisation of complete PCS. Complete prenatal care utilisation was highest among women aged less than 24 years (80.9%). So, more younger women received complete prenatal care than women belonging to older age groups. Several studies also revealed that a greater number of younger women take more than 4 PCS (Pandey and Karki 2014; Awasthi et al. 2018; Adedokun and Yaya 2020; Islam et al. 2022), suggesting better awareness among the younger mothers.

Women's education was more valuable for health care. Women's education prompted valuable knowledge for healthcare, improved child health, and reduced fertility rates, maternal death and child deaths. This study showed that more women with higher education levels received complete prenatal care services than pre-literate and primarily educated women. Women's education was significantly related to full prenatal care utilisation. Weitzman (2018) reported that women's education and maternal health had a causal link. Women's education is vital to recognise and act immediately in different complications during pregnancy. Moreover, through education, women may gain improved cognitive skills and autonomy, which further increases prenatal care visits by the women. The role of the husband's education is also essential for the utilisation of prenatal care for women. Several studies reported that the husband's educa-

tion level was a key factor associated with prenatal care visits and preventive risks during pregnancy (Lewis et al. 2015; Wulandari et al. 2022; Rahman et al. 2018). However, in this study, full prenatal care utilisation and the husband's education were not significantly associated. This may be due to the overall low level of education among the participants' husbands. Family income may be significant in utilising PCSs (Jeong et al. 2020). However, in the present study population, the economic condition of the participants has no significant association with prenatal care. This may be due to the government's initiative to increase awareness and provide free services in the local areas. Here it must be mentioned that Anganwadi and local health centres, by providing free maternal and child health care services, play a vital role in utilising PCSs.

Birth interval is the length of two successive live births. A short birth interval is less than a 33-month gap between the birth of the last child and the immediately preceding live birth to other children. Many maternal health problems include anaemia, antepartum haemorrhage, premature rupture of membrane, postpartum haemorrhage, failure of vaginal birth after caesarean delivery, uterine rupture, and maternal death occur due to the short birth interval (Aklil et al. 2022). Prenatal care was less used for those with birth intervals of more than three years than for birth intervals of less than three years. This study has not revealed a statistically significant relationship between birth interval and full prenatal care utilisation. Other studies have reported a significant association between birth spacing and prenatal care (Tuoyire and Amo-Adjei 2023).

CONCLUSION

In this study, all participants registered pregnancy. The majority of them received prenatal care services. Few of them had pregnancy complications. Age and women's education were significantly associated with complete prenatal care. Women's education was essential to the inequalities in prenatal care services. So, women's education is critical to elevate the chance of prenatal care utilisation. In this area, many women are not getting proper education and must be encouraged to get a better education. The present study also shows that maternal care services

(prenatal care) have better coverage than in the previous decade, which is very reassuring. However, it must be noted that many women are still out of the coverage of proper maternal care services and need immediate consideration.

RECOMMENDATIONS

Child marriage is a social problem deep-rooted in the history. The present study found that most Muslim women married before attaining the legal age of marriage. India is working for decades to stop child marriage and India's law aims to end child marriage, but its proper implementation is a must to prevent undesirable outcomes of child marriage. Though most mothers took PCSs during their pregnancy, many remain excluded from this critical healthcare service. Most women go for PCSs but many skip tests like thyroid hormone, syphilis, blood sugar level, abdominal check-ups (USG), and others. These preventive check-ups can prevent many unforeseen problems. Better access and awareness programs with test-specific importance can help solve this issue.

ACKNOWLEDGEMENTS

The researchers are most thankful to the participants for voluntarily participating in this study.

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Paper received for publication in July, 2024
Paper accepted for publication in March, 2025