

## An Epidemiological Study on Socio Demographic Profile and Ante Natal Care Coverage of Mothers who Delivered their Babies in a Block Primary Health Centre in a Part of Rural India

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### Abstract

**Background and objective:** This study was done to get an idea about the socio demographic profile and assess the ante natal care coverage of mothers who delivered their babies in a block primary health centre in a part of rural India.

**Materials and methods:** This study was an observational and descriptive type of epidemiological study for 2 months. Sample size was n=180. Pretested questionnaire (Cronbach's alpha 0.871), ante natal cards, bed head tickets and other medical records were used as study tools.

**Results:** 51.1% mothers were married before 20 years and 60.0% mothers were of less than 20 years age during 1<sup>st</sup> pregnancy. 50.6% mothers and 48.9% husbands of the mothers were illiterate. 86.1% mothers belonged to Below Poverty Level (BPL) category. 55.6% mothers were primi para. 49.4% women were late registered (booked) after 16 weeks of gestation, and 17.8% mothers were not registered at all. Only 15% mothers had 4 or more than 4 complete ante natal checkups done. 70.6% mothers received complete course of tetanus toxoid vaccine. 83.3% mothers did not receive different health and dietary advices and 28.9% mothers were not at all aware of the danger signs of pregnancy. Only 27.8% mothers received full dose of iron and folic acid supplementation. About necessary laboratory investigations and ultra sonography of feto-placental profile, only 12.8% mothers completed all necessary tests.

**Discussion and conclusion:** Poor socio economic conditions, poor educational background and lack of awareness about the need of proper ante natal checkups, investigations, care and coverage might impose a heavy toll on maternal and infant mortality rates in future in these parts of the developing countries.

**Keywords:** Ante natal care coverage; Pregnant mothers; Epidemiology

### Introduction

Pregnant mothers contribute to a major vulnerable and priority group in any community, no less in India. According to the census 2011, maternal mortality rate in India accounts to an enormous figure of 212 [1]. Major causes include hemorrhage, obstructed labor, hypertension and other conditions [2]. The reason being lack of proper ante natal care coverage and lack of awareness among mothers particularly from rural parts of India, contributing the major population, about the need of early registration and compliance with proper and regular ante natal checkups [2].

Ante natal care is the proper health care and services given to the pregnant mothers from the time of conception till delivery. They ensure, promote and protect the health of mothers during pregnancy; detect high risk cases and give special attention; foresee complications and try to prevent them; remove anxiety during delivery; prevent maternal, peri natal, post natal and infant mortalities, teach mothers the elements of child care, nutrition, personal hygiene and environmental sanitation; and sensitize the mothers the need and proper ways of family planning methods. According to WHO, the essential components of ante natal care include [2-4]:

a) Early registration of gestation (booking): preferably by 16 weeks of gestation with proper maintenance of records.

b) Proper ante natal checkups: proper history taking including detail medical history, obstetric history, menstrual history, detailed

general physical examination with general survey and special emphasis to regular body weight and blood pressure monitoring. Detailed obstetrics examination should be done. Number of ante natal checkups done should be at least 4.

c) Necessary investigations: minimum investigations needed to be done in a developing country include: hemoglobin estimation, post prandial blood glucose estimation and glucose tolerance test when indicated, ABO and Rh grouping, serological test for syphilis, screening for HBV and HIV, tests for toxoplasmosis and anti phospholipid antibodies in cases of unexplained recurrent miscarriage, routine examination of urine with culture if needed, ultra sonography of feto-placental profile at regular intervals.

d) Prophylaxis against tetanus: two doses of 0.5 ml intramuscular tetanus toxoid injections at an interval of 6 weeks, the first dose being

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between 16-24 weeks, is protective of tetanus,

e) Iron and folic acid supplementation: preferably from 16 weeks of gestation. 60 mg of elemental iron and 5 mg folic acid daily should be consumed till delivery.

f) Proper dietary and health advices: including awareness about danger signs in pregnancy; like intense headache, disturbed sleep, restlessness, bleeding per vagina, abdominal and epigastric pain, severe vomiting, urinary troubles, and others. There should be awareness about use of drugs in pregnancy, ante natal hygiene, care of breasts, coitus, travel, restriction of smoking and alcohol, etc.

Although numerous health programs are in vogue as run by the Government of India, state governments and also initiated by numerous Non Government Organizations (NGOs), the scenario of coverage of ante natal care in rural India is far from satisfactory. Poverty, lack of education and awareness are mainly responsible for this. In context of the present situation, it is obvious that proper ante natal care services can definitely alleviate the major burden of maternal and child mortality and morbidity in this country. The objectives of this study were:

- a) To know the socio demographic profile.
- b) To have a vivid idea about the ante natal care coverage received by the mother who delivered their babies in a block primary health centre in rural India.

## Materials and Methods

**Study design:** This study was an observational and descriptive type of epidemiological study.

**Study type:** This study was a hospital based cross sectional study.

**Place of study:** The study was conducted in a block primary health centre in South 24 Parganas district of West Bengal, India.

**Duration of study:** December 2012-January 2013 (2 months).

**Study subjects:** All the mothers who were admitted for normal delivery in this hospital in the given period of study. Informed consent was taken and each mother's identity was kept confidential.

**Sample size:** n=180.

**Study variables:** Age, level of education, socio economic status, parity, registration (booking) status of pregnancy, number of complete ante natal checkups done, status of tetanus toxoid immunization, proper dietary and health advices received, presence of awareness about danger signs in pregnancy, iron and folic acid supplements received, and necessary blood and urine tests and ultra sonography of feto-placental profile done.

**Study tools:** Pre-designed and pre-tested questionnaire for data collection (Cronbach's alpha 0.871); and ante natal records including ante natal cards, bed head tickets and other medical records.

**Procedure of study:** Preparatory phase followed by data collection by interviewing and inspection of records and finally analysis of collected data. There was no case of mortality of any mother during the study period.

## Results

The distribution of mothers according to socio demographic profile has been enumerated in tables 1 and 2 shows the distribution of mothers according to proper ante natal care and advices.

51.1% mothers were of below 20 years of age, and 60.0% mothers had first pregnancy below 20 years of age. 50.6% of mothers were illiterate, and 48.9% of their husbands were illiterate, both being exceedingly alarming. 86.1% mothers belonged to Below Poverty Level (BPL) status. 55.6% mothers were primi para.

49.4% women were late registered after 16 weeks of gestation, and 17.8% mothers were not registered at all. Of these unregistered mothers, 50.0% were below 20 years of age, 50.0% were primi para, 62.5% were illiterate and 78.12% were of BPL status. 85.0% mothers had less than 4 (the minimum number as advised by WHO) complete ante natal checkups done. Among them, 72.54% mothers were illiterate, 65.35% were carrying teen age pregnancies, 52.28% were primi para and 62.09% were of BPL status. 70.6% mothers received full doses of tetanus toxoid vaccine, which was a satisfactory sign. Of them, 48.81% were of 20-25 years age and 51.1% had parity of more than 1. Another matter of concern was that 83.3% mothers admitted and on interview verified that they did not receive different health and dietary advices during pregnancy. Of them, 60.0% were carrying teen age pregnancies, 53.33% were illiterate, 80.0% were of BPL category and 54.0% were primi para. 28.9% mothers were not at all aware of the danger signs of pregnancy. However, poor level of education and recall bias may account for the same. Of them, 76.92% were below 20 years of age, 86.53% were illiterate, 96.15% were of BPL category and 80.76% were primi para. Only 27.8% mothers received full dose of iron and folic acid supplementation. Of them, 70.0% were primi para, 80.0% were teen agers, 90.0% were illiterate and 96.0% belonged to BPL status. About necessary laboratory investigations and ultra sonography of feto-placental profile, only 12.8% mothers completed all necessary tests. All of were of 20-25 years of age, all of them had educational status of secondary level or higher and all of them were of Above Poverty Level (APL) status.

Serial Nos.	Distribution of mothers		Number of mothers (%)
	According to their present age		
1	According to their present age	≤ 20 years	92 (51.1)
		20-25 years	66 (36.7)
		26-30 years	13 (7.2)
		>30 years	9 (5.0)
2	According to age at 1 <sup>st</sup> pregnancy	≤ 20 years	108 (60.0)
		20-25 years	53 (29.4)
		26-30 years	17 (9.4)
		>30 years	2 (1.2)
3	According to their level of education	Illiterate	91 (50.6)
		Primary school level	64 (35.6)
		Secondary school level	20 (11.1)
		Above secondary level	5 (2.7)
4	According to the level of education of their husbands	Illiterate	88 (48.9)
		Primary school level	70 (38.9)
		Secondary school level	20 (11.1)
		Above secondary level	2 (1.1)
5	Socio economic status	Below poverty level (BPL)	155 (86.1)
		Above Poverty Level (APL)	25 (13.9)
6	According to parity	1	100 (55.6)
		2	56 (31.1)
		3	18 (10.0)
		4	6 (3.3)

**Table 1:** Distribution of mothers according to socio demographic profile (n=180).

Serial Nos.	Distribution of mothers	Number of mothers (%)	
1	According to gestational age of registration of pregnancy	Not registered	32 (17.8)
		≤ 16 weeks	59 (32.8)
		>16 weeks	89 (49.4)
2	According to number of complete ante natal checkups done	<4	153 (85.0)
		≥ 4	27 (15.0)
3	According to status of tetanus toxoid immunization	Not immunized	29 (16.1)
		Partially immunized	24 (13.3)
		Completely immunized	127 (70.6)
4	According to proper dietary and health advices received	Not received	150 (83.3)
		Received	30 (16.7)
5	According to presence of awareness about danger signs in pregnancy	Not aware	52 (28.9)
		Well aware	128 (71.1)
6	According to iron and folic acid supplements received	Received full course	50 (27.8)
		Not received full course	130 (72.2)
7	According to necessary blood and urine tests done	Not done at all	112 (62.2)
		Partially done	45 (25.0)
		Completely done	23 (12.8)
8	According to ultrasonography of feto-placental profile done	Not done	130 (72.2)
		≤ 2	27 (15.0)
		>2	23 (12.8)

**Table 2:** Distribution of mothers according to proper antenatal care and advices (n=180).

## Discussion

Early marriage and teen age pregnancy has been a problem in rural India, which has been reflected in this study also. 60.0% mothers had their 1<sup>st</sup> pregnancy before 20 years of age. This may result in low birth weights, still births and other peri natal complications [5,6]. Level of education of mothers, their husbands and socio economic background play a major role in attending clinics and receiving proper ante natal checkups. While the notion towards home delivery is still enormously prevalent, with non availability of easy and free or low cost investigation facilities everywhere in rural India, majority of rural Indian women are deprived of proper ante natal checkups and necessary investigations [7]. Pregnancy related complications are more observed in primi para women and from this study it was observed that more than half of the mothers were primi para.

A huge numbers of mothers were registered late or not registered at all, which reflects general ignorance about the need of regular check up during pregnancy. Half of them were primi para, half of them were of below 20 years age and most of them were illiterate and of BPL status. Another alarming feature was that only 15% mothers had 4 (the minimum number as advised by WHO) or more than 4 complete ante natal checkups done [3]. This also corroborates with other studies in Indian scenario [8]. Primi illiterate mothers of BPL category and of below 20 years of age were mostly deprived of the minimum number of required ante natal checkups. Status of tetanus toxoid immunization was rather satisfactory, as like in other studies [9,10]. Of these full immunized mothers approximately half were of 20-25 years of age and had parity of more than 1. A huge proportion of mothers were deprived of proper health and dietary advices during gestation and nearly 30.0% mothers were unaware about the danger signs in pregnancy. Of them, a huge majority were primi para carrying teen age pregnancies and illiterates belonging to BPL category. So was the case for the scenario of necessary iron and folic acid supplementation. But often due to ignorance and non availability, pregnant mothers are deprived of adequate doses of the drugs, as has been in this case. This accounts to the huge number of maternal and neonatal complications encountered during delivery [2,11,12]. Regarding the status of necessary blood tests,

urine tests and ultra sonography of feto-placental profile, results were far from being satisfactory; which may be due to inaccessibility lack of awareness or economic constraints. All those mothers who completed all essential investigations were of APL category and had educational status of secondary level or higher.

The area served by this block primary health centre where the study was done is a socio-economically backward region like many other parts of rural India. Thus, the result displayed by this study might reflect the respective epidemiological status of many other parts of rural India.

Finally, it may be pertinent here to discuss about some limitations of the above study:

a) Due to economic and logistic constraints, the sample size was not fairly adequate.

b) The study was a hospital based cross sectional type of epidemiological study, and so the study subjects involved might not correctly represent the entire population of the community.

## Conclusion

Poor socio economic conditions, poor demographic profile, poor educational background, huge number of early-age pregnancies and lack of awareness about the need of proper ante natal checkups, care and coverage might impose a heavy toll on maternal and infant mortality rates in future. Although the rates have improved by considerable. Government supports and campaigns over past few decades, particularly aiming socio economically backward mothers from rural parts of India, these are not yet satisfactorily enough for good motherhood in these parts of the developing countries.

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