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UTILIZATION OF ANTENATAL CARE SERVICES WITH SPECIAL EMPHASIS ON ANEMIA AMONG PREGNANT WOMEN AND MOTHERS WHO HAVE DELIVERED WITHIN THREE MONTHS IN URBAN FIELD PRACTICE AREA OF SKMCH, BIHAR

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ABSTRACT India is a country with anemia as a serious public health concern since nearly 50% of the pregnant women were shown to be anemic as per the National Family Health Survey.Antenatal Care (ANC) is the key entry point for pregnant women to receive a broad range of health promotion and prevention services. **Methodology:** A cross sectional survey was conducted in the urban field practice area of Sri Krishna Medical College & Hospital, Muzzafarpur, Bihar. The study was conducted between October 2018 to March 2019. All households (HHs) were approached to elicit information on socio-economic and demographic characteristics. Double data entry was done in a database designed in Microsoft Access with inbuilt validation checks. All data describing the socio-demographic profile and ANC utilization were summarized using descriptive statistics. **Results:** Out of total households in the defined areas, 92% households agreed to participate in thesurvey. Rest of the houses either refused or were locked on the day of visit. Of these only 112 pregnant women and 49 mothers agreed to participate in the detailed survey. Of the 112 women, 37 did not avail any kind of ANC services. Out of 75 women who availed ANC services, 56% registered for ANC in the first trimester. **Discussion:** The current shows a point prevalence of 52% being anemic during their pregnancy. However, our study was found to have prevalence of anemia within range stated in published literature (33% to 89%).

KEYWORDS : Antenatal Care services, Anemia, pregnant women

INTRODUCTION

Antenatal Care (ANC) is the key entry point for pregnant women to receive a broad range of health promotion and prevention services. WHO recommends a minimum of four ANC visits, ideally at 16, 24–28, 32 and 36 weeks and recommends health promotion including nutrition counselling as one of its important components besides others [1]. It has been shown that women attending regular ANC exhibit better knowledge, attitudes and antenatal practices compared to those not availing in several developing countries [2, 3]. Nutrition education and counselling is a widely used strategy to improve the nutritional status of women during pregnancy that significantly influences fetal, infant and maternal health outcomes. Anemia during pregnancy is a public health problem especially in developing countries and is associated with adverse outcomes in pregnancy [4]. WHO has defined anemia in pregnancy as the hemoglobin (Hb) concentration of less than 11 g/dl [5]. According to WHO, anemia is considered to be of a public health significance or problem if population studies find the anemia prevalence of 5.0% or higher. Prevalence of anemia of ≥40% in a population is classified as a severe public health problem [6].

India is a country with anemia as a serious public health concern since nearly 50% of the pregnant women were shown to be anemic as per the National Family Health Survey (NHFS-4) (2015/16). Reports from India from way back in 1981 indicated that a sizeable proportion of all maternal deaths (16%) were attributable to anemia. A study from Lancet, 2002, showed that India contributed to 80% of maternal deaths in South Asia due to anemia [7]. The Hb levels used to diagnose anemia (g%) in pregnant women as per the WHO nutritional anemia "Tools for effective prevention and control, 2017", were mild (10.0–10.9 g%), moderate (7.0–9.9 g%), and severe (<7.0 g%) [8]. Iron deficiency was the major cause of anemia in 50% women of reproductive age group. Other nutritional deficiencies, infectious diseases, and hemoglobinopathies are other important contributory causes to the high prevalence of anemia [9].

The causes of anemia during pregnancy in developing countries are multifactorial; these include micronutrient deficiencies of iron, folate and B12 and anemia due to parasitic infections such as malaria and hookworm or chronic infections like TB and HIV [10, 11]. Contributions of each of the factors that cause anemia during pregnancy vary due to geographical location, dietary practice, and season.

Anemia during pregnancy is reported to have negative maternal and child health effect and increase the risk of maternal and perinatal mortality [12]. The negative health effects for the mother include fatigue, poor work capacity, impaired immune function, increased risk of cardiac diseases, and mortality [13]. Some studies have shown that anemia during pregnancy contributes to 23% of indirect causes of maternal deaths in developing countries. Anemia in pregnancy is associated with increased risk of preterm birth and low birth weight babies [14, 15]. Preterm and LBW are still the leading causes of neonatal deaths in developing countries like India contributing to 30% of the deaths [16]. It has also been associated with increased risk of intrauterine deaths (IUFD), low APGAR score at 5 minutes, and intrauterine growth restriction (IUGR) which is a risk for stunting among children of less than two years [17].

Previous studies have evaluated association of various attributing factors to maternal mortality and various models of Antenatal Care in western as well as LMIC population [18, 19]. Being factor influencing 2/3 of total pregnant population of LMIC, anemia has been given paramount importance in maternal health. A national level government programme aimed at better pregnancy outcome named Pradhan Mantri SwasthaMatrivaAbhiyaan has delineated anemia as one of the high risk factor in pregnancies [20]. Timely diagnosis and screening of highrisk pregnant women including anemic cases has great impact with reduction in number of deaths associated with such pregnancies [21].

Studies have considered clinical data from antenatal clinics as source of information of such risk prevalence estimation [22, 23]. However, very few researchers have addressed this problem in this region of India as target for studies. Moreover, there remains need of corroboration of fact of anemia being factor of high risk.

METHODOLOGY

Study setting& duration
A cross sectional survey was conducted in the urban field practice area of Sri Krishna Medical College & Hospital, Muzaffarpur, Bihar. The study was conducted between November 2019 and March 2020.

Study population
All households (HHs) were approached to elicit information on socio-economic and demographic characteristics. During the survey we obtained a list of Pregnant Women (PW) and mothers who had given birth in the past 3 months (Recently Delivered Women (RDW)). These women were approached after 2 weeks of the initial household survey to collect detailed information about their ANC care, child birth, and other information. The study protocol was approved by institutional ethics committee.

Sampling technique
Complete enumeration method

Data collection
The HH survey was initiated only after obtaining consent from the cluster guardians. Lane to lane mapping exercise of the area ensured that all households were covered. During the mapping exercise the number of functional clinics and health posts were recorded irrespective of their registration status. From the PW and RDW who consented and were available on our revisit, information regarding utilization of ANC services and details of services offered during ANC visits were elicited by trained field interviewers using paper-based forms. Biochemical assessment of Hb status using the standard protocol for cyanmethemoglobin method was done. Double data entry was done in a database designed in Microsoft Access with inbuilt validation checks.

Data analysis
All data describing the socio-demographic profile and ANC utilization were summarized using descriptive statistics. All women based on their pregnancy status (pregnant /lactating) were classified into anemia grades as per the WHO classification; (For pregnant women: Hb of >11 g/dl=no anemia, 10–11 g/dl=mild anemia. For Lactating women>12 g/dl=no anemia, 10–12 g/dl=mild anemia and 7–10 g/dl=moderate anemia, < 7 g/dl=severe anemia for both groups) [24].

RESULTS
Out of total households in the defined areas, 92% households agreed to participate in the survey. Rest of the houses either refused or were locked on the day of visit. From a total population of approx. 40,000, 175women self-declared them to be pregnant and 73 mothers had given birth in past three months. Of these only 112 pregnant women and 49 mothers participated in the detailed survey. The key reason for low response rate was when they were approached after 2 weeks, was due to women moving to their maternal home for child birth. Socio-economic and demographic characteristics of the households of the study population is described in Table 1. The mean age was 27 years with most (92%) reported having married after attaining 18 years of age. Obstetric detail has been elaborated in table 2.

Availability of ANC and other health care services
Majority had access to some kind of health care facility (government/private) for maternal, neonatal and child health (MNCH) care within 3 km radius. Only 17% said that the nearest is beyond 3 kms. One referral hospital was situated at a distance of 5kms and several other referral hospitals beyond 10 km. The Primary Health Centre was situated nearby. A total of 7 private clinics (registered and unregistered) and one laboratory was present in the study area. 78% of the women reported presence of any community health worker in their area.

Utilization of ANC
Of the 112 women, 37 did not avail any kind of ANC services. Out of 75 women who availed ANC services, 56% registered for ANC in the first trimester. While almost all women received iron folic acid and calcium tablets, only 62% were taking medicines regularly. Others have stopped either due to side effects or due to inability to procure medicines at regular intervals. Those visiting some or the other center, 100% were immunized for tetanus toxoid. The counselling received during ANC visits for various issues varied between 51-90% with counselling on themes like early initiation of breast feeding, exclusive breast feeding (EBF) and family planning (FP) reported less frequently. Additional counselling on managing frequently occurring symptoms was reported by only 42%. About 68% respondents reported that they were satisfied with the ANC services availed.

Status of anemia and its association
On biochemical analysis, 52% of the currently pregnant women and 48% of the recently delivered women were anemic with regards to WHO definition (mentioned elsewhere). Chi-square test was done to establish association between status of anemia and various factors. A p-value of < 0.05 was considered to be statistically significant. Factors found to be significantly associated with Hb status were lower age, poor socioeconomic status, more family size and higher parity.

DISCUSSION
The current shows a point prevalence of 52% being anemic during their pregnancy. The fact was also substantiated by World Health Statistics Report 2016 [25] by World Health Organization, which presented the prevalence of anemia in pregnant women in 2016 as 50%. Bora, R. et al. reported 89.6% of pregnant women in their study had Hb less than 11 gm/dl [26]. Another study form rural India by Ahankari, A., S., et al. reported 77% of pregnant women were anemic [27]. Suryanarayana, R., et al., Siddiqui, M.Z., et al. and Agarwal, K.N., et al. found 62.3%, [28] 59% [29] and 57.8% [30] prevalence of anemia in respective manner. This also corresponds to the findings of NFHS-4, which is 55% [31]. The vast difference in sample size could be the predictor for such outcome discrepancies. However, our study was found to have prevalence of anemia within range stated in published literature (33% to 89%).

CONCLUSION
The snapshot from this study showed that there was increased pregnancy risk in terms of anemic conditions. As anemia was found to be significantly associated with maternal literacy, age, economic status, poverty and higher parity, these could be considered as an important determinant of iron deficiency anemia and thereby a strong case for evidence informed policy interventions in area of anemia prevention for better maternal outcomes.

Table 1: Table showing distribution of study participants according to their socio-demographic characteristics

Characteristics	Currently pregnant women	Recently delivered women
Age in years (mean, SD)	22, 3.7	29.4, 4.2
Years of schooling (mean, SD)	4.5, 2.2	5.2, 3.4
Homemaker	90.0%	85.3%
Nuclear family	58.4%	63.7%

Hindi as mother-tongue	96.5%	99.8%
Religion Hindu	89.3%	78.5%
Family size (mean, SD)	5, 3.2	4.3, 5.2
Per capita family income in Rs (mean, SD)	1035.7, 73.9	1398.6, 53.8

Table 2: Table showing obstetric characteristics of currently pregnant women

Characteristic		Number (N = 162)
Parity	Nullipara	50
	1-3	32
	>3	30
Age at marriage	< 18 years	33
	18 years or more	79
Duration of pregnancy	First trimester	22
	Second trimester	48
	Third trimester	42

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