Knowledge and Utilization of Antenatal and Postnatal Services in an Urban area of South-East Delhi: A Cross-Sectional Study

Sehla Tabassum[1], Shyambhavee[2], Kartikey Yadav[2], Korbili Gautami[1]

[1]Masters in Public Health student, [2]Assistant Professor, Department of Community Medicine, Hamdard Institute of Medical Sciences and Research, New Delhi, India

Correspondence: Dr. Shyambhavee, Email: shyambhavee@gmail.com

Abstract:

Introduction: Poorer pregnancy outcomes are linked to inadequate antenatal care (ANC) and Postnatal care (PNC). Thus, adequate knowledge and utilization of these services among expectant mothers becomes the key to achieving healthy pregnancy outcomes. **Objective:** To assess the knowledge and utilization of ANC and PNC services among women who delivered in last 1 year residing in an Urban area of South-East Delhi. **Methods:** This was a cross-sectional study conducted among 150 women who delivered within the last one year residing in an urban area of South-East Delhi. Data collection between April 2024 to July 2024 was done with the help of pre-designed, validated, structured questionnaire using simple random sampling. Statistical analysis was done using SPSS which included computation of proportions and univariate analysis, which was done using chi-square test. **Results:** Good knowledge regarding basic ANC, Janani Suraksha yojana (JSY) and Pradhan Mantri Matru Vandana Yojana (PMMVY), Janani Shishu Suraksha Karyakram (JSSK), Anganwadi services and Home-based Newborn Care (HBNC) was reported by 140 (93.3%), 55 (36.7%), 127 (84.7%), 104 (69.3%), and 113 (75.3%) of the study participants, respectively. Good utilization of the services including basic ANC, JSSY and PMMVY, JSSK, Anganwadi services and HBNC was reported by 139 (92.7%), 13 (8.7%), 94 (62.7%), 104 (55.3%), and 113 (75.3%) of the study participants, respectively. **Conclusion:** The study reported good knowledge and utilization of basic ANC services. However, significant gaps were reported for the services provided under JSY, PMMY followed by JSSK, Anganwadi services and HBNC

Keywords: Maternal health, Postnatal care, Prenatal care

Introduction:

India has seen a significant decline in the maternal mortality from 130 (2014-26) to 93 (2019-21) over the past few years.[1] Providing quality healthcare during antenatal and postnatal period is the key towards achieving this consistent decline in the maternal mortality. In order to attain the set target of less than 70 maternal death per 1000 live births by United Nations Sustainable Development Goal (SDG), the government of India has evolved the Reproductive, Maternal and Child health program with a plethora of newer innovations in providing optimal maternal and child care, ever since the launch of National Rural Health Mission (NRHM), in the year 2005.[2]

Antenatal care (ANC), covers the spectrum of medical care including early pregnancy confirmation, tracking and better facilitation of delivery services.[3] The Janani Suraksha Yojana (JSY) and Pradhan Mantri

Quick Response Code	Access this article online	How to cite this article :
	Website : www.healthlinejournal.org	Tabassum S, Shyambhavee, Yadav K, Gautami K. Knowledge and Utilization of Antenatal and Postnatal Services in an Urban area of South-East Delhi: A Cross-Sectional Study. Healthline. 2025;16(2): 111-117
	DOI : 10.51957/Healthline_708_2025	

Received : 19-03-2025 **Accepted** : 19-06-2025 **Published :** 30-06-2025

Matru Vandana Yojana (PMMVY) was launched by the government of India to address the out-of-pocket expenditure in assessing pregnancy related care and promote institutional delivery.[4] Jananni Shishu Suraksha Karykram (JSSK), Anganwadi services and Home-based newborn care (HBNC) are few of the other program under the umbrella of Reproductive, Maternal, Neonatal and Child health program to facilitate utilization of antenatal and postnatal care services. JSSK was lunched providing free entitlements including cashless delivery, drug, diagnostics, diet, transport and referral.[5] Maternal support through Anganwadi services include provision of supplementary nutrition, immunization, health-check-ups and referral services to the pregnant and lactating female.[6] Home visits are provided by ASHA to assess newborn and provide counselling regarding postpartum care (including recognition of postpartum complications, referral, and counselling regarding appropriate contraceptive).[7]

Although the utilization of antenatal health care services has increased over time as per the findings from the National Family Health Survey (NFHS).[8] However, lacune still exist in its utilization, even after the decade long implementation of the Reproductive, Maternal, Neonatal, Child Health Programme in the country.[9,10] Lack of knowledge regarding the importance of ANC and PNC among the beneficiaries expands the knowledge-utilization gap. Thus, arise the need to assess its burden and devise tailored strategies to address the same. Thus, the present study aims to study the knowledge and utilization of antenatal (ANC) and postnatal care (PNC) services among women residing in an urban area of South-East Delhi.

Methods:

Study design and participants: This cross-sectional study was carried out from May 2024 to July 2024 among 150 consenting women of reproductive age who delivered in the last 1 year having children between 6 weeks to 12 months of age, residing in an urban area South-East Delhi. Women in their postnatal period were excluded from the study. According to NFHS-5 report for Delhi, the proportion of mothers who had at-least 4 ante-natal care visits were 77%.[8] Considering this as a proxy to ANC service utilization, and taking 95% confidence interval and 10% relative error, the sample size was calculated as 114. Taking the non-response rate as 10%, a minimum sample size was calculated to be 130. Thus, a sample of 150 participants was taken for the study.

Data Collection: Sampling frame was made using data from the 17 Anganwadis catering to the field practice area of Urban Health Training Centre (UHTC) and the antenatal clinic of UHTC. Duplicate entries were deleted. Women were selected using simple random sampling, using a computer-generated random number list. Selected participants were contacted at their home. The selected participant was interviewed face to face, after obtaining a written informed consent. The study was conducted from April to July 2024. Both knowledge and utilization were assessed in seven domains including basic ANC services, JSY, JSSK, PMMVY, Integrated Child Development Scheme (ICDS) and HBNC. Each domain for knowledge was given "Good" category when all the questions were answered correctly, and "Incomplete" category when any of the questions was answered incorrectly. The domain scoring for utilization was given "Good" category when all the services were Utilized and "Incomplete" if any service was not utilized.

Study instrument: A self-designed, pre-tested, validated, structured questionnaire was used to assess the knowledge and utilization of the ANC and PNC services among the study participants. The questionnaire consisted of three sections including socio-demographic details, Knowledge regarding ANC and PNC services and Utilization of ANC and PNC services.

Statistical analysis: MS Excel was used to compile and clean the data, while SPSS software (version 26.0) was used for analysis. Frequency, mean, median, standard deviation, and percentage are examples of descriptive statistics that were used to characterize the sociodemographic and economic aspects of the research population. The relationship between socio-demographic profile and knowledge and utilization of ANC and PNC services was assessed using Chi-square test (or Fisher's exact test if available).

Ethical considerations: Ethical approval was obtained from the Institutional Ethics Committee (HIMSR/IEC/00189/2024) of Hamdard Institute of Medical Sciences and Research before the start of the study. A written informed consent was taken from the participants of the study after explaining the purpose of the study in their local language.

Results:

The study covered 150 individuals who resided in the field practice areas UHTC of a medical college located in South-East Delhi and had children between 6 weeks to 12 months of age. The average age of the individuals was 26.8 ± 4.3 years, with the majority (56.7%) falling into the 25-35 age group. The average age at marriage was 21.23 ± 3.98 years. Table 1 shows sociodemographic details of the study participants.

The rates of ANC knowledge and utilization services were approximately similar. 8.7% of participants reported making efficient utilization of JSY and PMMVY, although 36.7% of participants showed a good knowledge of these programs. The knowledge utilization gap was maximum for the services provided under JSY, PMMY followed by JSSK, Anganwadi services and HBNC. (Table 2)

Knowledge regarding basic ANC was significantly higher among those who had education up to primary level (p-value <0.01) and those belonging to Middle class or above in socioeconomic class (p-value 0.02). The knowledge of ICDS service was significantly higher among those who had middle school or above certificate as compared to those who had education up to primary (p-value= 0.006). The knowledge of HBNC was significantly higher among those whose husband has education of middle school or above (p-value= 0.03), and Hindus (p-value= 0.03). (Table 3)

Table 1: Socio-demographic profile of the study participants (n=150)

Socio-demographic characteristics	Frequency (%)
Age (in years)	
<25	54 (36.0)
25-35	85 (56.7)
>35	11(7.3)
Age at marriage (in years)	
<25	128 (85.4)
25-35	20 (13.3)
>35	2 (1.3)
Age of last child (in months)	
< 6	57 (38.0)
> 6	93 (62.0)
Education of Participants	
Middle school or above	96 (64.0)
Up to primary	54 (36.0)
Employment of Participants	
Employed	9 (6.0)
Unemployed	141 (94.0)
Education of husband	
Middle school or above	113 (75.3)
Up to primary	37 (24.7)
Religion	
Hindu	102 (68.0)
Muslim	48 (32.0)
Socio- economic status*	
Upper and Middle	70 (46.7)
Lower	80 (53.3)

Note. *As per the modified Kuppuswamy scale, 2023

Table 2: Knowledge and utilization of ANC and PNC services across various program domains among the study participants services. (n=150)

	Knowledge		Utilization	
Domain	**Good**	**Incomplete**	**Good**	**Incomplete**
Basic ANC	140 (93.3%)	10 (6.7%)	139 (92.7%)	11 (7.3%)
JSSY&PMMVY	55 (36.7%)	95 (63.3%)	13 (8.7%)	137 (91.3%)
JSSK	127 (84.7%)	23 (15.3%)	94 (62.7%)	56 (37.3%)
Anganwadi	104 (69.3%)	46 (30.7%)	83 (55.3%)	67 (44.7%)
HBNC	113 (75.3%)	37 (24.7%)	98 (65.3%)	52 (34.7%)

Table 3: Association between adequate knowledge of ANC and PNC services and their socio demographic characteristics. (n=150)

Socio-demographic status	Basic ANC		JSY and PMMVY		JSSK		ICDS		HBNC	
	n (%)	p-value	n (%)	p-value	n (%)	p-value	n (%)	p-value	n (%)	p-value
Age (in years)										
<25 (n=54)	50 (92.6%)	0.747*	23 (42.6%)	0.259	49 (90.7%)	0.122	41 (75.9%)	0.189	42 (77.8%)	0.602
≥25 (n=96)	90 (93.8%)		32 (33.3%)		78 (81.3%)		63 (65.6%)		71 (74.0%)	
Age at marriage										
<25 (n=128)	119 (93%)	1.00*	50 (39.1%)	0.142	110 (85.9%)	0.336	91 (71.1%)	0.259	99 (77.3%)	0.168
≥25 (n=22)	21 (95.5%)		5 (22.7%)		17 (77.3%)		13 (59.1%)		14 (63.6%)	
Education of Participant										
Middle school or above (n=96)	86 (89.6%)	0.01*	37 (38.5%)	0.525	83 (86.5%)	0.417	74 (77.1%)	0.006*	77 (80.2%)	0.065
Up to primary (n=54)	54 (100%)		18 (33.3%)		44 (81.5%)		30 (55.6%)		36 (66.7%)	
Employment of Participant										
Employed (n=9)	9 (100%)	1.00*	5 (55.6%)	0.289*	8 (88.9%)	1.000	4 (44.4%)	0.133	6 (66.7%)	0.690
Unemployed (n=141)	131 (92.29%)		50 (35.5%)		119 (84.4%)		100 (70.9%)		107 (75.9%)	
Education of husband										
Middle school or above (n=113)	105 (92.9%)	1.00*	41 (36.3%)	0.864	96 (85%)	0.864	81 (71.7%)	0.276	90 (79.6%)	0.032*
Up to primary (n=37)	35 (94.6%)		14 (37.8%)		31 (83.8%)		23 (62.2%)		23 (62.2%)	
Religion										
Hindu (n=102)	98 (96.1%)	0.07*	37 (36.3%)	0.884	85 (83.3%)	0.509	75 (73.5%)	0.104	82 (80.4%)	0.036*
Muslim (n=48)	42 (87.5%)		18 (37.5%)		42 (87.5%)		29 (60.4%)		31 (64.6%)	
Socio- economic										
Upper and Middle (n=70)	69 (98.6%)	0.02*	27 (38.6%)	0.651	57 (81.4%)	0.303	44 (62.9%)	0.108	49 (70%)	0.156
Lower (n=80)	71 (88.8%)		28 (35.0%)		70 (87.5%)		60 (75.0%)		64 (80%)	

Note. *Fisher exact test

Table 4: Association between adequate utilization of ANC and PNC services and their socio demographic characteristics. (n=150)

Socio-demographic status	Basic ANC		JSY and PMMVY		JSSK		ICDS		HBNC	
	n (%)	p-value	n (%)	p-value	n (%)	p-value	n (%)	p-value	n (%)	p-value
Age (in years)										
<25 (n=54)	51 (94.4%)	0.747	6 (11.1%)	0.547	37 (68.5%)	0.266	36 (66.7%)	0.036	34 (63.0%)	0.647
≥25 (n=96)	88 991.7%)		7 (7.3%)		57 (59.4%)		47 (49%)		64 (66.7%)	
Age at marriage										
<25 (n=128)	117 (91.4%)	0.369	12 (9.4%)	0.693	85 (66.4%)	0.022	75 (58.6%)	0.053	86 (67.2%)	0.250
≥25 (n=22)	22 (100%)		1 (4.5%)		9 (40.9%)		8 (36.4%)		12 (54.5%)	
Education of Participant										
Middle school or above (n=96)	87 (90.6%)	0.329	7 (7.3%)	0.547	68 (70.8%)	0.006	63 (65.6%)	0.001*	67 (69.8%)	0.126
Up to primary (n=54)	52 (96.3%)		6 (11.1%)		26 (48.1%)		20 (37.0%)		31 (57.4%)	
Employment of Participant										
Employed (n=9)	9 (100.0%)	1.000	0 (0.0%)	1.000	3 (33.3%)	0.079*	0 (0.0%)	0.001*	2 (22.2%)	0.009*
Unemployed (n=141)	130 (92.2%)		13 (9.2%)		91 (64.5%)		83 (58.9%)		96 (68.1%)	
Education of husband										
Middle school or above (n=113)	104 (92.0%)	1.000	11 (9.7%)	0.521	72 (63.7%)	0.642	64 (56.6%)	0.575	78 (69.0%)	0.097
Up to primary (n=37)	35 (94.6%)		2 (5.4%)		22 (59.5%)		19 (51.4%)		20 (54.1%)	
Religion										
Hindu (n=102)	95 (93.1%)	0.745	12 (11.8%)	0.062	65 (63.7%)	0.696	61 (59.8%)	0.108	72 (70.6%)	0.049
Muslim (n=48)	44 (91.7%)		1 (2.1%)		29 (60.4%)		22 (45.8%)		26 (54.2%)	
Socio- economic										
Upper and Middle (n=70)	65 (92.9%)	0.933	7 (10.0%)	0.587	40 (57.1%)	0.191	33 (47.1%)	0.059	44 (62.9%)	0.551
Lower (n=80)	74 (92.5%)		6 (7.5%)		54 (67.5%)		50 (62.5%)		54 (67.5%)	

Note. *Fisher exact test

Utilization of Anganwadi services was significantly higher among younger age women (p-value=0.03 and among those with higher education level (p-value=0.001), and unemployed women (p-value=0.001). Utilization of HBNC services was significantly higher among Hindu (p-value=0.04) and unemployed women (p-value=0.001). Utilization of JSSK services was significantly higher among those who has earlier age at marriage (p-value=0.02) and with higher education level (p-value=0.006). (Table 4)

Discussion:

The findings of this study shed light on the knowledge and utilization of ANC and PNC services among women who had their delivery in last 1 year residing in urban area of Southeast Delhi. The mean age of participants was 26.8±4.3year and majority fall in the age group of 25-35 years (56.7%).

According to the present study, 93.3% of participants know enough about ANC services. This was comparable with the findings of Kaur A et al.[11], who found that a significant portion of participants had early registration as well as regular ANC visits. Nonetheless, Rustagi R et al.[9] reported lower knowledge levels (12.5%) regarding ANC services. The differences between the study findings could be attributed to differences in the operational definition of basic ANC care, used in different studies. Only 36.7% of participants in the present study had good knowledge regarding services under JSY and PMMVY. Similarly, Khesh S et al.[12] also reported services good knowledge of services under JSY by only 40.3% of the participants. However, Manna N et al.[13] found even lower knowledge levels (9.3%), which can be related to inadequate accessibility and lack of awareness of these services among the participants in their study. Majority (84.7%) of participants in the present study had good knowledge of JSSK, which was higher than the study done by Chandrakar A et al.[14] (1.42%) and Rupani M et al.[15] (54%). This difference in the study findings could be attributed to differences in the health seeking behaviour, accessibility to health services, and their socio-demographic profile. Almost 70% of the study participants had good knowledge regarding Anganwadi services. Concordant findings were also reported in the study by Bhagat VM et al.[16], and Kadam S et al.[17]. Nearly three-fourth of participants had good understanding of HBNC services in the present study. Higher education level of the husband could be one of the factors behind good knowledge of HBNC among their spouse, which was also observed in our study.

High utilization of basic ANC services indicates strong accessibility to medical care in our study. On the other hand, only 8.7% of JSY and PMMVY services were used which could be due to poor linkage of the peripheral health functionaries and the beneficiaries. The results of Nawale AY et al.[18], who showed a 77% use rate for PMMVY benefits, are in sharp contrast to findings of the present study. A higher percentage of younger and more educated women (62.7%) used JSSK services in the present study. Kaur H. et al.[19] also reported good utilization of free delivery services, drugs, diagnostics, diet and transport services under JSSK. A total of 55.3% of participants made use of Anganwadi services, with younger and more educated women using them more frequently in the present study. The study findings were in concordance with the findings of the study conducted by Paul S et al.[20], conducted in Delhi. A study conducted by Bhagat VM et al.[16] showed that, out of total 140 study participants, 89.29% utilized one or more services by the AWC. A study conducted by Rehman HM et al.[21] in rural Lucknow showed that only 4.7% had good utilization of Anganwadi services, 58.6% had average utilization and 36.6% had poor utilization. Higher utilization of Anganwadi services during pregnancy including supplementary nutrition, health education, immunization and health check-ups, was reported by Harikrishna BN et al.[22] in a study conducted in rural Telangana. These inadequacies in the utilization practices of Anganwadi services across majority of the studies could be attributed to poor linkages of the peripheral health functionaries including ASHAs and Anganwadi workers, with the beneficiaries. HBNC service utilization was reported among 65.3% of participants in our study. In contrast, significantly lower use was found by Rane TM et al.[23] The variability in the study findings could be due to differences in the

geographic distribution of the study participants. Also, a possible reason behind higher utilization among the unemployed could be the availability of the mother in the post-partum period.

Conclusion:

The study reported good knowledge and utilization of basic ANC services. However, significant gaps were reported for the services provided under JSY, PMMY followed by JSSK, Anganwadi services and HBNC Improving the health outcomes for mothers and children depends on addressing these knowledge-utilization gaps with specific interventions**.**

Recommendation:

The knowledge gap identified for the maternal programs including JSY, PMMVY, Anganwadi services could be addressed by conducting educational campaigns regarding the available services at local level. Awareness regarding the maternal health care programs can also be improved with the help utilization of mass media as tool.

Limitations:

As the study population was limited only to the field practice area of a tertiary care hospital, the study may lack external validity. While the study looked at different factors like age, education, job status, and socioeconomic class, it didn't cover other factors like cultural beliefs, family support, accessibility to healthcare facilities, and the attitudes of healthcare providers.

Declaration:

Funding: Nil

Conflict of Interest: Nil

References:

1. Sample Registration System (SRS)-Special Bulletin on maternal mortality in India 2019-21. [Internet] Office of the Registrar General & Census Commissioner, India; 2025. [cited 05 July 2025]. Available from: https://censusindia.gov.in/nada/ index.php/ catalog/45561
2. Goal 3. Ensure healthy lives and promote well-being for all at all ages [Internet]. United Nations: Department of economic and social affairs; 2024. [cited 2024 Jul 27]. Available from: https://sdgs.un.org/goals/goal3#targets_and_indicators
3. WHO recommendations on antenatal care for a positive pregnancy experience [Internet]. Geneva: World Health Organization; 2018. [cited 28 Jul 2024]. Available from: https://iris.who.int/bitstream/handle/10665/259947/WHO-RHR-18.02 eng.pdf
4. Benefit to women under PMMVY [Internet]. New Delhi: Ministry of Women and Child Development; 2021. [cited 27 Jul 2024]. Available from: https://www.pib.gov.in/PressReleasePage.aspx?PRID=1781676
5. Janani Shishu Suraksha Karyakaram (JSSK). [Internet]. Ministry of Health and Family Welfare, Government of India [cited 05 July 2025]. Available from: https://nhm.gov.in/index4.php?lang=1&level=0&linkid=150&lid=171
6. Services under the Integrated Child Development Services [Internet] Department of Women and Child Development, Government of NCT of Delhi [cited 05 July 2025]. Available from: https://wcd.delhi.gov.in/wcd/services-under-integrated-child-development-services
7. Home Based Newborn Care (HBNC) [Internet]. Ministry of Health and Family Welfare, Government of India [cited 05 July 2025]. Available from: https://nhm.gov.in/index4.php?lang=1&level=0&linkid=491&lid=760
8. National Family Health Survey (NFHS-5) 2019-21, Compendium of factsheets, Key indicators [Internet]. New Delhi: Ministry of Health and Family Welfare; 2022. Available from: https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf
9. Rustagi R, Basu S, Garg S, Singh MM, Mala YM. Utilization of antenatal care services and its sociodemographic correlates in urban and rural areas in Delhi, India. Eur J Midwifery. 2021 ;5:40. doi: 10.18332/ejm/140459. eCollection 2021.
10. Manulata, Swain D. Utilization of Antenatal Healthcare Services, Associated Factors, and Pregnancy Outcomes Among Postnatal Women Who Delivered in Selected Rural Healthcare Centers in Odisha, Southeastern India. Cureus. 2025 Feb 5;17(2):e78591. doi: 10.7759/cureus.78591
11. Kaur A, Singh J, Kaur H, Kaur H, Devgun P, Gupta VK. Knowledge and practices regarding antenatal care among mothers of infants in an urban area of Amritsar, Punjab. Int J Community Med Public Health. 2018;5(10):42637. Doi: https://doi.org/10.18203/2394-6040.ijcmph20183868
12. Khes SP, Sahu D, Soni GP, Chandrakar A. A study to assess awareness about Janani Suraksha Yojana among beneficiaries of urban slums of Raipur city, Chhattisgarh. Int J Community Med Public Health. 2017;4(7):24237. Doi: https://doi.org/10.18203/2394-6040.ijcmph20172835
13. Manna N, Jainendran AS, Mondal S, Das S. A study on knowledge regarding antenatal care services and its utilization among women in reproductive age group residing in the rural field practice area of Medical College, Kolkata. Natl J Physiol Pharm Pharmacol. 2024;14(1):86-91. Doi: 10.5455/njppp.2023.13.1152820 2317112023
14. Chandrakar A, Panda PS, Soni GP, Dixit S. Awareness regarding Janani Shishu Suraksha Karyakram (JSSK) among mothers: a community based cross-sectional study in rural area of Raipur district, Chhattisgarh. Int J Res Med Sci. 2017;5(10):43749. Doi: https://doi.org/10.18203/2320-6012.ijrms20174561

15. Rupani MP, Patel PM, Meena PR, Patel PP, Patel PA, Paragda PK. Regular Antenatal Care Visits Predict Good Knowledge Among Post-natal Mothers Regarding Entitlements of Health Programs in Western India. Int J Health Policy Manag. 2019;8(8):46773. Doi: 10.15171/ijhpm.2019.28
16. Bhagat V, Choudhari S, Baviskar SR, Mudey AB. Availability and Utilization of Anganwadi Services in an Adopted Urban Area of Wardha. Online J Health Allied Scs. 2015;14(4):14.
17. Kadam S, Kulkarni S. Assess the Knowledge and Factors Influencing Utilization of Services Provided By Anganwadi Workers among Mothers Attending the Selected Anganwadies. J. Crit. Rev.2020;7(15):436674. Doi: 10.31838/jcr.07.15.582
18. Nawale AY, Jadav P, Hirve S, Butla M, Boinwad S, Khedekar S, et al. A study to assess the knowledge regarding Pradhan Mantri Matru Vandana Yojna among antenatal mothers of selected area of Pune city. Eur. j. mol. clin. med. 2020;7(11):613241.
19. Kaur H, Devgan S, Gupta S, Singh D, Arora H, Dihana N, et al. Evaluation of JSSK Programme in urban field practice area of Guru Gobind Singh Medical College, Faridkot. Int J Life Sci Biotechnol Pharma Res. 2023;12(1):20510. 83
20. Paul S, Basu S, Sodhi B, Singh MM, Rose SP. Utilization of nutritional supplementation services and their predictors in pregnant and lactating women living in an urban resettlement colony of Delhi, India: a cross-sectional study. Cureus. 2022;14(12):e32302. doi: 10.7759/cureus.32302
21. Rehman HM, Patel SP, Agarwal M, Singh VK, Mahour P. Utilization and Parental Perception towards Anganwadi Services in Rural Lucknow-A Cross Sectional Study. Int J Health Sci Res. 2017;7(7):22-30
22. Harikrishna BN, Jothula KY, Nagaraj K, Prasad VG. Utilisation of Anganwadi services among pregnant women in rural Telangana: A cross sectional study. J Family Med Prim Care. 2020 Jul 30;9(7):3343-3348. doi: 10.4103/jfmpc.jfmpc_408_20.
23. Rane TM, Mahanta TG, Ryavanki SP, Gogoi B, Boruah M. Home-based newborn care voucher initiative in Assam: An evaluation. Indian J Public Health. 2020;64(1):6671. Doi: 10.4103/ijph.IJPH_188_19