Original Research Article

An assessment of utilization of postnatal care services in urban area Jabalpur district

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INTRODUCTION

Globally, over 500,000 women die around child birth every year, with over 90% of the deaths occurring in the developing countries, most of the deaths occur during or immediately after childbirth.¹² Postnatal period is a six-week interval between birth of a new born and the return of the reproductive organs to their normal non-pregnant state.³ The timing of postnatal care is also crucial to the well-being of the mother and baby. The studies have shown that some 50% of maternal deaths and 40% of neonatal deaths occur within 24 hours after birth, also known as the ‘immediate postnatal period’.¹⁴

WHO recommends that women, who have delivered in a health facility, should receive PNC for at least 24 hours after birth. If a birth is at home, the first postnatal contact should be as early as possible within 24 hours of birth. Three additional PNC contacts are recommended on day 3, between days 7–14 after birth and 6 weeks after birth.¹⁴ There are few data on early postnatal care specifically. Still, many women who give birth in facilities, are

ABSTRACT

Background: Postnatal period is a vulnerable time, because most maternal and new born deaths occur during this period, especially immediately after childbirth. Postnatal care in the first hours and days after childbirth could prevent the great majority of these deaths. The objective of study was to assess the utilization of post-natal care and associated factors for low utilization in urban area of Jabalpur district.

Methods: A community based cross-sectional study was carried 360 mothers who delivered in last one year in urban area of Jabalpur district. Sampling method was multistage sampling method. A total 36 wards with 10 mothers from each ward was selected. The questionnaire included information related to mode of delivery, post-natal checkups and visits of health care providers.

Results: Among 360 mothers, 93.9% mothers received first postnatal check-up within 24 hrs. 1.11% of mothers between 2-3 days and 1.67% of mothers received first postnatal check-up between 4-7 days while 3.33% of mothers didn’t receive any postnatal check-up. Regarding number of post-natal visits, 58.33% mothers received 3 or more postnatal visits, 35% of mother received 2 PNC visits, while 3.3% did not receive a single postnatal visit. The education of mothers, joint type of family, high socioeconomic status, early registration of pregnancy, minimum 4 ANC visits and institutional deliveries were found significantly associated with utilization of postnatal check-up.

Conclusions: Utilization of postnatal services is still poor in the urban areas even though the physical accessibility was adequate. In the present study, it was concluded that the role of education, especially of female education, is important contributing factor associated with utilization of postnatal care.

Keywords: Post natal care, Urban, Maternal and child health, Urbanization, ANC service
discharged within hours after childbirth, without any indication about where they can obtain further care or support. Postnatal care utilization has been limited in south Asia, particularly in India. According to 2015–16 National Family Health Survey (NFHS-4), in urban area only 71.7% mothers received postnatal care from within 2 days of delivery, while children who received a health check after birth are very low i.e. 27.2%.

Utilization of postnatal care can be affected by large number of factors including socio-demographic factors, economic factors, accessibility and availability of maternal and child health services etc. Understanding the factors that influence care-seeking behavior for postpartum services in India is vital to improve quality of care and designing appropriate interventions. Our study tried to elucidate these factors in the urban area of Jabalpur district. The principal objective of study was to assess the utilization of post-natal services and factors influencing utilization of health services.

METHODS

This was a community based cross-sectional study carried out in urban area of Jabalpur district from March 2016 to July 2017. Study population comprised mothers who delivered in last six months, and residing in urban area of Jabalpur district. The sample size was calculated from anganwadis in these wards and from this list 10 mothers from each ward are selected by systemic sampling method. The criteria for adequate postnatal service utilization was set by doing minimum 3 PNC visits.

Sampling was done by multistage sampling method, in first step out of total 87 wards of Jabalpur city 36 wards are selected by two-digit random number table. List of recently delivered women from these wards are collected from anganwadis in these wards and from this list 10 mothers from each ward are selected by systemic sampling method. The criteria for adequate postnatal service utilization was set by doing minimum 3 PNC visits.

Data were collected by interview, using pretested structured questionnaire, after obtaining informed consent from mother. Data analyzed using Statistical Package for Social Sciences (SPSS, version 20). Significance was set at the value of p<0.05.

RESULTS

This community-based study covered 360 recently delivered females. Out of total 360 mothers, maximum i.e. 55.56% were in the age group of 20-25 years. Nearly 8.89% of the mothers were illiterate, while maximum i.e. 40.28% were educated up to middle school certificate, 77.5% of the mothers were house wives, and 94.44% were Hindus, about 74.72% were from joint family. Majority of the mothers (46.11%) had husbands educated up to middle school, while 4.17% were illiterate, majority 51.39% were semiskilled worker, while 1.11% were unemployed. Maximum mother 47.5% belonged to lower middle class according to Kuppuswami socioeconomic classification. 37.5% were primi-mothers, 62.5% were multi para out of which maximum mother 47.5% had second order of delivery (Table 1).

| Variables | Characteristics | Number of women | Percentage (%) |
|-----------|----------------|----------------|----------------|
| Age of mother (in years) | <20 | 16 | 4.44 |
| | 20-25 | 200 | 55.56 |
| | 26-30 | 101 | 28.06 |
| | >30 | 43 | 11.94 |
| Education of women | Illiterate | 32 | 8.89 |
| | Primary school certificate | 17 | 4.72 |
| | Middle school certificate | 145 | 40.28 |
| | High school certificate | 76 | 21.11 |
| | Intermediate or post high school diploma | 61 | 16.94 |
| | Graduate or post graduate | 29 | 8.06 |
| Occupation of women | Housewives | 279 | 77.5 |
| | Unskilled worker | 35 | 9.72 |
| | Semiskilled worker | 29 | 8.06 |
| | Skilled worker | 2 | 0.56 |
| | Clerical, shop owner farmer | 15 | 4.17 |
| Type of family | Nuclear | 91 | 25.28 |
| | Joint | 269 | 74.72 |

Continued.
| Variables                          | Characteristics                | Number of women | Percentage (%) |
|-----------------------------------|--------------------------------|-----------------|----------------|
| Religion                          | Hindu                          | 340             | 94.44          |
|                                   | Muslim                         | 10              | 2.78           |
|                                   | Sikh                           | 1               | 0.28           |
|                                   | Christian                      | 5               | 1.39           |
|                                   | Jain                           | 2               | 0.56           |
|                                   | Others*                        | 2               | 0.56           |
| Education of husband              | Illiterate                     | 15              | 4.17           |
|                                   | Primary school certificate     | 21              | 5.83           |
|                                   | Middle school certificate      | 166             | 46.11          |
|                                   | High school certificate (158)  | 87              | 24.17          |
|                                   | Intermediate or post high school diploma | 47 | 13.06 |
|                                   | Graduate or post graduate      | 24              | 6.67           |
| Occupation of husband             | Unemployed                     | 4               | 1.11           |
|                                   | Unskilled worker               | 80              | 22.22          |
|                                   | Semiskilled worker             | 185             | 51.39          |
|                                   | Skilled worker                 | 23              | 6.39           |
|                                   | Clerical, shop owner, farmer   | 55              | 15.28          |
|                                   | Semi-profession                | 11              | 3.06           |
|                                   | Profession                     | 2               | 0.56           |
| Kuppuswamy's socioeconomic score  | Upper class 26-29              | 0               | 0              |
|                                   | Upper middle class 16-25       | 15              | 4.17           |
|                                   | Lower middle class 15-11       | 110             | 30.56          |
|                                   | Upper lower class 5 to 10      | 234             | 65             |
|                                   | Lower class <5                 | 1               | 0.28           |
| Order of delivery                 | First                          | 135             | 37.5           |
|                                   | Second                         | 171             | 47.5           |
|                                   | Third                          | 37              | 10.28          |
|                                   | Fourth                         | 17              | 4.72           |

Table 2: Details of utilization of post-natal services (n=360).

| Variables                          | Characteristics         | Number of mothers | Percentage (%) |
|-----------------------------------|-------------------------|-------------------|----------------|
| First PNC service                 | Never                   | 12                | 3.33           |
|                                   | Within 24 hours         | 338               | 93.89          |
|                                   | Between 2-3 days        | 4                 | 1.11           |
|                                   | Between 4-7 days        | 6                 | 1.67           |
| Number of postnatal services      | Never                   | 12                | 3.33           |
|                                   | 1 postnatal visit       | 12                | 3.33           |
|                                   | 2 postnatal visits      | 126               | 35             |
|                                   | ≥3 postnatal visits     | 210               | 58.33          |

Table 3: Distribution of mothers according to components of post-natal services.

| Components                          | Number | Percentage (%) |
|-------------------------------------|--------|----------------|
| Maternal care                       |        |                |
| Asked for fever                     | 330    | 91.67          |
| Checked for perineal tear           | 320    | 88.89          |
| Checked for post-partum hemorrhage  | 289    | 80.28          |
| Checked for foul smelling lochia    | 250    | 69.44          |
| Contraceptive /family planning advice given | 341 | 94.72 |
| Helped the mother to improve the technique of breast feeding | 300 | 83.33 |

Continued.
Components | Number | Percentage (%)
--- | --- | ---
Weight measured | 344 | 95.56
Checked for condition of cord | 200 | 55.56
General well-being\(^a\) | 208 | 57.78
Advice given for exclusive breast feeding | 328 | 91.11
Advice given for Immunization of new born | 309 | 85.83
Demonstrated how to keep baby warm\(^d\) | 323 | 89.72

\(a\): Checked and respond if the pad soaked in less than five minute; \(b\): checked perineum for tears, discharge or pus; \(c\): assess for movements, muscle tone, swelling/bruises at the presenting part, congenital malformations; \(d\): demonstrate how to keep baby in skin-to-skin contact.

### Table 4: Association of socio-demographic profile of women with postnatal services utilization.

| Variable                  | Total (n=360) | PNC service utilized (n=210) | PNC services underutilized (n=150) | \(\chi^2\) | P value |
|---------------------------|--------------|-------------------------------|-----------------------------------|----------|---------|
| Present age of mother     |              |                               |                                   |          |         |
| Up to 24 yrs (n=216)      |              |                                |                                   |          |         |
| > 24 yrs (n=144)          | 123 (56.9)   | 93 (43.1)                     |                                   | 0.42     | 0.51    |
| Education of mother       |              |                                |                                   |          |         |
| Up to middle school (n=194)|              | 79 (40.72)                    | 115 (59.27)                       | 53.68    | 0.000   |
| Above to middle school (n=166)|    | 131 (78.91)                    | 35 (21.08)                       |          |         |
| Occupation of mother      |              |                                |                                   |          |         |
| Housewife (n=279)         | 166 (59.50) | 113 (40.50)                   |                                   | 0.69     | 0.405   |
| Employed (n=81)           | 44 (54.32)  | 37 (45.68)                    |                                   |          |         |
| Education of husband      |              |                                |                                   |          |         |
| Up to middle school (n=202)|              | 110 (54.45)                   | 92 (45.55)                        | 2.84     | 0.091   |
| Above to middle school (n=158)|                  | 100 (63.3)                   | 58 (36.7)                          |          |         |
| Occupation of husband     |              |                                |                                   |          |         |
| Unemployed/unskilled (n=84)|              | 47 (55.95)                    | 37 (44.05)                        | 0.25     | 0.613   |
| Semiskilled and above (n=276)|           | 163 (59.05)                   | 113 (40.95)                       |          |         |
| Type of family            |              |                                |                                   |          |         |
| Joint (n=269)             | 166 (61.71) | 103 (38.29)                   |                                   | 4.99     | 0.025   |
| Nuclear (n=91)            | 44 (48.35)  | 47 (51.65)                    |                                   |          |         |
| Socioeconomic status      |              |                                |                                   |          |         |
| Lower (n=235)             | 125 (53.2)  | 110 (46.8)                    |                                   | 7.36     | 0.006   |
| Middle and upper (n=125)  | 85 (68)     | 40 (32)                       |                                   |          |         |
| Order of delivery         |              |                                |                                   |          |         |
| Primi (n=135)             | 82 (60.75)  | 53 (39.25)                    |                                   | 0.51     | 0.472   |
| Multi (n=225)             | 128 (56.89) | 97 (43.11)                    |                                   |          |         |
| Religion                  |              |                                |                                   |          |         |
| Hindu (n=340)             | 200 (58.83) | 140 (41.17)                   |                                   | 0.60     | 0.436   |
| Other (n=20)              | 10 (50)     | 10 (50)                       |                                   |          |         |

### Table 5: Association of components of antenatal care services and place of delivery with postnatal services utilization.

| Variables                  | Total (n=360) | PNC service utilized (n=210) | PNC services underutilized (n=150) | \(\chi^2\) | P value |
|----------------------------|--------------|-------------------------------|-----------------------------------|----------|---------|
| Time of registration       |              |                               |                                   |          |         |
| Early, within 12 weeks (n=184)|          | 127 (69.02)                   | 57 (30.98)                        | 17.69    | 0.000   |
| Late, after 12 weeks (n=176)|              | 83 (47.15)                    | 93 (52.85)                        |          |         |
| ANC visits                 |              |                                |                                   |          |         |
| ≥4 (n=214)                 | 146 (68.22)  | 68 (31.78)                    |                                   | 21.37    | 0.000   |
| ≤4 (n=146)                 | 64 (43.83)   | 82 (56.17)                    |                                   |          |         |
| ANC service utilization    |              |                                |                                   |          |         |
| Utilized (n=84)            | 74 (88.09)   | 10 (11.91)                    |                                   | 39.92    | 0.00    |
| Underutilized (n=276)      | 136 (49.27)  | 140 (50.73)                   |                                   |          |         |
| Place of delivery          |              |                                |                                   |          |         |
| Institutional (n=339)      | 203 (59.88)  | 136 (40.12)                   |                                   | 5.73     | 0.016   |
| Home (n=21)                | 7 (33.33)    | 14 (66.67)                    |                                   |          |         |

The study showed that 5.84% were delivered in home. The reason behind the non-institutional delivery was didn’t have enough time in 42.86%, it’s a tradition in 33.33 and lack of transport facility in 9.52%. Assessment of postnatal visits showed that 58.33% mothers received 3 or more post-natal visits, while 3.3% did not receive a single postnatal visit. 93.9% mothers received first postnatal check-up within 24 hours, 1.11% of mothers...
between 2-3 days and 1.67% of mothers received first postnatal checkup between 4-7 days while 3.33% of mothers didn’t receive any post-natal check-up (Table 2).

In 91.67% of mothers’ health were asked for fever and advice for contraceptive and family planning was given to 94.22% mothers. On physical examination perineal tear were checked in 88.89% women, for postpartum haemorrhage in 80.28%, checked for foul smelling lochia in 69.44%. Health workers were provided help for improvement of breast-feeding technique in 83.33% of mothers. Regarding coverage of neonatal care in postnatal care weight was measured in 95.56% of newborns, while condition of cord was assessed in 55.56%, general wellbeing including congenital malformations were checked in 57.78%, advice for exclusive breast feeding in 91.11%, advice for immunization of baby is given to 85.83% and demonstrated how to keep baby warm in 89.72% of mother (Table 3).

Factors which were significantly associated with PNC services utilization were education of mother, type of family, high socioeconomic status, early registration of pregnancy, minimum 4 ANC visits, ANC services utilization and institutional delivery, while no significant association was found between PNC services utilization with age of mother, age at marriage, age at first pregnancy, education of husband, occupation of mother and husband (Table 4).

**DISCUSSION**

This study showed that 339 (94.16%) mother were delivered in health facility while 21 (5.84%) mothers were delivered in home. This is quite comparable with NFHS 4 fact sheet reported that percentage of institutional deliveries was 88.7% in urban area, 93.8% in Madhya Pradesh, 92.3% in Jabalpur district. This percentage was quite comparable with some other studies. (Parineeta et al, Gundbowdi et al, Roy et al, Joshi et al, Meshram II et al) but this was opposite of study of Khan et al this was mainly due to regional variation and study conducted in slum population. Out of these 21 home deliveries, only 4 were attended by trained birth attendant. This is similar to NFHS 4, out of total home deliveries, 3% of deliveries were conducted by skilled health personnel.

In this study 93.3% mother received PNC care within 24 hours this was similar to finding of Annual Health Survey MP 12-13 which reported that 75.5% and Khanal et al reported that 40.9% mothers received immediate postnatal care. According to Sharma et al, 67.6% received first postnatal care within 24 hours of delivery. Thus, percentage of mothers receiving immediate postnatal care is far more in present study than that reported by other studies.

In urban area 58.33% mothers received 3 or more postnatal visits, while 3.3% did not receive a single postnatal visit. Study of Uppardhayya et al observed that out of 198 mothers, only 71 (35.86%) received 2 or more postnatal care visits within 42 days of delivery while Kotresh et al quoted that 53.3% mothers received postnatal care and 46.7% mothers didn’t receive any postnatal care. Pahwa et al postnatal care was sought by 33% of the women. Joshi et al found that 61.7% women attended postnatal visits. According to Sharma et al (36.6%) received one postnatal check-up, (18.5%) two, (14.7%) three and only (1.9%) received four post natal check-ups. (28.1%) didn’t receive any post natal check-up. Bhaisare et al reported that out of 28 mothers, 4 received 2 postnatal visits, while remaining 24 received only one visit. Gundbowdi et al found that 34.81% women received 4 or more PNC visits. Khanal et al observed that 43.2% attended postnatal care within the first six weeks of birth. Parineeta et al found that 80.7% women had three PNC visits at home. Hence, observations of our study are more or less consistent with that of Kotresh et al and Joshi et al. While, we found more percentage of mothers availing benefits of post-natal services than those found by other studies. However, Parineeta et al reported more percentage of mothers who completed 3 postnatal visits than present study.

The findings depict that advice for contraceptive and family planning is given to 94.26% of mothers. Help for improvement of breast-feeding technique is given to 83.33% of mothers. Weight was measured in 95.56% of newborns, while condition of cord and congenital malformations were checked in about 57.78%. This finding is quite similar of studies done in various part of India and all studies quoted that post-natal services are mainly of counselling of breast feeding, immunization and breast feeding.

In this study, education of the mother was significantly related with PNC utilization. Observations of present study corresponds with the study of Khanal et al, Sharma et al and Uppardhayy et al reported significant association between education of mother and PNC services utilization. Study conducted by Paudel et al showed that, the level of education of mother were strong explainers of for PNC service. Other studies also reported similar finding with level of education of mother and PNC utilization. So, the education of mother is a positive factor for utilization of postnatal care in our study, which is similar to study conducted in different parts of India, Nepal and Nigeria. Utilization of antenatal and delivery care services has positive impact on the use of PNC which is similar to different studies.

This study showed a significant association with joint type of family, occupation of women (housewife), socioeconomic status (high) and mode of delivery (institutional), similar finding seen with a study Uppardhay et al. Study by Sharma et al found that mother who delivered in hospital, utilized PNC more than...
the mother who delivered at home, Dhakal et al reported that the women, who delivered in the hospital, were ten times more likely to have received postnatal care than the women who delivered at home.\textsuperscript{6,18} No significant association in this study was found with variables like age of mother, order of delivery and occupation of husband like Sharma et al, Ranganath et al.\textsuperscript{15,25} This study was concentrated on women who were already registered in anganwadis. After taking particulars from the register, we went to their houses and filled the data. Hence, study is concentrated around the women who registered themselves with the anganwadi while those women taking services directly from government or private hospitals without going to the anganwadi were missed. As most of the anganwadis were situated near the slum areas, most of the women of high socioeconomic status may also be missed.

CONCLUSION

This study reiterated that inspire of mass availability of health facility and their physical accessibility in urban area the utilization of post-natal services was still poor. Factors which were significantly associated with ANC services utilization were education of mother, in joint type of family, women with high socioeconomic status, early registration of pregnancy, minimum 4 ANC visits, ANC services utilization and institutional delivery. Therefore, in the present study, it was concluded that the role of education, especially of female education, is important contributing factor associated with utilization of postnatal care.

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