

Utilization of Reproductive and Child Health Services and Client Satisfaction from Urban Primary Health Centers by Recently Delivered Women Living in Urban Slums of Lucknow, India

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Abstract

Background: Due to rapid urbanization, there is an increase in population in slums often lacking access to basic health services.

Objective: The purpose of this study was to assess the utilization of reproductive and child health services by recently delivered women and their children residing in catchment areas of urban PHCs, to evaluate their level of satisfaction and to determine the factors associated with utilization of these services by recently delivered women.

Settings and Design: The study was conducted in the catchment areas of urban primary health centre of Lucknow.

Methods and Material: A cross-sectional study was conducted among 320 women having children less than 24 months in the slums covered under selected U-PHCs, sampled through a multi-stage random sampling technique using a semi-structured questionnaire.

Statistical analysis used: SPSS-26 and MedCalc software were used for data analysis.

Results: Utilization of RCH services by recently delivered women from UPHC was 39%. About 24% of recently delivered women availed ANC services from UPHC and 56.7% utilized family planning services and 95.8% immunization services for children. Child care services for diarrhea and ARI were availed by 9.9 and 3.1% of women, respectively. Satisfaction regarding maternal care and immunization services was seen in 84 and 95.8% of women. Poor satisfaction regarding child care was seen in 56.5% of women.

Conclusions: The utilization of RCH services was found to be poor in the study population. Most recently delivered women were satisfied with all services except child care.

Keywords: Humans, Female, Poverty Areas, Cross-sectional studies, Family planning services, Urbanization, Immunization, Surveys and Questionnaires, Personal satisfaction, Diarrhea, Software.

INTRODUCTION

Due to rapid urbanization, more of the Indian population is compelled to reside in urban slums, which are overcrowded, and environmentally deprived, with limited access to safe drinking water, proper sanitation, safe shelter and access to basic services.^[1] Though nationally, the maternal mortality ratio (MMR) has declined from 130 deaths per 100,000 live births in 2014-16 to 113 deaths per 100,000 live births in

2016-18 and infant mortality rate (IMR) declined from 47 to 30 deaths per 1000 live births in the previous ten years (2010-2019),^[2,3] the condition in urban slum dwellers is far from satisfactory.

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The National Urban Health Mission (NUHM) has specially introduced the Urban Primary Health Centres (UPHCs) to enhance health care access and services to the slum populations and urban poor.^[4]

According to National Family Health Survey (NFHS-4),^[5] the number of urban women from Lucknow who received at least 4 antenatal care visits was 56.1% and full antenatal visits were 15.6%. Women who had iron-folic acid for 100 days or more were 22.3%. Children aged 12 to 23 months fully immunized were 56.4 and 52.6% of women were practicing any one of the family planning methods. Despite the aforementioned efforts to decrease maternal and neonatal complications and improve outcomes, utilization of these services has been poor.^[6] Therefore, this study was undertaken to assess the utilization of reproductive and child health services by recently delivered women and their children residing in catchment areas of urban PHCs, to evaluate their level of satisfaction and to determine the factors associated with utilization of these services by recently delivered women.

MATERIALS AND METHODS

Study Design: Cross-sectional study

Study Setting: The study was conducted in the catchment areas of urban primary health centre of Lucknow.

Study Population: Recently delivered women (up to 24 months) and children less than 24 months of age residing in catchment areas of urban PHCs of Lucknow district.

Study Units: Selected recently delivered women living in the urban slum of Lucknow who fulfil the inclusion criteria. Women who delivered within two years were included regardless of the newborn outcome. Based on the previous experience of the researchers, to minimize recall bias and to ensure increased scope for utilization of all services like immunization, the criteria of two years of delivery was decided. In case of two deliveries within the previous two years, details were asked about the recent delivery.

Sample Size: According to NFHS-4 (2015-2016), about 56.1% of mothers have had at least 4 antenatal care visits, in urban areas in Lucknow. Taking 7% margin of error of the given prevalence, at minimum two-sided 95% confidence interval, the estimated sample size was 193. With a design effect of 1.6 of 193, the revised required sample size was 309. Finally, 320 recently delivered women (RDW) from eight UPHCs were selected with 40 RDW were chosen from each urban PHC.

Sampling Technique: Multistage sampling technique was used to select the representative population for utilization of RCH services from UPHCs. Gomti River, the chief geographical feature, meanders through Lucknow city, dividing it into the cis-Gomti regions and trans-Gomti.

Stage I

In the first stage, 4 urban PHCs were selected from trans-Gomti and cis-Gomti regions by simple random sampling.

Stage II

To include the desired sample size of 320 RDW, 40 RDW were selected from the slums in the catchment area of each UPHC.

U-PHCs in cis Gomti region	U-PHCs in trans Gomti region
Jiamau	IIM road
Rajajipuram	Dudauli
Pipraghat	Faizullah ganj
Rajendranagar	Khadra

The slums in the catchment area of the selected UPHCs were identified and the distance of each near slum and far slum from the UPHC was determined. Assuming the division of slums into nearby slum areas as those slums lying within 2.5 kms of the UPHC and farther slum as those areas lying more than 2.5 kms from the UPHC. Among the 40 women selected from each UPHC, 20 were from nearby slums and 20 from the farther slums.

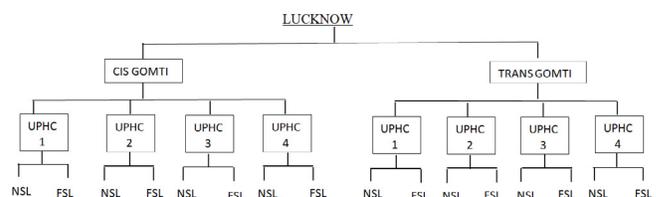
ASHAs of the catchment area were contacted with the help of ANMs of the selected UPHCs. A final list of RDW was made for the slum, after compiling the lists given by each ASHA from their respective areas. By simple random sampling, 20 RDW were selected from each of the slum. However, where the sample size was not fulfilled, remaining RDW were selected from the next geographically adjacent slum. This process was repeated for each selected UPHCs until the desired RDW number were obtained.

*UPHC- Urban Primary Health Center

*NSL- Near Slum

*FSL- Far Slum

A pre-designed interview schedule was used for data collection. Information was collected regarding bio-social characteristics, utilization of reproductive and child health services, level of satisfaction of recently delivered women, and factors determining utilization of RCH services in recently delivered women. Utilizers were RDW who utilized any RCH services (ANC, INC, PNC, Immunization, child care) from UPHC at least once. For the variable immunization status, mothers were asked whether they had a vaccination card/ Mother Child Protection (MCP) card for the index child. When the card was available, vaccination details were noted from it. The child was excluded if the mother did not have a vaccination card/MCP card. The schedule was pre-tested on a sample of 60 RDW living in the urban slum of Lucknow. Inconsistencies and confusion in the pre-test exercise, including the interview protocol were corrected before actual data collection. The result of the pre-test was not included in the final study. Completed schedules were checked weekly for consistency and completeness by the supervisors. The collected information was checked for its completeness and consistency before entering the data into a computer.



Statistical Analysis

The continuous variables were presented in mean \pm standard deviation (SD) whereas categorical variables in frequency (%). An Independent sample t-test was used to compare the means between two groups. The Chi-square test was used to compare the proportions between the groups. Univariate analysis was used to test the association between the utilization of RCH services (Yes/No) and variables. Multivariate binary logistic regression analysis was used to identify the independent predictors of the utilization out of the variables significantly associated with RCH utilization. $p < 0.05$ was considered as statistically significant. Statistical package for social sciences, version-26 (SPSS-26) and MedCalc software were used for data analysis.

RESULTS

About 51.6% of RDW were in the age group 25 to 34 years and 71.3% of RDW were Hindu. More than half (57.5%) belonged to other backward class (OBC). The majority (45.9%) had school education as their highest qualification. Most (93.1%) of RDW were non-working (including housewives). About 76.6% of RDW belonged to nuclear families. Majority (61.6%) belonged to the lower-middle socioeconomic group (Table 1). It was found that 23.8% RDW visited U-PHCs for ANC services (Table 2). Further, more than half of the respondents had less than four ANC visits, while 25.0% had more than four ANC visits, and 18.1% had four ANC visits. Around 53% RDW had their first ANC visit in the first trimester, 30% in second trimester, and remaining in the third trimester. Among those who availed of ANC services, about 85.5% of RDW had received two doses of TT vaccine. Half of these RDW were inoculated with TT vaccine at urban PHCs and outreach activity of urban PHC. Only 37.8% of RDW consumed IFA for 180 days, of which 44.3% RDW received the tablets from urban PHCs and outreach activity of urban PHC.

Out of the total 134 RDW availing family planning services, 27(20.2%) availed the services at UPHCs. Most (90.0%) of RDW had immunization cards, of which 32.3% went to U-PHC and 63.5% went to outreach activity of U-PHC to get their children vaccinated. Only 9.9% of RDW opted for U-PHC to treat diarrhea in the children. (Table 2). About 41.9% of RDWs had used family planning services. Out of which, 56.7% received it at urban PHCs and outreach activity of urban PHCs and 43.3% at other facilities. About 61.2% of utilizers had used condoms. About 12.7% of utilizers had used OCP. All of them had received at urban PHCs and outreach activity of urban PHCs. About 6.7% of utilizers had used Chhaya. About 5.2% of utilizers had used Antra. Out of which, 14.3% received at urban PHCs and outreach activity of urban PHCs. About 14.2% of utilizers had used IUCD. Out of which 10.5% had received at urban PHCs and outreach activity of urban PHCs and 89.5% from other facilities.

It was seen that 275(85%) RDW were aware of the location of UPHC (Figure 1). Of these, 47 didn't know about any

Table 1: Socio-demographic characteristics of the recently delivered women (RDW) (N=320)

Characteristics	Frequency (n)	Percentage (%)
Age (in completed years)		
<25	116	36.2
25-34	165	51.6
≥ 35	39	12.2
Religion		
Hindu	228	71.3
Muslim	92	28.7
Category		
General	57	17.8
OBCs	184	57.5
SC/STs	79	24.7
Education level of women		
Graduate and above	42	13.2
School education	147	45.9
Illiterate	131	40.9
Employment status of women		
Working	22	6.9
Not working (Including housewife)	298	93.1
Education level of spouse		
Graduate and above	45	14.0
School education	205	64.1
Illiterate	70	21.9
Employment status of spouse		
Skilled worker	26	8.1
Semi-skilled worker	112	35.0
Unskilled worker	175	54.7
Unemployed	7	2.2
Type of family		
Nuclear	245	76.6
Joint	75	23.4
Socio-economic Status		
Upper class	3	0.9
Upper middle class	15	4.7
Middle class	55	17.2
Lower middle class	197	61.6
Lower class	50	15.6

RCH services at UPHC, so total 225 RDW were aware about the location of UPHC and RCH services. Awareness about maternal care services, immunization services, family planning services, and knowledge about the treatment of diarrhoea and ARI were found to be significantly associated with the utilization of RCH services (Table 3).

Predictors of utilisation of RCH services are shown in Table 4. After increasing 1% in awareness, chances of the utilization

Table 2: Utilization of type of health facility for reproductive and child health services by recently delivered women (N=320)

Services	UPHC n (%)	Outreach UPHC n (%)	UChC n (%)	DH n (%)	TCH/MC n (%)	Private hospital n (%)	Not availed the service
ANC ANC services availed	76 (23.8)	NA	107 (33.4)	31 (9.7)	18 (5.6)	72 (22.5)	16 (5.0)
Place of Delivery	NA	NA	118 (36.9)	42 (13.1)	32 (10)	79 (24.7)	49 (15.3)*
PNC Home visit by HCW	242 (75.6)		-	-	-	-	-
Health facility visit n=88(27.5)	-		34 (38.7)	12 (13.6)	11 (12.5)	31 (35.2)	232 (72.5)
Family planning n=134(41.9)	27 (20.2)	49 (36.5)	14 (10.5)	5 (3.8)	8 (6.0)	31 (23.0)	186 (58.1)
Immunization n=288(90)	93 (32.3)	183 (63.5)	7 (2.4)	4 (1.4)	0 (0)	1 (0.4)	32 (10.0)
Child care Diarrhoea treatment n=91(28.4)	9 (9.9)	-	5 (5.5)	7 (7.7)	1 (1.1)	69 (75.8)	-
ARI treatment n=32(10)	1 (3.1)	-	3 (9.3)	5 (15.6)	10 (31.4)	13 (40.6)	-

(%) value within parenthesis are row percentage *Delivery at home

Table 3: Awareness about RCH services at UPHCs (Utilizers vs Non Utilizers) (N=320)

Variable	Total n(%)	Utilizer(n=125) n(%)	Non utilizer(n=195) n(%)	p-value
Person who told about services available at U-PHC (n=225)#				
ANM/ASHA	145 (64.4)	79 (54.5)	66 (45.5)	0.889
Family member	69 (30.6)	40 (58.0)	29 (42.0)	
Neighbours	11 (5.0)	6 (54.6)	5 (45.4)	
Awareness about RCH services available at UPHC (N=225)				
Maternal Care (ANC & PNC Services)				
Yes	206 (91.6)	123 (59.7)	83 (40.3)	<0.001
No	19 (8.4)	2 (10.5)	17 (89.5)	
Immunization of mother and children				
Yes	204 (90.6)	123 (60.3)	81 (39.7)	<0.001
No	21 (9.4)	2 (9.5)	19 (90.5)	
Contraceptives/family planning				
Yes	116 (51.5)	81 (69.8)	35 (30.2)	<0.001
No	109 (48.5)	44 (40.4)	65 (59.6)	
Treatment for diarrhoea in children				
Yes	63 (28.0)	47 (74.6)	16 (25.4)	<0.001
No	162 (72.0)	78 (48.1)	84 (51.9)	
Treatment for ARI in children				
Yes	27 (12.0)	20 (74.1)	7 (25.9)	0.039
No	198 (88.0)	105 (53.0)	93 (47.0)	

47 RDW were aware of U-PHC and did not know about the services available at U-PHCs, percentage are presented within parenthesis. For total, column % whereas in rest, row percentages.

of RCH services increase 5.2% than previous. Respondents with residence at a distance less than 2.5 km from U-PHC, belonging to joint family and having good socioeconomic status (class I-IV) had 4.5, 3.4, and 4.1 times more odds of better utilization of RCH services at UPHC (Figure 2).

According to 47.2 and 63.2% of respondents, doctors and prescribed medicines, were available at the U-PHC most of the time. About 53.8 and 90.9% of RDW who utilized RCH services reported that utilization of family planning services (n=26) and child care services (n=11) were adequate to meet the basic needs most of time. (Table 5)

More than half (52.8%) of RDW were not satisfied with the

treatment given by the doctor. About 84.0 and 80.8% of women were satisfied with maternal care and family planning services, respectively while 45.5% were satisfied with child care services (Table 6).

DISCUSSION

The present study found that 20.7% of RDW had ANC registrations at UPHCs, 56.9% at other government facilities, and 22.4% at private hospitals (government facility ANC registration 77.6% versus private hospital 22.4%). This is in accordance with the study by Pai D V *et al.* (2018),^[7] in which three fourth (74%) of the mothers were utilizing government

health facilities. Similar findings were also reported by Kumar A *et al.* (2016)^[8] in their study among urban slums of Lucknow, in which 70.5% women got registered at government hospitals and 23.2% at private hospitals.

In the present study, it was found that 90.0% of RDW had immunization cards. Out of which 95.8% went to urban PHC and outreach activity of UPHC to get vaccinated and only 4.2% went to another health facility. This is higher as compared to findings of Logaraj M *et al.* (2017)^[9] where the majority (79.0%) of women had utilized the PHC and sub-center services for immunizing their children whereas just 21% had utilized other health care sources. NFHS-4^[6] data also show that those who received most of the vaccinations in public health facility was 78.0% and those who received most of the vaccinations in a private health facility was 19.6%. This difference is finding might be due to regular immunization camping in slum area and awareness by ASHA and ANM.

In the present study, it was found that about 48.7% of RDW were not aware of UPHCs nearby. The finding is similar to that of study by Wagh SC *et al.* (2021)^[10] and Bagchi T *et al.* (2020).^[11] The present study found that about 52.8% of utilizers reported that doctor was available sometimes at U-PHC. About 53.8% of RDW those who utilized RCH services reported that utilization of family planning services (n=26) were adequate to meet the basic needs most of time, and 46.2% reported the same adequacy as some time.

The study found that the availability of medicine at U-PHC was most of the time in 63.2%. The availability of prescribed investigation at UPHC was reported to be 71.2%. About 72.8% of RDW those who utilized RCH services reported that utilization of maternal care services (n=81) were adequate to meet the basic needs most of time. About 97.9% of RDW those who utilized RCH services reported that immunization services (n=96) were adequate to meet the basic needs most of the time.

The study found that about 52.0% of RDW who visited U-PHC reported that the availability of seating facilities in the waiting area was not satisfactory. About 38.3% of RDW reported that

the availability of drinking water was satisfactory. Toilet cleanliness at UPHC were reported to be not satisfactory in 66.7%. Cleanliness at UPHC were reported to be satisfactory in 78.4 per. Singhal A *et al.* (2015)^[12] found that Nearly half (55.84%) women reported that seating arrangements were poor in government hospitals, 46.95% of women opined toilet facilities were poor. About 41.88% of women said average drinking water facilities at government health institutions.

The present study found that more than half (52.8%) of RDW were not satisfied with the treatment given by the doctor. About 53.6% of RDW were satisfied with the behavior of the doctor. About 60.8% of RDW were satisfied with the behavior of healthcare workers. Singhal A *et al.* (2015)^[12] in their study found that 50.25 and 42.13% of women mentioned the behavior & attitude of doctors and para-medical staff was satisfactory, respectively in another similar finding report by Mehnaz S *et al.* (2016).^[8]

The study found that recently delivered women who utilized RCH services at UPHC reported that the level of satisfaction regarding maternal care was satisfactory in 84.0%. RDW who utilized RCH services at UPHC reported that the level of satisfaction regarding child care was not satisfactory in 54%. Similar finding has been reported by Logaraj M *et al.* (2017),^[9] reported that the majority of respondents (71.2%) have satisfactory opinion while 28.8% of them did not want to express their opinion and Singhal A *et al.* (2015),^[12] reported that about 72.84% of the women ranked the maternal health services rendered at government institutions as average. In contrast to our study Sangita *et al.* (2012)^[13] in their study depicted that more than half (54.5%) of respondents were fully satisfied with RCH services in the slum, while 45% of respondents were partially satisfied with these services. Bandyopadhyay S *et al.* (2020),^[14] also reported that about 80.3% of the mothers had unsatisfactory utilization of maternal healthcare services.

Ethical Approval

The ethical clearance was obtained from the Institutional Ethics Committee of King George's Medical University UP, Lucknow before commencing the study (ethical clearance No.536/ Ethics/2020).

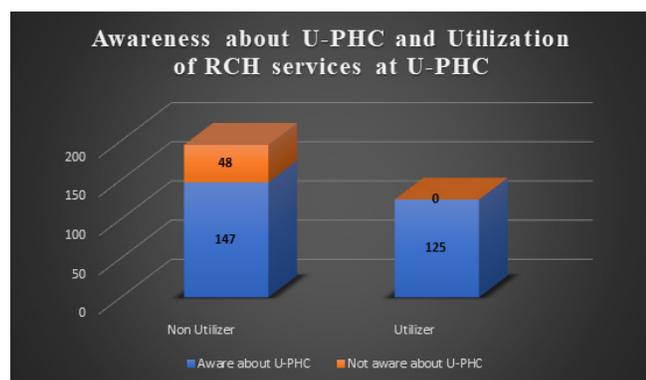


Figure 1: Awareness about U-PHC and Utilization of Reproductive and Child Health services at Urban Primary Health center

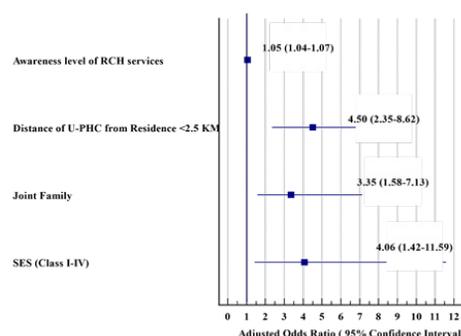


Figure 2: Predictors of the Utilization of RCH services from U-PHCs

Table 4: Predictors of utilization of reproductive and child health services (N=320)

Variable	Univariable analysis		p-value
	Utilizers	Non-Utilizers	
Awareness level of RCH services (in %)	66.7 (50, 83) [70.4]	0 (0, 50) [26.2]	<0.001
Distance of U-PHC from residence < 2.5 Km	88 (70.4)	71 (36.4)	<0.001
Joint Family	45 (36)	30 (15.4)	<0.001
SES (Class I-IV)	119 (95.2)	151 (77.4)	<0.001
Religion			
Hindu	101 (80.8)	127 (65.1)	0.003
Muslim	24 (19.2)	68 (34.9)	
Category			
General	30 (24.0)	27 (13.8)	<0.001
OBC	78 (62.4)	106 (54.4)	
SC/STs	17 (13.6)	62 (31.8)	
Education level of respondent			
Graduate and above	21 (16.8)	21 (10.8)	<0.001
School education	73 (58.4)	74 (37.9)	
Illiterate	31 (24.8)	100 (51.3)	
Respondent's occupation			
Working women	16 (12.8)	6 (3.1)	<0.001
Nonworking women	109 (87.2)	189 (96.9)	
Education level of spouse			
Graduate and above	24 (19.2)	21 (10.8)	<0.001
School education	87 (69.6)	118 (60.5)	
Illiterate	14 (11.2)	56 (28.7)	
Employment status of spouse			
Skilled worker	74 (59.2)	64 (32.8)	<0.001
Unskilled worker	51 (40.8)	131 (67.2)	
Family type			
Joint family	45 (36.0)	30 (15.4)	<0.001
Nuclear	80 (64.0)	165 (84.6)	
Socioeconomic status			
Class I-IV	119 (95.2)	151 (77.4)	<0.001
Class V	6 (4.8)	44 (22.6)	
Distance with health facility			
<2.5km	88 (70.4)	71 (36.4)	<0.001
>2.5km	37 (29.6)	124 (63.6)	

Row percentages are presented within parenthesis. Chi square test used. *p-value* <0.05 significant

Table 5: Availability of services and manpower at UPHC according to utilizers (N=125)

Variable	Most of the time n (%)	Sometime n (%)	p-value
Availability of doctor at U-PHC	59 (47.2)	66 (52.8)	0.531
Availability prescribed medicine	79 (63.2)	46 (36.8)	0.003
Availability of prescribed investigation	36 (28.8)	89 (71.2)	0.001
If utilised maternal care adequate to meet your needs (n=81)	59 (72.8)	22 (27.2)	0.001
If utilised family planning services adequate to meet your needs (n=26)	14 (53.8)	12 (46.2)	0.695
If utilised child care adequate to meet your needs (n=11)	10 (90.9)	1 (9.1)	0.763
If utilised immunization services adequate to meet your needs (n=96)	94 (97.9)	2 (2.1)	0.001

Percentage are presented within parenthesis are row %

Table 6: Level of satisfaction of utilizers regarding infrastructure and services availed by RDW from UPHCs (N=125)

Variable	Satisfactory n (%)	Not satisfactory n (%)	p-value
Availability of seating facility in the waiting area	60 (48.0)	65 (52.0)	0.655
Availability of drinking water(n=81) *	31 (38.3)	50 (61.7)	0.035
Cleanliness of Toilets (n=45) *	15 (33.3)	30 (66.7)	0.025
Cleanliness at U-PHC	98 (78.4)	27(21.6)	<0.001
Treatment given by doctor	59 (47.2)	66 (52.8)	0.531
Behaviour of doctor	67 (53.6)	58 (46.4)	0.421
Behaviour of health care worker	76 (60.8)	49 (39.2)	0.016
Regarding RCH services#			
Maternal care (n=81)	68 (84.0)	13 (16.0)	0.001
Family planning (n=26)	21 (80.8)	5 (19.2)	0.002
Child care (n=11)	5 (45.5)	6 (54.5)	0.763
Immunization (n=96)	92 (95.8)	4 (4.2)	0.001

Percentages presented within parenthesis are row %, * Few respondents had never utilized this provision at the U-PHC

CONCLUSION

Participants who were aware about maternal care services, immunization services, family planning services and knew about the treatment of diarrhea and ARI at UPHC were found to have a significant association with the utilization of RCH

services. Among utilizers, 71.2% were living within 2.5 km distance of UPHC from home to have a statistically significant association with utilization of reproductive and child health services at UPHC. Majority (84.7%) of recently delivered women had institutional delivery. Only 27.5% of recently delivered women had post-natal visits at the health facility. The utilization of RCH services was found to be poor in the study population. Most RDW were satisfied with all services except child care.

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