



ANTENATAL CARE HEALTH LITERACY AMONG RURAL AND URBAN PREGNANT WOMEN IN MAHARASHTRA – A COMPARATIVE STUDY.

Dr Gatada Prudhvi*	Junior Resident, Department of Community Medicine, Grant Government Medical College & Sir J.J Group of Hospitals, Mumbai. *Corresponding Author
Dr Pallavi Uplap	Assistant Professor, Department of Community Medicine, Grant Government Medical College & Sir J.J Group of Hospitals, Mumbai.
Dr Niraj Shinde	Junior Resident, Department of Community Medicine, Grant Government Medical College & Sir J.J Group of Hospitals, Mumbai.
Ms Shreya Tunge	BscPMT, Department of Community Medicine, Grant Government Medical College & Sir J.J Group of Hospitals, Mumbai.

ABSTRACT

Introduction: The global target to achieve a reduction in Maternal Mortality Ratio (MMR) under Sustainable Development Goal 3 (SDG) is less than 70 per 100,000 live births by 2030. To accomplish this, governments are striving for a long time. However, over a period of time, it is realised that Antenatal care (ANC) literacy is also equally crucial. Hence a comparative study was conducted in rural and urban areas of Maharashtra to assess this important aspect. **Aim & objectives:** To assess the Antenatal health care literacy among pregnant women in Rural and Urban areas in Maharashtra. **Methods:** For feasibility purposes, a cross-sectional study was conducted at Antenatal Care Out Patient Department located at a medical college and Rural Health Training Centre attached to it. Data was collected randomly among 100 pregnant women attending the same in both settings. The data was entered and analysed in Microsoft Excel 365, and the results were presented appropriately. All the necessary permissions were sought. **Results:** The study found that 80(80%) of rural participants acknowledged the need for at least four visits during pregnancy compared to 53(53%) in urban areas. Only 28(28%) of women in urban areas and 22% in rural areas were aware of the danger signs of pregnancy. ANC health literacy about early registration for pregnancy care, number of ANC visits required and haemoglobin status were significantly higher in rural when compared to urban pregnant women (p-value < 0.0001). Only 2 (2%) from urban and 6 (6%) from rural had information about Janani Shishu Suraksha Karyakram while 4 (4%) & 5 (5%) from urban and rural areas were knowing about Janani Suraksha Yojana respectively. **Conclusion:** There is a scope to improve ANC literacy with the help of innovative strategies.

KEYWORDS : Antenatal Care health literacy, Urban, Rural, Maternal mortality, Maharashtra

Introduction:

Health is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition. ⁽¹⁾ Children are the future citizen of society. It is a known fact that children's and mothers' health are interdependent on each other. Antenatal care is the systemic supervision of women during pregnancy to monitor the progress of foetal growth and to ascertain the well-being of the mother and the foetus. It also provides an opportunity to prepare a birth plan and identify the facility for delivery and referral in case of complications. ⁽²⁾ The Maternal Mortality Ratio (MMR) is a critical indicator of not only women and children's health but also socio economic development of a country. The MMR reflects not only the quality of health care services and maternal health's underlying social, economic, and cultural determinants but is also influenced by factors such as access to family planning, education, nutrition, and gender equality, which are all important indicators of a country's progress in promoting sustainable development and reducing poverty. Therefore, improving maternal health outcomes and reducing MMR is a critical goal for achieving sustainable development and promoting social and economic progress.

Every year nearly 6 million women become pregnant between 18 to 49 years; among this, nearly 295 000 women died during and following pregnancy and childbirth. Between 1990 and 2015, the global maternal mortality ratio dropped from 385 to 216 maternal deaths per 100000 live births. India was among the top 10 countries comprising 58% of global maternal death reported in 2013, but the MMR ratio has fallen from approximately 560 deaths in 1990 to 190 deaths in 2013. Despite this progress, the world hasn't achieved the Millennium Development Goals (MDG) target of a 75% reduction in global MMR by 2015. Hence under Sustainable Development Goal 3 (SDG) reduction is a revised target to reduce global (MMR) to less than 70 per 100000 live births. This is yet to be achieved by our own country. ⁽³⁾

Though there is an increase of 11.4% in the number of ANC health checks performed in the first trimester in NFHS-5⁽⁴⁾ when compared to

NFHS-4, only 43% (an increase of 13%) of the other women took IFA tablets, which is extremely concerning, especially given that anaemia is the primary factor in maternal mortality. ^(4,5) Though there is an increase of 7.3% in pregnant women who had 3 or more ANC visits in DLHS 4 of Maharashtra (77.9%) when compared to DLHS 3 of Maharashtra (74.5%), achieving 100% should be the prime target. ⁽⁶⁾

This suboptimal coverage of ANC care clearly indicates that merely providing services for mothers is not important. However, creating awareness or making them literate about their own health is a crucial factor for the successful outcome of pregnancies. Therefore, it is crucial to study the reasons behind the mother's poor compliance with early check-ups, coverage of four visits, and folic acid intake. In addition to indicators assessed in these Nationwide surveys there are many more aspects of antenatal care like awareness about their own blood group, haemoglobin status, availability of services offered, etc are very important for mothers to know to have a successful outcome of ANC.

Health knowledge is an important element to enable women to be aware of their health status more so in pregnant mothers. ANC health literacy refers to the level of understanding and knowledge that pregnant women have about their health and the health of their unborn child during antenatal ANC. It includes the ability to read, comprehend, and use health information to make informed decisions and take appropriate actions for the well-being of themselves and their unborn child. Hence ANC health literacy is crucial for reducing maternal mortality. ⁽⁷⁾

The importance of improving health literacy in the antenatal period through ANC programs cannot be underrated ^(8,9) there is limited published literature Nationally available ⁽¹⁰⁻²²⁾ which is assessing the same in pregnant mothers. So This study has been conducted to determine the level of knowledge, related to ANC among these pregnant women and to assess the awareness of their health during pregnancy. This may serve as a baseline for future planning of Health Education Intervention Programs.

Aims and Objectives: To assess the Antenatal health care literacy

among pregnant women in Rural and Urban areas in Maharashtra.

Materials and Methods: For feasibility purposes, a cross-sectional study was conducted (July 2022-September 2022) at Antenatal Care Outpatient Department located at a medical college and Rural Health Training Centre attached to it. Data was collected randomly among 100 pregnant women attending the same in both settings. The data was entered and analysed in Microsoft Excel 365, and the results were presented appropriately. All the necessary permissions were sought.

Ethical consideration: The institution's ethical review board approved before commencing the study.

Results:

Only 6 (6%) of the total number of women in urban areas were between the ages of 36 years and 45 years, while 66 (66%) of the women in rural areas were between the ages of 18 years and 25 years, 33 (33%) were between the ages of 26 years and 35 years, and only one was between the ages of 36 years and 45 years.

Out of 100 participants from the urban area, 19 (19%) were graduates, 15 (15%) had completed secondary school, 42 (42%) had completed matric, 11 (11%) had completed primary school, and 13 (13%) were illiterate. In the rural area, only 3 (3%) of the women were graduates, 10 (10%) had completed secondary school, 36 (36%) had completed matric, 9 (9%) had completed primary school, and the remaining 42 (42%) were illiterate. Participants from the Scheduled Caste/Scheduled Tribe category were 19 (19%) in urban areas, compared to 40 (40%) in rural areas.

In urban areas, 10 (10%) of women married before 18, whereas in rural areas, 12 (12%) married before 18 yrs. 5 (5%) women had their first child at <18 years of age in urban areas while in rural areas only 1 (1%) had their first child below 18 years of age. Out of 100 urban women, 40 (40%) were primigravidae, and 60 (60%) were multigravida. In rural, 58 (58%) were primigravida, 42 (41.6%) were multigravida.

Table 1. Knowledge of ANC mothers in urban and rural areas

Knowledge of ANC mothers in urban and rural areas (n=200)				
	Urban (100)	Rural (100)	Total (200)	Chi-Square
Registration for pregnancy				
Immediate after Confirmation	79	57	136	
After 3 months	17	35	52	<0.00001
At 7 months	3	3	6	
Don't Know	1	5	6	
No of ANC visits required				
One	3	5	8	<0.00001
Five	24	40	64	
Four	29	39	68	
Don't Know	44	16	60	
Hemoglobin is normal or not				
Yes	69	41	110	<0.0002
No	6	12	18	
Don't Know	25	47	72	

70(70%) pregnant mothers from the urban area and 45 (65%) pregnant mothers from the rural area knew about Iron and folic acid tablets. Out of 200 participants, 70 (70%) and 65 (65%) were aware of iron-rich foods from urban and rural areas, respectively. According to multiple responses, the majority of these foods were fruits, with 99 (54.1%), followed by green leafy vegetables (20.2%), beets (18.8%), eggs, fish, and meat (4.9%), and nuts and milk (2.2%) respectively.

Women from 64 (64%) rural and 70 (70%) urban areas were aware of the foods to stay away from while pregnant. The results of a multiple response system showed that 89 (52.4%) responses were overwhelmingly in favour of avoiding papaya while pregnant, 27 (15.9%) thought that oily and junk food, 18 (10.6%) responses for non-vegetarian and spicy food, 14 (8.2%) responses for hot food, and 4 (2.4%) and 1 (0.6%) responses for cold food and tobacco. 81 (81%) pregnant mothers from the urban area and 88 (88%) pregnant mothers from the rural area knew about Iron and folic acid tablets. Out of 200 participants, 70 (70%) & 65 (65%) knew about iron-rich foods from urban and rural areas 97 (97%) women from urban areas while 89 (89%) from rural areas underwent blood tests and 75 (75%) from urban

areas and 55 (55%) from rural knew about their blood group and 24(24%) & 29 (29%) from urban and rural areas women responded their blood group type affects their child. 69 (69%) from urban areas & 41 (41%) from rural had normal haemoglobin reports while urban 25 (25%) & rural 48 (48%) doesn't know about their haemoglobin status. 179 (89%) out of 200 women underwent urine tests which 99 (55.3%) & 80 (44.70%) were from urban and rural areas respectively. Out of 99 from the urban area, 95 (95.95%) knew about their urine test report was normal and in the rural area 68 (85%) knew about their urine test report was normal.

Only 28 (28%) of respondents in urban areas and 22 (22%) of respondents in rural areas were aware of the danger signs of pregnancy and provided multiple responses, with 25 (40.3%) responding to abdominal and back pain and 13 (21%) responding to vomiting. 8 (12.9%) reported vaginal discharge and 6 (9.7%) reported body pain. 5 (8.1%) reported bleeding and 4 (6.5%) reported leg swelling, while only one (1.6%) reported HIV.

In urban areas, 75 (75%) of the women were aware of various contraceptive measures, whereas, in rural areas, 52 (52%) of the women were aware of various contraceptive measures, with 72 (37.1%) responding in favour of a condom. Tablets received 65 (33.5%) and copper T received 42 (21.6%). There were 11 (5.7%) for injections and only 4 (2.1%) for tubectomy. 91 (91%) in urban areas while 72 (72%) in rural areas responded only to breast milk for the first six months while five (5%) urban & 15 (15%) rural participants responded to breast milk and water. The remaining 4 (4%) urban & 14 (14%) rural women were unaware of what baby should be given for the first six months. 89 (89%) & 82 (82%) responded that babies should be given milk immediately after birth in urban and rural areas respectively.

A maximum, of 163 out of 200 women responded weaning should start at 6 months which 83 (83%) & 80 (80%) were from urban and rural areas respectively. 8 (8%) & 10 (10%) women from urban and rural areas respectively responded at one year and the remaining 20 overall, 9 (9%) from urban & 11 (11%) from rural women had no information about when weaning should start.

Very few women were aware of Governmental schemes in which, only 2 (2%) from urban and 6 (6%) from rural had information about Janani Shishu Suraksha Karyakram while 4 (4%) & 5 (5%) from Urban and rural area respectively were knowing about Janani Suraksha Yojana.

The '108' ambulance service is to provide free emergency medical service for all types of emergencies and transport of pregnant women. The service provides basic life support and obstetric care en route through trained Emergency Medical Technicians (EMTs). Only 9 (9%) & 6 (6%) from urban and rural areas knew about the use of 108 numbers.

Discussion :

In the present study women married below 18 years were 10% and 12% in urban and rural areas respectively which shows similarity to District level household survey-4 which showed 14% from urban and 9.3% from rural areas women married below 18 years of age respectively. ⁽⁷⁾ The current study revealed that 42% of mothers lived in rural areas and 13% in urban areas were illiterate. These findings were in contrast with the studies conducted on the rural pregnant women of Kashmir (15%) and urban pregnant women from Pune (3.9%) respectively. ^(8,9)

In our study, the majority of urban women 99% were of opinion that ANC visits are important while only 52 % of pregnant women in Amritsar, Punjab were of the same opinion. ⁽¹²⁾ The current study revealed that 29% of mothers living in urban areas and 39 % in rural areas opined that a minimum number of 4 ANC visits is required. These findings were in contrast with the District fact sheet, Mumbai of NFHS 5 (87%) and District fact sheet, Palghar of NFHS 5 (86.3%) respectively. ^(23,24) Out of the 30% of women who didn't know the minimum number of ANC visits required, 16% belong to the rural area while a study conducted elsewhere in rural north India showed only 10.9% of the women didn't know about the minimum number of ANC visits. ⁽¹⁰⁾

The current study revealed that 70% of mothers who lived in urban areas and 65% in rural areas were aware of foods high in iron. These

findings were in contrast with the studies conducted on the urban pregnant women of Puduchery (15%) and rural pregnant women from Kolkata (53%) respectively.^(15,16) In the present study, 88 % of rural pregnant women and 81% of urban pregnant women are aware of Iron folic acid tablets. Findings in the rural pregnant mothers are similar to the study conducted on pregnant women of rural north India showing 86.25%⁽⁸⁾ whereas findings of urban pregnant women contrast with a study conducted on urban pregnant women of Karnataka (73.2%).⁽¹⁷⁾

The current study revealed that only 28 (28%) mothers lived in rural areas and 22 (22%) in urban areas were aware of the danger signs of pregnancy. These findings were in contrast with the studies conducted on the urban pregnant women of Karnataka (54%) and rural pregnant women from Telangana (35.7%) respectively.^(13,14)

81.5%(170) of women in rural areas responded that babies should receive only breast milk for the first six months which contradicts the study conducted on rural pregnant women of Kerala showing 44.1%.⁽¹⁸⁾

The current study showed only 2% of urban pregnant mothers and 6% of rural pregnant women were aware of JSSK. These findings contrast with the study conducted on urban pregnant women in Andhra Pradesh (19%) and rural pregnant mothers in Chhattisgarh (58%) respectively.^(19,20)

This present study showed only 4% of pregnant women from urban and 5% of pregnant women from rural areas were knowing about JSY respectively. These findings contrast with the study conducted on urban pregnant women in Maharashtra (52.7%) and rural pregnant mothers in Uttar Pradesh (75%).^(21,22)

Conclusion and recommendations.

The results revealed that the respondents knew about ANC services except for the number of ANC visits. Suboptimal ANC healthcare literacy among pregnant women might be the deterrent factor for the utilization of ANC services. The mere provision of the services is not important but making Behavioural Change Communication (BCC) more effective to improve utilisation. Effective, innovative strategies that deliver Information Education and communication with special emphasis on BCC should be developed. A robust mechanism should be developed to monitor or assess the impact of the same.

REFERENCES

- 1) World Health Organization. (n.d.). Health definition [Internet]. Last accessed on 6th April 2023. Available at <https://www.who.int/about/governance/constitution>
- 2) Ministry of Health and Family Welfare. (n.d.). Skilled Birth Attendance: SBA Guidelines for Skilled Attendance at Birth [PDF]. Retrieved April 6, 2023, from https://nhm.gov.in/images/pdf/programmes/maternalhealth/guidelines/sba_guidelines_for_skilled_attendance_at_birth.pdf
- 3) World Health Organization. (n.d.). Maternal mortality ratio [Internet]. Retrieved on 6th April 2023. Available at <https://www.who.int/data/gho/indicator-metadata-registry/indicator/126>
- 4) International Institute for Population Sciences. (2017). National Family Health Survey-4, 2015-16: India [PDF]. Retrieved April 6, 2023, from <http://rchiips.org/nfhs/nfhs-4Reports/India.pdf>
- 5) Ministry of Health and Family Welfare, Government of India. (2021). National Family Health Survey-5 (NFHS-5) Phase-II, 2019-20: India [PDF]. Retrieved April 6, 2023, from https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf
- 6) International Institute for Population Sciences. (2013). District Level Household and Facility Survey-4 (DLHS-4), 2012-13: State Fact Sheet Maharashtra [PDF]. Retrieved April 6, 2023, from <http://rchiips.org/pdf/dlhs4/report/MH.pdf>
- 7) World Health Organization. (2018). ANC health literacy [Internet]. Retrieved on 6th April 2023. Available at https://www.who.int/maternal_child_adolescent/documents/health-literacy/en/
- 8) Guler, D. S., Sahin, S., Ozdemir, K., Ünsal, A., & Uslu Yuvaçi, H. (2021). Health literacy and knowledge of antenatal care among pregnant women. *Health & Social Care in the Community*, 29(6), 1815-1823. doi: 10.1111/hsc.13291
- 9) Lori, J. R., Ofosu-Darkwah, H., Boyd, C. J., Banerjee, A. T., Adanu, R. M., & Shotorbani, S. (2017). Improving health literacy through group antenatal care: A prospective cohort study. *BMC Pregnancy and Childbirth*, 17(1), 228. doi: 10.1186/s12884-017-1414-5
- 10) Gupta, R. K., Shora, T. N., Verma, A. K., & Jan, R. (2015). Knowledge regarding antenatal care services, its utilization, and delivery practices in mothers (aged 15-49 years) in a rural area of North India.
- 11) Patel, B. B., Gurmeet, P., Sinalkar, D. R., Pandya, K. H., Mahen, A., & Singh, N. (2016). A study on knowledge and practices of antenatal care among pregnant women attending antenatal clinic at a Tertiary Care Hospital of Pune, Maharashtra. *Medical Journal of Dr. DY Patil University*, 9(3), 354-362.
- 12) Kaur, A., Singh, J., Kaur, H., Kaur, H., Devgun, P., & Gupta, V. K. (2018). Knowledge and practices regarding antenatal care among mothers of infants in an urban area of Amritsar, Punjab. *International Journal of Community Medicine and Public Health*, 5, xxx-xx.
- 13) Haleema, M., Raghuvver, P., Kiran, R., Mohammed, I. M., Mohammed, I. S. A., & Mohammed, M. (2019). Assessment of knowledge of obstetric danger signs among pregnant women attending a teaching hospital. *Journal of Family Medicine and Primary Care*, 8(4), 1422-1426. https://doi.org/10.4103/jfmpc.jfmpc_149_19
- 14) Bhumi, M. A., & Chajhlana, S. P. S. (2018). Knowledge of obstetric danger signs among pregnant women attending antenatal clinic at rural health training centre of a medical college in Hyderabad. *International Journal of Community Medicine and Public Health*, 5(6), 2471-2475. <https://doi.org/10.18203/2394-6040.ijcmph20182179>
- 15) Nivedita, K., & Shanthini, F. N. (2016). Knowledge, attitude and practices of pregnant

women regarding anemia, iron rich diet and iron supplements and its impact on their hemoglobin levels. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 5(2), 425-431.

- 16) Sarkar, A., Roy, D., Mondal, N., & Manna, N. (2018). Factors associated with knowledge and practice of ante-natal care among pregnant women in a rural area of West Bengal, India. *International Journal of Community Medicine and Public Health*, 5(12), 5430-5437.
- 17) Mithra, P., Unnikrishnan, B., Rekha, T., Nithin, K., Mohan, K., Kulkarni, V., Kulkarni, V., & Agarwal, D. (2013). Compliance with iron-folic acid (IFA) therapy among pregnant women in an urban area of south India. *African Health Sciences*, 13(4), 880-885. <https://doi.org/10.4314/ahs.v13i4.3>
- 18) Rishendu, M., & Devaki, G. (2017). Knowledge, attitude and practice towards breastfeeding among lactating mothers in rural areas of Thrissur district of Kerala, India: A cross-sectional study. *Biomedical & Pharmacology Journal*, 10(2), 905-910.
- 19) Kokilamma, B., Ghouseabee, V., Sudha rani, P., & Sreelatha, M. (2021). A study to assess the knowledge regarding the utilization of JSSK services among antenatal mothers attending at MCH centre, Tirupati. *International Journal of Creative Research Thoughts*, 9(11), 1844
- 20) Chandrakar, A., et al. (2017). Awareness regarding JSSK among mothers: a community-based cross-sectional study in the rural area of Raipur district, Chhattisgarh. *International Journal of Research in Medical Sciences*, 5(10), 4374-4379. <http://dx.doi.org/10.18203/2320-6012.ijrms20174606>
- 21) Singh, V. S., Chavan, S. S., Giri, P. A., & Suryavanshi, S. R. (2014). Study on awareness and knowledge regarding Janani Suraksha Yojana (JSY) among ANC registered women in a primary health centre of tribal area of Thane District of Maharashtra. *International Journal of Research in Medical Sciences*, 2(1), 122-126. <https://doi.org/10.5455/2320-6012.ijrms20140121>
- 22) Priya, N., Khan, Z., Mehnaz, S., & Kumar, V. (2019). What is the state of awareness of Janani Suraksha Yojna in Aligarh: a comparison between Rural and Urban Areas. *Indian Journal of Community Health*, 31(4), 541-548.
- 23) National Family Health Survey (NFHS-5) District Fact Sheet Mumbai [Internet]. (2023). Last accessed on 16th April 2023. Available at http://rchiips.org/nfhs/NFHS-5_FCTS/MH/Mumbai.pdf
- 24) National Family Health Survey (NFHS-5) District Fact Sheet Palghar [Internet]. (2023). Last accessed on 16th April 2023. Available at http://rchiips.org/nfhs/NFHS-5_FCTS/MH/Palghar.pdf