ORIGINAL RESEARCH

The Prevalence of Anaemia Among Antenatal Women in the Urban Population of North Karnataka District

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ABSTRACT

Background: Anemia is the most common nutritional deficiency worldwide. Anaemia increases the risk of maternal morbidity & mortality and adverse maternal outcome such as ante partum hemorrhage, post-partum haemorrhage & puerperal sepsis. **Objective:** To find out the prevalence of the Anaemia in antenatal women and to determine the association with sociodemographic factors.

Materials and Methods: It was a community based, cross sectional study done over a period of 1 year. The antenatal women with gestational period 12-20 weeks, visiting at antenatal clinic were registered for the study. The antenatal women were interviewed by using pre-structured, pre-tested questionnaire. Prior consent was obtained from the participants. Detailed clinical examination was done at UHTC. Haemoglobin estimation was done by Sahli's method. Anaemia was classified as per WHO criteria. Data was analyzed by using Chi-Square Test to check association. P-value < 0.05 was considered significant.

Results: 500 pregnant women were included in the study. Majority (93.4%) were urban dwellers, 227 (45.4%) had attended secondary level of education. Most of them were Hindu by religion (75.2%), 84.2% had average monthly income <10,000, and 83.6% were living in the family size >2. Association was found and was significant with age, socioeconomic status, occupation, education level and family size.

Conclusion: Anemia remains to be a public health problem. Although iron-folic acid supplementation is available under the national health program to address this issue, it is important for primary care physicians to consider and address other risk factors when designing and implementing target interventions for anemia control in selected populations.

Keywords: Anaemia in pregnancy, Urban population, National Iron Plus Initiative.

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INTRODUCTION

Anemia is the most common nutritional deficiency worldwide. It leads to reduced work capacity in adults and leads impact on mental development in children and adolescents. There is some evidence that anemia affects cognition in adolescent girls and causes fatigue in adult women. Anemia may affect visual and auditory functioning and is weakly associated with poor cognitive development in children.[1] In India, anaemia contributes directly to 20%

maternal death and indirectly to further 20%.[2,3] The main causes of Anaemia in the developing countries in Antenatal women includes low dietary intake of iron and folic acid, poor bioavailability of iron and fiber rich Indian diet, poor absorption of iron due to hook worm infestation and blood loss during delivery and heavy menstrual blood loss.[4-6] Iron deficiency & Anaemia during antenatal period are associated with low birth weight babies, premature birth, increase perinatal and neonatal mortality. Anaemia increases the risk of maternal morbidity & mortality and adverse maternal outcome such as ante partum hemorrhage, post-partum haemorrhage & puerperal sepsis,[7-9] National Iron plus Initiative will be initiated with the aim to reach the following age groups for supplementation of Iron & Folic Acid – 6 to 60 months, 5years to 10 years, 10 to 19 years, pregnant and lactating women and women in reproductive age.

The current study was carried out to find out the prevalence of the Anaemia in antenatal women and to determine the association with sociodemographic factors.

MATERIALS & METHODS

Present community based, cross sectional study was carried out at Urban Health Training Centre Aamtalab, Raichur carried over a period of 1 year after getting approval from Institutional Ethical Committee. The antenatal women with gestational period 12-20 weeks, visiting at antenatal clinic were registered for the study. Antenatal women giving history of worm infestation, bleeding disorder and bleeding in last pregnancy were excluded from the study.

The antenatal women were interviewed by using pre-structured, pre-tested questionnaire. Prior consent was obtained from the participants. The questionnaire included detailed socio-demographic profile of the women like, age, religion, family size, family income, residence, and education level of women. Obstetric history included gestational age, parity, interpregnancy space, h/o of iron and folic acid supplements, h/o abortions, and dietetic habits. Questionnaire was both in English and local language. All the questionnaires were checked for comprehensiveness and consistency in daily basis. Detailed clinical examination was done at UHTC. Weight and Height measurement of the subject were taken with pre-standardized weighing machine and Height scale. BMI was calculated by the formula weight in Kgs/Height in square meter.

Haemoglobin estimation was done by Sahli's method. Anaemia was classified as per WHO criteria.[10] Haemoglobin below 11 gm/dl was labeled as anaemia during antenatal period. Typing of anaemia was done as per standard peripheral smear examination.[11] Severely anemic pregnant women were referred to RIMS teaching Hospital, Raichur for further management. Data was analyzed by using Chi-Square Test to check association. P-value < 0.05 was considered significant.

RESULTS

A total of 500 pregnant women were included in the study. Nearly half, 284 (47.33%) of the women were in the age group of 26–30 years. It was also observed that majority, 467 (93.4%) were urban dwellers, 227 (45.4%) had attended secondary level of education. Furthermore, majority of them were Hindu by religion 376 (75.2%), 421 (84.2%) had average monthly income <10,000, and 418 (83.6%) were living in the family size >2.

When the age groups were compared, the prevalence of anaemia in the age group of less than 20 years was more than prevalence in other age groups and the difference was statistically significant indicating that pregnancy in early age will have more chances of complications due to anaemia. Prevalence of anaemia in the low income and middle-income groups made a greater chunk and the difference of prevalence compared to group having more income was statistically significant. Housewives and laborers contributed maximum to the prevalence of

anaemia. Level of education showed a decreasing trend of anaemia as the level of education was more, the prevalence was lesser. When it came to religion, there was not much difference in the prevalence and the difference was not significant statistically also.

Families having family size of more than two had high prevalence of anemia and the difference between families having family size of 2 or lesser and more than two was statistically significant.

Table 1: Distribution of study participants with respect to different sociodemographic factors and prevalence of anemia in different groups

Sociodemographic factors	Anemia (%)	Non-anemia (%)	Total (%)	P-value
Age (years)				
<20	49 (62.03)	30 (31.98)	79 (15.8)	<0.0001
20–25	42 (30.65)	95 (69.35)	137 (27.4)	
>25	117 (41.20)	167 (58.80)	284 (47.33)	
Residence				
Urban	179 (38.33)	288 (61.67)	467 (93.4)	< 0.00001
Rural	29 (87.88)	4 (12.12)	33 (6.6)	
Income				
<10,000	186 (44.18)	235 (55.82)	421 (84.2)	<0.01
10,000–20,000	19 (33.92)	37 (66.07)	56 (11.2)	
>20,000	3 (13.04)	20 (86.96)	23 (4.6)	
Occupation				
Housewife	96 (40.85)	139 (59.15)	235 (47)	< 0.00001
Laborer	102 (45.73)	12 (54.27)	223 (44.6)	
Employee	10 (23.81)	32 (74.19)	42 (8.4)	
Level of education				
Illiterate	31 (67.39)	15 (32.61)	46 (9.2)	< 0.00001
Primary	76 (53.15)	67 (46.85)	143 (28.6)	
Secondary	79 (34.80)	148 (65.2)	227 (45.4)	
More than Secondary	22 (26.19)	62 (73.81)	84 (16.8)	
Religion				
Hindu	189 (42.86)	252 (57.14)	441 (88.2)	0.0787
Christian	9 (47.37))	10 (52.63)	19 (3.8)	
Muslim	10 (25)	30 (75)	40 (8)	
Family size				
≤ 2	25 (31.25)	57 (68.75)	82 (16.4)	< 0.05
>2	183 (43.78)	235 (56.22)	418 (83.6)	

DISCUSSION

In this study we estimated the prevalence of anemia among pregnant women and its association with certain risk factors such as socio-demographic factors.

The overall prevalence of anemia was found to be 41.6% in the present study, which reflects upon the burden of anemia in an urban setting among a group of pregnant women availing of antenatal care at a public-sector hospital. Samuel et al. in a similar study which was done at an urban public health facility in Bangalore observed an almost similar prevalence rate of 30.3%.[12] World Health Organization (WHO)/World Health Statistics data shows that 40.1%

of pregnant women worldwide were anemic in 2016 which is similar to our study results. The condition is prominent in Southeast Asian countries where about half of all global maternal deaths are due to anemia and India contributes to about 80% of the maternal death due to anaemia in South Asia. There is marginally decrease in prevalence of anemia in pregnant women in India from 58% in NFHS-3 (National Family Health Survey-2005-06) to 50 % in NFHS-4 survey (2015-16).[13] In our study the prevalence was lesser than the national average. The reasons might be the study was done in urban area where better antenatal services are provided both by Health and Family Welfare and Government Medical College.

In our study, socio-demographic factors appeared to be significantly associated with anemia except religion, which is in contrast to other studies.[14,15] In another study by Balarajan et al.[16] there was a difference in the distribution of anemia in lower income groups. There was statistically significant difference in the prevalence among working women versus housewives in line with the findings from a study which was done by Baig-Ansari et al.[17]

Our study could not confirm the existence of association between obstetric variables such as gravidity, parity, and history of abortion with anemia, similar to our study findings, Singh et al.[18] did not find any such association with gravidity, whereas Suryanarayana et al.[19] could not establish any linkage with parity.

CONCLUSION
Our study results suggest that anemia remains to be a public health problem. Although iron-folic acid supplementation is available under the national health program to address this issue, it is important for primary care physicians to consider and address other risk factors when designing and implementing target interventions for anemia control in selected populations.

REFERENCES
1. Killip, Shersten, John M. Bennett, and Mara D. Chambers. "Iron deficiency anemia." Children 1994, no. 1999 (2000).
2. World Health Organization. Prevention and management of anaemia in pregnancy. WHO/FHE/MSM/93.5 Geneva: WHO, 1993.
3. Brabin, B. J., Hakimi, M., Pelletier. An analysis of anemia and pregnancyrelated maternal mortality. The Journal of nutrition. 2001;131(2),604S-615S.
4. Karine Tolentino, Jennifer F. Friedman. An update on Anaemia in less developed countries. Am. J. Trop. Med. Hyg. 2007;77(1):44-51
5. World Health Organization, Iron defi ciency Anaemia; Assessment, Prevention and control. Geneva: WHO, 2001.
6. National Nutrition Monitoring Bureau, 2002 (NNMB) Micronutrient Survey Hyderabad: National Institute of Nutrition.
7. Scholl T, Hediger M, Fischer R, et al. Anaemia Vs Iron defi ciency: increased risk of preterm delivery. Am J. Clin. Nutr. 1992;55:985-8.
8. Roy S, Chakravorty PS. Maternal and Perinatal out come in severe anaemia. J obstet Gynae Ind. 1992;42:743-50.
9. Rangnekar AG, Darbari R. fetal outcome in anaemia during pregnancy. J obstet Gynae Ind. 1993;43:172-6.
10. Preventing and controlling iron defi ciency anaemia through primary health care, Geneva: WHO, 1989.

11. Firkin F, Chesterman C, et al. Clinical Haematology in Medical Practice, Oxford university press, 5th edition 1990, Page-31

12. Samuel T, Thomas T, Finkelstein J, Bosch R, Rajendran R, Virtanen S, et al. Correlates of anemia in pregnant urban South Indian women: A possible role of dietary intake of nutrients that inhibit iron absorption. Public Health Nutrition. 2012;16:316-24.

13. National Health Programmes of India. https://www.nhp.gov.in/disease/gynaecology-and-obstetrics/anaemia-during-pregnancy-maternal-anemia

14. Lokare P, Gattani P, Karanjekar V, Kulkarni A. A study of prevalence of anemia and sociodemographic factors associated with anemia among pregnant women in Aurangabad city, India. Ann Nigerian Med. 2012;6:30. Available from: http://www.anmjournal.com/article.asp?issn=0331-3131;year=2012;volume=6;issue=1; spage=30 ;epage=34;aulast=Lokare

15. Siddalingappa H, Narayana Murthy MR, Ashok NC. Prevalence and factors associated with anemia among pregnant women in rural Mysore, Karnataka, India. Int J Community Med Public Health. 2016. pp. 2532-37.

16. Balarajan Y, Ramakrishnan U, Ozaltin E, Shankar AH, Subramanian SV. Anaemia in low-income and middle-income countries. Lancet. 2011 Dec 17; 378(9809):2123-35

17. Baig-Ansari N, Badruddin SH, Karmaliani R, Harris H, Jehan I, Pasha O, Moss N, McClure EM, Goldenberg RL. Anemia prevalence and risk factors in pregnant women in an urban area of Pakistan. Food Nutr Bull. 2008 Jun; 29(2):132-9

18. Singh R, Singh AK, Gupta SC, Singh HK. Correlates of anemia in pregnant women. Indian J Community Health. 2015;27:351-5. Available from: https://web.b.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=c rawler&jrnl=22489509&AN=113662520&h=l9ked .

19. Prospective study on prevalence of anemia of pregnant women and its outcome: A community-based study. Suryanarayana R, Chandrappa M, Santhuram AN, Prathima S, Sheela SR J Family Med Prim Care. 2017 Oct-Dec; 6(4):739-43.