

RESEARCH ARTICLE

Patterns of maternal healthcare use among the urban poor of Bangladesh: A cross-sectional survey



Shafayatul Islam Shiblee¹  | Md. Harunor Rashid² |

¹Maternal and Child Health Division, International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh

²Health Systems and Population Studies Division, International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh

Abstract

Background: Despite some progress, in Bangladesh access to high quality essential maternal healthcare remains inadequate. Women living in urban slums may face additional obstacles to maternal healthcare, but evidence remains limited. The study aims to explore the patterns of maternal healthcare utilisation in urban slums.

Methods: This cross-sectional survey was conducted in April 2022 using an established health and demographic surveillance system operating in Dhaka North, Dhaka South and Gazipur city corporations. Six hundred thirty five married women of reproductive age with a baby aged ≤ 12 months were interviewed. Univariate and multivariate analysis were done to determine the factors affecting utilisation of maternal healthcare services.

Results: Overall, 36% of respondents had at least four antenatal care checkups, 56% had facility-based delivery, 58% had delivery with a skilled attendant and received postnatal care within two days of delivery. Use of essential services was low among uneducated women. Geographical differentials were found, raising questions about the low antenatal care and high private facility delivery in Gazipur. Many women opt for private delivery care, and 35% reported having a C-section.

Conclusion: Attention is needed across the whole pregnancy journey to improve access to high quality affordable antenatal care, delivery care and postnatal care for urban slum women. A complex of factors appears to be at play, with women's awareness, household decision-making, and provision of accessible, affordable, high-quality services all requiring action by policy makers.

Correspondence

Shafayatul Islam Shiblee
shafayatul.shiblee@icddr.org

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F: Pramita Shrestha
00000-0003-4039-5118
G: Mst. Khaleida Akter
0000-0001-8857-1649

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Key messages

Among women living in urban slums (two in Dhaka city and one in Gazipur), a little more than one-third received four antenatal care, half had facility-based delivery, three half had delivery by skilled birth attendants, and half accessed timely postnatal care. Service uptake of essential services was particularly low among uneducated women; and access to affordable services was found inadequate in Gazipur. Many women opt for private delivery care, and one-third reported having a C-section.

Introduction

Despite remarkable progress in reducing maternal mortality, Bangladesh is yet to achieve the Sustainable Development Goal (SDGs) of maternal mortality ratio (MMR) of 70 or lower per 100,000 live births [1].

Utilisation of high quality maternal health services, including antenatal care (ANC), postnatal care (PNC) and institutional delivery, has been shown to reduce maternal mortality and improve neonatal outcomes [2-6]. However, 40% (35% of rural and 57% of urban) of women had received the recommended four or more ANC check-ups [7], while 70% of deliveries were attended by a medically trained provider (65% of rural women and 82% of urban women), and just 56% of infants and 55% of mothers received PNC within 2 days of delivery [7]. However, overall figures mask important differentials between those living in slum and non-slum areas [8]. The urban poor population is growing rapidly and the lack of affordable health services for this population is a persistent concern [9,10]. Compared to rural areas, provision of government health services in urban areas is patchy and diversified. The Ministry of Local Government, Rural Development and Cooperatives (MoLGRDC) is responsible for primary health care provision in urban areas [9,11], while secondary and tertiary level health services are largely supplied by the private health sector, and some Ministry of Health and Family Welfare run hospitals [12,13]. This pluralistic healthcare system is highly unregulated and results in large out-of-pocket expenditures for urban residents [14].

Little up-to-date data are available on the patterns urban slum women's maternal healthcare utilisation. This study aimed to explore the patterns of maternal healthcare utilisation, and to assess the factors associated with use of these services, to generate evidence to inform policy and programmes.

Methods

Study area and data collection

This cross-sectional study was conducted in slums of Dhaka North, Dhaka South and Gazipur City Corporations (CC) in April, 2022 where International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) was operating a health and demographic surveillance system among around 34,000 population.

Based on past evidence of 51% prevalence of institutional delivery, with 95% confidence interval, 5% margin of error, 10% non-response and 1.5 design effect, the estimated sample size was 641. After distributing this sample across the three city corporations using probability proportional to size, the sample was drawn from the sampling frame of this larger population at random. Eligible respondents were women with reproductive age and had a baby aged 12 months or less.

Data were collected using Android tablets. To ensure high quality of data, the data collector and supervisor together sorted out any inconsistencies

found. For the inconsistencies the respective data collector revisited the respondent and corrected the inconsistencies.

The survey questionnaire was developed based on existing literature and national surveys conducted in the country [15]. Before data collection the questionnaire had been pre-tested in similar setting.

We asked women about the number of ANC visits and information on the content of ANC visits like the provider of ANC and the services received during ANC (*e.g.* blood pressure measurement, provision of iron supplement, counselling *etc.*). Respondents were also asked about place of delivery, attendant at delivery; timing and the number of PNC check-ups received. The questionnaire included questions on women's involvement in maternal healthcare decision-making and whether any difficulty was faced in accessing money during pregnancy.

Ethical concerns

The study was conducted following the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants, outlining the study objectives, participation rights, and the option to withdraw at any stage.

Data analysis

For reliability and validity of the data we did basic exploration, data cleaning, plausibility and consistency checking. Descriptive analysis was done for key outcomes. Univariate and multivariate logistic regression analysis was then performed to explore the association between outcome indicators of healthcare use and putative independent variables. The multivariate model included sociodemographic characteristics, indicators of healthcare decision-making as covariates. There was no missing data in this analysis. Data analysis was completed using Stata, version 15.

Results

Sociodemographic characteristics

Six hundred thirty five women aged 15 to 45 years participated in the survey. The mean (standard deviation) age of the participants was 25.8 (6.1) years. About half of the respondents had been schooled for 1 to 5 years, while less than 5% had more than 10 years of schooling, and 18% had no education at all. The vast majority (94%) of the women were homemakers.

ANC during last pregnancy

Eighty three percent of respondents stated that they received some form of ANC during their last pregnancy (Table 1). However, only around 36% of the mothers had the recommended four or more ANC check-ups (Table 2). Around 36% mentioned receiving ANC from a private hospital or clinic, 33% from NGO clinics and 16% from government hospitals. In terms of providers of ANC, the most commonly reported was MBBS doctor (68%), followed by nurses/ paramedics (46%).

Place and mode of delivery

Around 44% of respondents delivered at home, while 26% delivered at a private hospital, 30% delivered at a government hospital or NGO clinic. Overall, 58% of respondents reported having a skilled birth attendant, of them 48% reported being attended by an MBBS doctor and 16% a nurse/family welfare volunteer/family welfare assistant/midwife/skilled birth attendant. Overall, 35% had delivered by C-section.

PNC during last pregnancy

A little over half (57%) of mothers received PNC within 48 hours of delivery, while 64% mothers had PNC within 42 days. The majority (73%) mothers received PNC from an MBBS doctor and 37% from nurses/ paramedics.

Table 1 Sociodemographic characteristics and status of healthcare decision-making among women residing in urban slums (n=635)

Characteristics	Had any antenatal care		P
	Yes (n=530)	No (n=105)	
Slum location			
Dhaka north CC ^a	252 (86.3)	40 (13.7)	0.02
Dhaka south CC ^a	192 (84.2)	36 (15.8)	
Gazipur CC ^a	86 (74.8)	29 (25.2)	
Years of schooling			
No education	85 (75.2)	28 (24.8)	<0.01
1–5	258 (82.7)	54 (17.3)	
6–10	158 (87.3)	23 (12.7)	
10+	29 (100)	0 (0)	
Difficulty accessing money during pregnancy			
Easy	198 (85.7)	33 (14.3)	0.25
Hard	332 (82.2)	72 (17.8)	
Difficulty in taking decision about care during pregnancy			
Easy	423 (87.2)	62 (12.8)	<0.01
Hard	107 (71.3)	43 (28.7)	
Mother was primary decision maker			
Yes	168 (86.2)	27 (13.8)	0.23
No	362 (82.3)	78 (17.7)	
All women	530 (83.5)	105 (16.5)	

^aCC indicates city corporation

Factors influencing access to maternal healthcare

Geographical differentials were found, in Gazipur there was low uptake of ANC and high private facility delivery.

Recommended four ANC check-ups likely to be higher among educated women compared to uneducated. Women who reported that it was easy to take decisions during pregnancy were more likely to have had ANC, and to have had four check-ups than those who reported it was hard (Table 2).

Women with 10 or more years of education also stood out as using a different profile of delivery services compared to less educated women, with far more using private facilities and far fewer having their delivery at home or in a government or NGO setting. There was a positive correlation between use of ANC and facility-based birth. Among women who had not had any ANC, 78% reported having their delivery at home, compared to less than a quarter of those who had had four or more ANC check-ups (Table 3).

Table 2 Sociodemographic characteristics, indicators of healthcare decision-making and antenatal care uptake among women residing in urban slums (n=530)

Characteristics	Number of antenatal care visits ^a		P
	1–3	≥4	
Slum location			
Dhaka north CC ^a	132 (52.4)	120 (47.6)	<0.01
Dhaka south CC ^a	139 (72.4)	53 (27.6)	
Gazipur CC ^a	66 (76.7)	20 (23.3)	
Years of schooling			
No education	64 (75.3)	21 (24.7)	0.04
1–5	160 (62.1)	98 (37.9)	
6–10	99 (62.7)	59 (37.3)	
10+	14 (48.3)	15 (51.7)	
Difficulty accessing money during pregnancy			
Easy	126 (63.6)	72 (36.4)	0.99
Hard	211 (63.5)	121 (36.5)	
Difficulty in taking decision about care during pregnancy			
Easy	253 (59.8)	170 (40.2)	<0.01
Hard	84 (78.5)	23 (21.5)	
Mother was primary decision maker			
Yes	91 (54.2)	77 (45.8)	<0.01
No	246 (68.0)	116 (32.0)	
All respondents	337 (63.6)	193 (36.4)	

^aAmong those who had any antenatal care; CC, city corporation

PNC uptake was found to be higher in slums in Dhaka South CC compared to Dhaka North CC (aOR 2.7; 95% CI 1.3–5.6). However, education was positively associated, women with 10 or more years of schooling standing out as being most likely to receive PNC (90% compared to 60% of women without education). Women who reported that it was easy to take decision about the care during pregnancy were more likely to have received PNC (68%) compared to those who reported that it was hard to take decisions (53%), ($P<0.01$). Women who had received four or more ANC check-ups were most likely to report PNC (Table 4).

Discussion

Our study findings showed comparable levels to national estimates of recommended four ANC check-ups (36% of all respondents versus a national overall percentage of 40%) but less than the 57% among all urban women estimated nationally [7]. In common with national data, we found far more women having some ANC than receiving the full Government of Bangladesh mandated four check-ups (a recommendation which is fewer than the current WHO recommended eight check-ups) [16]. Also reiterating earlier national findings [17], we found incomplete coverage of key elements of ANC check-ups.

In terms of intra-partum care, our slum women appear to be disadvantaged with just 58% reporting a skilled attendant, compared to national estimates of 65% of rural women and 82% of urban women [7]. Nevertheless, and in common with a growing body of evidence for Bangladesh, the rate of C-section was worryingly high at 35%, and reflects the high percentage of women opting for delivery in private facilities where normal delivery is rarely on offer [18].

Table 3 Place of delivery by sociodemographic characteristics, indicators of healthcare decision-making and antenatal care uptake among women residing in urban slums (n=635)

Characteristics	Place of delivery			P
	Home	Private	Govt. or NGO ^a	
Slum location				
Dhaka north CC ^a	130 (44.5)	62 (21.2)	100 (34.3)	<0.01
Dhaka south CC ^a	106 (46.5)	45 (19.7)	77 (33.8)	
Gazipur CC ^a	47 (40.9)	56 (48.7)	12 (10.4)	
Year of schooling				
No education	57 (50.4)	29 (25.7)	27 (23.9)	<0.01
1–5	147 (47.1)	67 (21.5)	98 (31.4)	
6–10	74 (40.9)	47 (26.0)	60 (33.2)	
10+	5 (17.2)	20 (69.0)	4 (13.8)	
Difficulty accessing money during pregnancy				
Easy	101 (43.7)	67 (29.0)	63 (27.3)	0.30
Hard	182 (45.1)	96 (23.8)	126 (31.2)	
Difficulty in taking decision about care during pregnancy				
Easy	206 (42.5)	134 (27.6)	145 (29.9)	0.08
Hard	77 (51.3)	29 (19.3)	44 (29.3)	
Mother was primary decision maker				
No	193 (43.9)	112 (25.5)	135 (30.7)	0.74
Yes	90 (46.2)	51 (26.2)	54 (27.7)	
Had any ANC				
No	82 (78.1)	5 (4.8)	18 (17.1)	<0.01
Yes	201 (37.9)	158 (29.8)	171 (32.3)	
Had ≥4 ANC				
1–3	155 (46.0)	84 (24.9)	98 (29.2)	<0.01
≥4	46 (23.8)	74 (38.3)	73 (37.8)	
All women	283 (44.6)	163 (25.7)	198 (29.8)	

^aNGO indicates non-governmental organization; CC, city corporation

Our findings also tallied with national data, indicating that PNC is received by only around half of all mothers and infants in the two days after birth [7]. Compared to urban slums in Bangladesh, the uptake of 4 or more ANC uptake (51%), as well as institutional

delivery (91%) found to be higher in urban slums in Western India [19]. The related picture in urban slums in Nepal was, 79% had 4 or more ANC, 71% had facility delivery and 29% had made visit for PNC [20].

Our analyses sought to characterise the differentials between groups of women, and to begin to throw light on factors that may shape access. Women with more education were more likely to have received skilled maternal care than those who were uneducated. Well educated women were also more likely to use private facilities for delivery. Also, women who reported that it as easy to take decisions, and those who reported that they were the main decision-maker during pregnancy, were more likely to have had had four ANC check-ups than their counterparts with less control over decisions.

Our findings suggest that geographic accessibility of affordable government or NGO services may be an issue in Gazipur, and it may be that these women experience high out of pocket expenses as they are forced to use private delivery options. This deserves more investigation.

Women who reported receiving four or more ANC visits were more likely to deliver in a facility and to receive PNC than those who did not. This may reflect continuity of care, with healthcare providers encouraging women to maintain contact with services. It may also, however, reflect women and family-side characteristics that predispose towards use of services throughout the pregnancy journey.

The strengths of the study include being nested within an established health and demographic surveillance system which meant high levels of familiarity and trust among respondents leading to a high response rate and skilled data collectors, giving

Table 4 Percentage of women receiving any postnatal care (PNC) within 42 days of delivery by sociodemographic characteristics, indicators of healthcare decision-making and service use (n=635)

Characteristics	Had any PNC in 42 days		Odds ratio (95% CI) ^a	Adjusted odds ratio (95% CI) ^a
	Yes, n (%)	No, n (%)		
Slum location				
Dhaka North CC ^a	177 (60.6)	115 (39.4)	1	1
Dhaka South CC ^a	159 (69.7)	69 (30.3)	1.5 (1–2.2)	3.3 (1.7–6.7)
Gazipur CC ^a	72 (62.6)	43 (37.4)	1.1 (0.7–1.7)	1 (0.4–2.5)
Year of schooling				
No education	67 (59.3) ^b	46 (40.7)	1	1
1–5	192 (61.5)	120 (38.5)	1.1 (0.7–1.7)	0.8 (0.3–1.7)
6–10	123 (68.0)	58 (32)	1.5 (0.9–2.4)	0.7 (0.3–1.6)
10+	26 (89.7)	3 (10.3)	6.0 (1.7–20.8)	1.2 (0.2–7.9)
Difficulty accessing money during pregnancy				
Easy	156 (67.5)	75 (32.5)	1	1
Hard	252 (62.4)	152 (37.6)	0.8 (0.6–1.1)	1.2 (0.6–2.2)
Difficulty in taking decision about care during pregnancy				
Easy	328 (67.6) ^c	157 (32.4)	1	1
Hard	80 (53.3)	70 (46.7)	0.5 (0.4–0.8)	0.8 (0.4–1.6)
Mother was primary decision maker				
Yes	118 (60.5)	77 (39.5)	1	1
No	290 (65.9)	150 (34.1)	1.3 (0.9–1.8)	1.4 (0.7–2.8)
Had any ANC ^a				
No	31 (29.5) ^c	74 (70.5)	-	-
Yes	377 (71.1)	153 (28.9)		
Had ≥4 ANC ^a				
1–3	211 (62.6) ^c	126 (37.4)	1	1
≥4	166 (86)	27 (14)	3.7 (2.3–5.8)	3.6 (1.9–7)
Place of delivery				
Home	75 (26.5) ^c	208 (73.5)	1	1
Private	160 (98.2)	3 (1.8)	147.9 (45.8–477.6)	131.9 (37.9–458.6)
Govt or NGO ^a	173 (91.5)	16 (8.5)	30.0 (16.9–53.4)	28.1 (14.1–56.0)
All women	408 (64.3)	227 (35.8)		

^aCI, indicates confidence interval; CC, city corporation; ANC, antenatal care; NGO, non-governmental organization; ^bP<0.05; ^cP<0.01

confidence in the quality of the data. Due to the cross-sectional nature of the study inevitably there would be some recall error. Furthermore, we could not claim evidence of causal relationships.

Conclusion

Urban slum women continue to have inadequate uptake of essential maternal healthcare and many rely on private, fee-taking services. Attention is needed across the whole pregnancy journey to improve access to high quality affordable ANC, delivery care and PNC. A complex of factors appears to be at play, with women's awareness, household decision-making, and provision of accessible, affordable, high-quality services all requiring more attention. Area-based as well as lower-educated women-targeted intervention should be taken to increase maternal healthcare utilization uptake.

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Author contributions

Conception or design of the work; or the acquisition, analysis, or interpretation of data for the work: SIS, HR. *Drafting the work or reviewing it critically for important intellectual content:* SIS, HR. *Final approval of the version to be published:* SIS, HR. *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:* SIS, HR.

Conflict of interest

We do not have any conflict of interest.

Data availability statement

We confirm that the data supporting the findings of the study will be shared upon reasonable request.

Supplementary file

None

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