INTRODUCTION

CHAPTER 1 INTRODUCTION

Iron deficiency anaemia is a major public health problem affecting as many as 35% of the population world wide (De Maeyer 1989). Nutritional anaemia is defined by WHO, as a condition in which haemoglobin content of the blood is less than normal due to deficiency in one or more haemopoietic nutrients and conversely, a condition in which the haemoglobin concentration can be raised by increasing the amount of nutrients absorbed (Baker and De Maeyer 1979).

Prevalence of Anaemia

The prevalence of anaemia has been reported by a number of studies in the developed as well as developing countries of the world. WHO (1989) has reported highest prevalence among pregnant women, about half of the pregnant women the world over being affected by this condition.

The prevalence is seen to be higher in the developing countries. India is no exception and the prevalence of anaemia is high in all the age groups, particularly among the pregnant women (Raman 1992, Seshadri 1993). A prevalence of 60% to 80% has been reported among pregnant women in various parts of India by various researchers (Joshi and Andeigh 1968, Sood et al 1975, Roy 1984, WHO 1989, Prasad 1991). A recent multicentric study in India carried out by ICMR reported a high prevalence of 88% among pregnant women above 20 weeks of gestation (ICMR 1989).

Causes of Anaemia

The main causes of anaemia as indicated by several studies are increased requirements of iron, poor quality of diet with inhibitory factors resulting in poor iron absorption and utilization, besides poor caloric intake which reduces the total iron intake, repeated infections and infestations, poor iron stores since birth due to iron deficiency in mother, additional iron loss through menstruation, repeated pregnancies and prolonged breast feeding, resulting in depletion of meagre iron stores present. (Dallman et al 1980, Sjolin 1981, Ramachandran 1985, Fleming et al 1987, Hercberg et al 1987).

Consequences of Anaemia

Several adverse functional consequences of anaemia have been reported in the literature. Anaemia has been shown to cause impairment in maximal work capacity (Gardner et al 1977, Seshadri and Malhotra 1984, Bhatia and Seshadri 1987, Kashyap and Gopaldas 1988, ICMR 1989); psychological and behavioral changes (Fleming 1987, ICMR 1989, WHO 1989, Mehta 1992); impairment in cognitive functions (Seshadri and Gopaldas 1989); changes in the immune function (Chandra and Saraya 1975, Scrimshaw 1984); poor temperature regulation in anaemic individuals and impaired growth in children (Scrimshaw 1984, ICMR 1989).

The hazardous effects of anaemia during pregnancy and child birth include high maternal and perinatal mortality and

low birth weight (De Maeyer 1989, Ramachandran 1989). A Government of India (GOI) health statistics report (GOI 1987) states that as many as 23.3% of maternal deaths in India during pregnancy and child birth are caused by anaemia. Increased risk to the foetus due to increased frequency of infections and depleted reserves of iron is also observed in anaemic pregnant women. Moreover, the anaemic pregnant women face a greater hazard of serious consequences with loss of even small amounts of blood during delivery, which increases the risk of maternal mortality (Fleming 1987).

In view of the deleterious consequences and high prevalence of anaemia especially among the pregnant women, prevention and control of anaemia during pregnancy are of great importance.

Strategies to Prevent and Control Anaemia

A number of strategies have been suggested by various workers for the control of anaemia. De Maeyer (1989) had suggested dietary modification, control of viral, bacterial and parasitic infestations, food fortification and supplementation with medicinal iron as effective measures for control of anaemia. Out of these, supplementation with medicinal iron is considered to be advantageous and practical approach since rapid improvement in the iron status can be achieved by this method. It can also be targeted to specific vulnerable groups. The cost and dose of the iron compounds that can be used for supplementation and their responses have

already been established (WHO 1989). In view of this, India and many other south east Asian countries have already initiated anaemia prophylaxis programme for underprivileged women, in which pregnant women are supplied with iron folic acid tablets under the primary health care programmes for varying periods. In India, the supplements are to be provided for a period of 100 days (NSI 1968).

The Need to Study the Cultural Beliefs and Perceptions Of Women

The acceptance of the tablets are dependent on the cultural beliefs and perceptions of women regarding the disorder and their attitude towards tablets. Bledsoe and Gouboud (1985) reported that health service utilization and compliance with the prescribed drugs depended on the patient's beliefs regarding the illness, the cause of the disease and the expectations from the doctor's prescription. According to Dudley (1979), a patient seeks health care only when she perceives herself to be ill. Nichter (1980) and Prema et al (1982) reported that the patient's concepts regarding the drug can influence the acceptance of the prescribed drugs.

However, few studies in India have investigated women's perceptions of anaemia as a health disorder and their attitudes to consumption of iron tablets as a preventive measure. Hence, there is a need to assess the role of cultural beliefs regarding anaemia among underprivileged pregnant women. Not only are the women's perceptions important

determinants of the receipt and compliance for iron tablets, but also the perceptions of other family members and health functionaries can have an influence on the health seeking behaviour of pregnant women.

Qualitative research methods have been reported to be more useful than the quantitative methods in assessing the cultural beliefs. Among the qualitative methods, focus group discussions is an important tool to assess the perceptions of people, especially related to product acceptance (Scrimshaw and Hurtado 1987, Debus and Novelli 1989). Hence, the objective of the first part of the present study was to collect information on perception of different segments of the community i.e. pregnant women, lactating women, older women and the functionaries, ie. the Anganwadi workers (AWWs) regarding anaemia as a health problem, its causes, measures for prevention and attitude to tablet consumption.

Need to Study An Alternative Delivery System

The ministry of health and family welfare, Government Of India started the National Nutritional Anaemia Prophylaxis Programme (NNAPP) in 1970, on the advice of the expert committee of the Nutrition Society of India (1968), to cover all the states of the country. Under this programme as originally envisaged, a tablet of 60 mg of elemental iron (FeSO4) and 500 mcg of folic acid was provided to all the adult beneficiaries i.e. pregnant and lactating women and female family planning acceptors and a small tablet or syrup

containing 20 mg elemental iron (FeSO4) and 100 mcg folic acid was provided for child beneficiaries, for at least 100 days each year of their beneficiary status. The distribution of the tablets was centre based. The national evaluation of NNAPP twenty years after its inception indicated that the programme itself had not made any significant impact on the prevalence of anaemia among pregnant women (ICMR 1989).

Results of evaluation revealed that only 19% of the pregnant women received 90 tablets or more, considered to be effectively complete supplementation. A vast majority of the beneficiaries received less than two-thirds of the recommended dose. Only 4% of the subjects reported gastrointestinal upsets/constipation, nausea/ vomiting or a combination of more than one side effect and hence, side effects were not a major factor affecting compliance. Only 16% of the pregnant women who received the tablets reported to have discontinued consumption due to reasons other than irregular supply. This implied that the main bottleneck was inadequate supply of supplements to pregnant women, which was found to be related to a delivery system that did not reach all the needy people.

In view of the fact that the current system of delivery of iron tablets was not effective (ICMR 1989, Sharma 1996), alternative delivery systems need to be tested. Exploration of the possible delivery systems in the community during the FGDs indicated linking the distribution of iron tablets to child immunization by the ANM with the help of ICDS functionaries as a feasible alternative. Reports of child immunization system

in Gujarat (UNICEF 1994) indicated that 80% of the children were completely immunized. Therefore, it was hypothesized that these contacts could be utilized for the distribution of iron tablets to the pregnant women without increasing the work load of the health functionaries. Hence, the second objective of the thesis was to test this hypothesis by assessing the coverage and compliance of iron tablets that could be achieved when the distribution of iron folic acid tablets was linked with child immunization.

Need to Study the Role of Private Sector, Government and Trust Governed Hospitals

Preliminary studies by the Department of Foods and Nutrition, Baroda indicated that a number of women taking antenatal care from clinics were receiving prescriptions of iron medications over and above tablets received from the anganwadies (AW). Currently, little data are available concerning the role of private and trust hospitals in the delivery of iron tablets and the compliance levels under these sectors. Since urban areas abound in private health facilities, it was relevant and worthwhile to study the contribution of these agencies to prevent and control anaemia. Considering the fact that private medical support had to be paid for, the hypothesis was set up that the iron tablets received from the doctors may be valued more than free supplements and hence, utilized completely. This hypothesis was tested by studying the receipt and compliance of iron

tablets from private and government medical facilities.

Need to Analyze Factors Affecting Compliance With Iron Tablets

In spite of the fact that oral intake of iron results in immediate gains in Hb levels and is the most practical solution to combat anaemia, it frequently produces side effects which are sometimes severe. Also it is difficult to convince women to continue consumption of pills for prolonged period when they do not feel sick as it happens in moderate forms of anaemia. These factors may contribute to poor compliance with the full course of the prescribed iron tablets (Lokeshwar et al 1992, Raman 1992). However, there are few studies which have analyzed factors responsible for poor compliance with iron and folic acid tablets although some data are available on factors that affect compliance with drugs in general. Dudley (1979) and Mamdani and Walker (1986) in their review of studies on compliance reported four sets of factors that may affect compliance with the drug regimen. These were:

(1) factors related to the illness per se

(2) the factors related to the treatment regimen

(3) existing belief systems

(4) cost of treatment and social support to the patients.

Since little data were available on factors affecting compliance with iron supplements and as this study provided an opportunity to investigate compliance, analysis of factors affecting compliance with iron supplements by pregnant women was one of the objectives of the present study.

Need to Study the Impact of Iron Supplements

If the prescribed dose of tablets are received and consumed regularly, a gain in Hb and an improvement in other nutritional parameters are expected. The national level evaluation of the NNAPP attempted to assess the impact. However, haemoglobin estimations were done only once during this evaluation (ICMR 1989) at or before 20 weeks gestation. For many subjects, this was before they had received or consumed any iron tablets. The results of the evaluation indicated a lack of impact on Hb levels. The impact of the programme can become more evident if the subjects are followed up from enrolment till delivery and Hb determinations are made at two points along with an estimate of compliance. Thus, impact evaluation accompanied by process evaluation of the delivery system can provide more meaningful information concerning the interventions. Thus the final objective of the study was to investigate the impact of iron supplements on selected maternal infant outcome parameters when supplements were routed through the child immunization contacts.

In view of the above observation, this study was planned with the following objectives:

1) To assess the perceptions of pregnant mothers, lactating mothers and ANMs regarding women's health problems with a focus on anaemia and to suggest possible strategies to improve compliance.
2) To study the feasibility of linking iron folic acid

tablets with the child immunization in the community, and to assess receipt and compliance of iron tablets by pregnant women through this system.

3) To study the use of private health facilities by pregnant women, especially for anaemia in urban slums, with a focus on coverage and compliance.

4) To study the total amount of iron and folic acid ingested by pregnant women from all sources and evaluate the contribution of free government health services to the total iron ingestion.

5) To evaluate factors affecting compliance with iron supplements.

6) To study the effect of iron supplements consumed during pregnancy from all sources on selected maternal and infant outcome parameters and morbidity.