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Prevalence of nutritional anemia in pregnant women in selected slum areas under the Cuttack municipal corporation - A field study

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Abstract
The present field study was conducted in four selected slum areas namely Patapola, Jobra, Station Bazar, and Bidanasi under the Cuttack Municipal Corporation, Odisha to ascertain the prevalence of nutritional anemia in pregnant women. One hundred respondents were selected from each locality using simple random sampling method with an objective to study their socio-economic state, awareness regarding various food groups, food taboos, prevalence of anemia, clinical examination and general awareness regarding anemia. The intended goal of the present study was achieved via compilation of information regarding their diet pattern, knowledge regarding food groups during pregnancy and obliteration of anemia. The study revealed that on an average basis nearly 41% and 30% of respondents suffer with mild and moderate degrees of anemia respectively with other infections and deficiencies, 72% have several numbers of pregnancies and among them 40% have number of abortions, 67% are affected by different food taboos, 90% have zero knowledge about different food groups and 40% of them get help and supplements from the anganwadi health workers working in those specific locations. Thus, it is recommended that by incorporating proper awareness regarding the cause and eradication of anemia, suitable diet pattern during pregnancy, appropriate number of pregnancies and gap between consecutive pregnancies etc. among the women of the slum areas the degree of nutritional anemia can be reduced to a great extent which will help them towards leading a better life.

Keywords: Anemia, pregnant women, slum area, diet pattern, food taboos

1. Introduction
In every communal society pregnancy has been regarded as the most greeting event of successful womanhood. It is one of the most magnificent experiences in a woman's life and a blissful pregnancy can make it even better. The outcome of pregnancy is directly influenced by the diet pattern of the pregnant mother [1]. During the child bearing period both physical and mental strain is imposed on both body and mind of the pregnant lady. Thus, it is extremely essential that the would-be mother maintains a healthy life during the period of pregnancy [2]. Further, the obstetric outcome of pregnancy is not only influenced by nutrition during pregnancy but also the childhood nutrition. Besides the nature of diet several other poverty related issues such as malnutrition, anemia, infection, parasitic infection leading to intestinal mal-absorption, and closely spaced pregnancy may cause adverse effect on the maternal nutrition status [3].

In the post-independence period nutritional anemia has been one of the major public health concerns in India affecting nearly 90% poor children, adolescent girls and pregnant women causing serious impediment to health and economic development. According to the statistics of World Health Organization (WHO) in the year 2008, prevalence of anemia in pregnant women in India is 49.7% compared to that of the global prevalence of 41.8% [4]. Nutritional anemia among women of child bearing age is equally hazardous to the protein calorie malnutrition (PCM) which is known to be the most horrible killer of infants and children [5]. Nutritional anemia is known to be a key national nutritional problem having considerable impact on the health and productivity of the population. It can be defined as the delayed manifestation of deficiency of nutrients needed for hemoglobin synthesis [5, 6]. Nutritional anemia mainly occurs in India due to low dietary intake, low iron (< 20 mg/day)

and folic acid (< 70 µg/day) intake, poor bioavailability of iron (3-4%) in phytate and fiber-rich Indian diet and chronic blood loss due to some specific diseases [7]. In India, a handful number of maternal deaths are reported to occur due to nutritional anemia among pregnant women which is estimated to be 20% of the overall maternal deaths [8, 9]. Serious health issues during pregnancy are caused due to nutritional anemia among pregnant women which affects 60 to 70% of pregnant women with hemoglobin levels less than 10 gm. It is reported that, approximately 5-30% of all maternal deaths occur because of nutritional anemia [4, 9, 10].

2. Methodology

The present field investigation is intended to evaluate the prevalence of anemia among pregnant women living in four selected slum areas under the Cuttack Municipal Corporation (CMC), Odisha. These selected localities are Patapola, Jobra, Station Bazar, and Bidanasi. In order to collect the information regarding the degree of anemia, 100 pregnant women aged between 20 to 35 years were selected randomly from each of the above localities under CMC. The tools adopted in the study included a series of questionnaire, which were exclusively planned for collection of data from the respondents living in these slums. These set of questionnaire pertaining to the present investigation covered various aspects such as personal details, general information about the slum they are living in, food consumption pattern, food taboos, clinical manifestation of the respondent and general awareness regarding anemia. The present paper explicates a comparative analysis among the respondents of two randomly selected slum areas regarding the general awareness of anemia.

3. Results and discussion

3.1 Socio-economic status of the respondents

The present field study reveals that 37% of the total respondents are housewives, 27% work as part-time servants, 22% work at the construction sites and the remaining are engaged in other types of services**.** The type of family is one of the important socio-economic variables. The larger the size of the family, the lower is the living standard of the family with poor nutritional status. The present study reveals that, out of the 400 selected families, 48% belong to joint family, 22% belong to nuclear family and 30% belong to the extended family category. It is also found that, in the slum areas most of the houses are small huts with only one living room and without kitchen.52% of the families live in huts, 22% in pakka, 18% in semi-pakka and the remaining in kaccha houses and in some cases temporary living shelters made up of large plastic covers.

3.2 Clinical manifestation of the respondents

In the present field investigation an extensive survey was carried out regarding the occurrence of anemia among the pregnant women in the selected slum areas which is graphically presented in Fig.1.

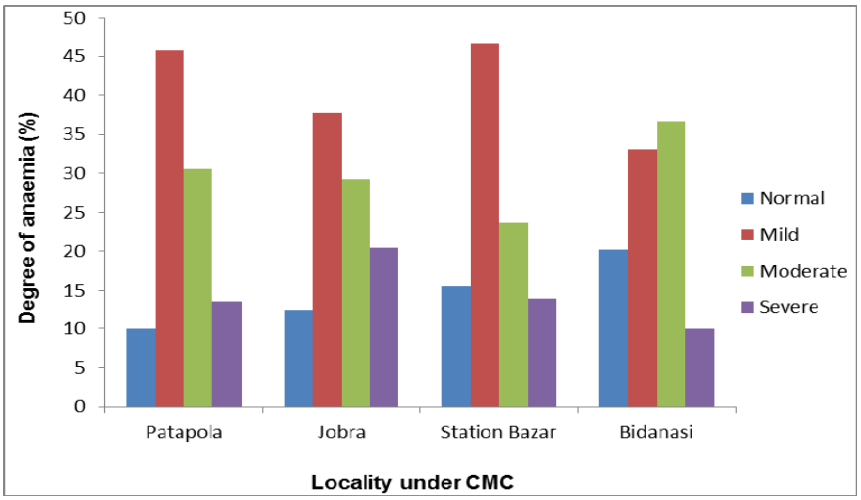
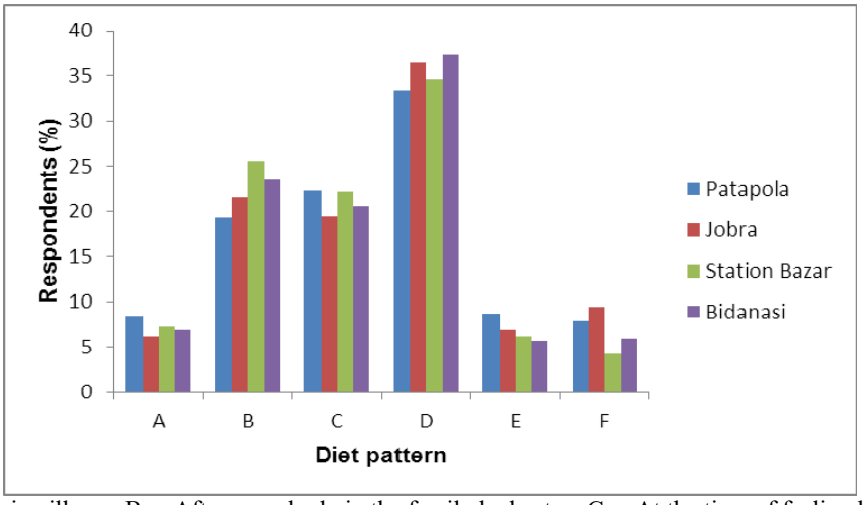


Fig 1: Degree of anemia in respondents

Figure1 illustrates that most of the respondents in the slum areas suffer from mild to moderate and moderate to severe type of anemia. Results show that, 45.8%, 37.8%, 46.8%, 33.1% of the respondents are mildly anemic with hemoglobin level ranging between 9-11 g/dl, 30.6%, 29.2%, 23.7%, 36.7% are moderately anemic with hemoglobin level between 7-9 g/dl and 13.6%, 20.5%, 13.9%, 10% of the respondents are severely anemic with less than 7 g/dl of hemoglobin in the localities Patapola, Jobra, Station Bazar, and Bidanasi respectively.

3.3 Dietary patterns of the respondents

Among the total number of selected respondents, an overwhelming 72% are found to be non-vegetarian, 18% found to be vegetarian and the rest 10% are found to be of ova-vegetarian category.



A→ Do not eat during illness, B→ After everybody in the family had eaten, C→ At the time of feeling hungry, D→ After finishing all the daily course, E→ As per doctor's advice, F→ Do not eat due to insufficient food

Fig 2: Various diet patterns of the respondents

From Fig. 2 it is revealed that 33.4%, 36.5%, 34.6%, 37.4% of the respondents take their whole day meal after finishing all their daily course, 22.3%, 19.4%, 22.2%, 20.6% at the time of feeling hungry, 8.4%, 6.2%, 7.2%, 6.9% do not eat during illness, 8.7%, 6.9%, 6.2%, 5.7% eat as per doctor's advice, 19.3%, 21.6%, 25.6%, 23.5% eat after everybody in the family had eaten and 7.9%, 9.4%, 4.2%, 5.9% of the respondents do not eat due to insufficient food in the localities Patapola, Jobra, Station Bazar, and Bidanasi respectively.

Though most of the respondents were found to be non-vegetarian, but they take non-veg occasionally due to their low income. Rice is found to be the major stapled diet of all the selected respondents. They usually consume rice two to three times a day along with a combination of either vegetable curry or bhaji, and occasionally non-veg items such as egg, fish, chicken, dry fish etc. The study revealed that 90% of the respondents have zero knowledge and 10% have little knowledge about different food groups. In India every communal society have their own traditional beliefs and practices linked to health care based on superstitions and restrictions on certain food items due to ignorance illiteracy, and traditional beliefs. The food taboos are found to be more frequent among the slum families with 58% of pregnant women having restriction on different food items and 42% are free to consume all type of foods. Some of the major foods which are limited during pregnancy are bitter gourd, papaya, specific leafy vegetables, berries, mushroom, coconut, egg, prawn, dry fish, chili and sour items.

3.4 General awareness about the nutritional requirements

It is revealed that due to illiteracy, ignorance, lack of knowledge, and poverty, about 85% of the respondents have absolutely no idea and 15% have little knowledge about nutritional requirements during these special conditions like illness, pregnancy and lactation. Regular health check-up is an important aspect during pregnancy to know about the health of the mother and the status of the fetus in the womb. Results show that, about 55% of the pregnant women go for regular health check-ups and 45% have no awareness about it. 45% of the selected respondents take medicines regularly, 35% take occasionally, and the remaining are not aware of medical requirements. It is also found that, 55% of pregnant women take their supplements from the beginning of second trimester, 30% take it from the first trimester and 10% never take the supplements.85% of the pregnant women have zero knowledge and 15% have some knowledge about the causes, symptoms and prevention of anemia.

Table 1: Comparison of general awareness between two randomly selected slums

Particulars	No. of respondents (Slum A)	General awareness of the respondents (Mean±SD) (X)	No. of respondents (Slum B)	General awareness of the respondents (Mean±SD) (Y)	Deviation (X – Y)
Knowledge regarding anemia	17	13.5±0.25	11	10.75±0.5	2.75 (79.63%)
Basic sources of knowledge	16	12.25±1.0	12	10.9±2.0	1.35 (88.98%)
Awareness about nutrition	07	15.35±0.25	04	15.54±1.5	0.19 (98.76%)
Food taboos	18	10.05±1.2	12	9.875±1.25	0.175 (98.26%)
Regular health check-up	20	9.98±1.49	13	12.75±1.6	2.77 (77.25%)
Availability of Supplements	11	11.88±1.0	15	12.03±0.8	0.15 (98.74%)
Regular intake of supplements	14	12.15±1.9	09	9.29±2.5	2.86 (76.46%)
Idea about prevention of anemia	07	15.77±0.8	03	15.72±1.1	0.05 (99.68%)

Table 1 signifies a comparative analysis of the general awareness among the respondents of the two randomly selected slum localities about anemia. From the results obtained it is observed that the respondents of slum A acquire better knowledge regarding anemia, various nutritional requirements, regular health-check up, and intake of supplements compared to the respondents of slum B.

4. Conclusions

A detailed analysis on the outcome of the present field investigation pertaining to the existence, cause and effects of anemia in pregnant women in the selected slum areas under CMC resulted in a number of vital conclusions which are summarized below.

- The age of the chosen respondents ranged between 20-35 years with majority of them (65%) falling in 30-35 year age group.
- Nearly 37% of the selected respondents are found to be housewives, whereas the others pursued part-time jobs.
- A bulk part of the selected respondents (82%) were found to be illiterate.
- About 72% of the selected respondents are observed to have several numbers of pregnancies and 40% have number of abortions.
- Most of the respondents (72%) were non-vegetarian with average consumption of three meals per day.
- Parboiled rice was the main stapled food of all the respondents with other supported food items.
- Due to the existence of some common food taboos, nearly 58% of pregnant women were restricted from taking many nutritious and high protein food items.
- Majority of the respondents i.e. 41% and 30% respectively are found to be suffering from mild and moderate degrees of anemia.
- General symptoms like nausea, fatigue, constipation, palpitation, odema in leg and reduced physical activities are observed in most of the respondents. Unusual symptoms like frequent vomiting and high blood pressure are also found among some of the respondents.
- 55% of the pregnant women go for free health check-ups regularly and 45% do not avail this due to lack of interest and awareness.

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