

Impact of Socioeconomic Status on Maternal Health

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ABSTARCT

To evaluate the influence of socioeconomic status on maternal health problems during antenatal period. 45% of preterm premature rupture of membranes and 46.2% of pre labor rupture of membranes were from lower socioeconomic class. Among all pregnant women who never did antenatal visits , 78% were belonging from upper lower (class 4) socioeconomic class. Specific measures should be taken to increase awareness regarding access to health programs and proper execution of same, more importantly in slum areas , and rural areas. Hence, society should be educated about care during pregnancy, delivery and after birth.

Keywords:Anemia, preterm labor and gestational diabetes mellitus.

1. INTRODUCTION

Socioeconomic status constitutes social and economic factors that influence a person's status within the structure of society (1) Education and income are frequently used as determinants of socioeconomic status. Education captures knowledge of an individual , income directly measures the component of material resources.Socioeconomic indicators have been related to the range of adult health outcomes such as morbidity, poor self related health and mortality. These are associated with health at different stages in the life course through a number of possibly interacting mechanisms. Pregnancy is a vulnerable period at which adverse socio economic circumstances can have bad effects on both the mother and baby.Hunger and malnutrition directly increase the incidence and severity rate of the conditions that contribute to approximately 80% of maternal deaths. Numerous maternal behaviors and experiences before, during and after pregnancy are associated with adverse health outcomes for mother. Mostcommonly occurring complications includehypertensive disorders in pregnancy,

hemorrhages and infections.(2-3)

Anemia, preterm labor and gestational diabetes mellitus are also common and most important complications. Anemia in most cases is when a woman is not able to get adequate and good quality food or due to poor eating habits . Though these pregnancy related complications can affect many women but these mostly affect those with poor health conditions and lower socioeconomic status.A normal balanced diet is what is associated with a successful pregnancy. In this regard , millennium development goals had 2 targets :to reduce maternal mortality ratio by 75% and achieve universal access to reproductive health. Improving maternal health is thus by assessing the socioeconomic status and it can prevent morbidity and mortality which occur due to complications from pregnancy and childbirth each year (2,4).We can prevent about 90% of the complications if women in developing regions have access to sufficient diets,basic literacy and health services and safe water and sanitation facilities during antenatal and postnatal period (5,6).

2.METHODS AND METHODOLOGY

STUDY DESIGN :

An observational prospective study conducted in the Department of Obstetrics and Gynaecology, at Sree Balaji Medical College And Hospital over a period of one and a half years. All pregnant women coming to SBMCH opd without any comorbidities were included in the study. The study period was from august 2017 -february 2019.

INCLUSION CRITERIA:

All pregnant women:

- 1) With their first visit before 12weeks of gestational age.
1. No history of any medical disorders.
- 2) With Singleton pregnancy. Planning to have regular antenatal visits in SBMCH OPD are included in the study.

EXCLUSION CRITERIA:

- 1) Multiple pregnancy.

2) Presence or history of any medical disorders.

SAMPLING

Sampling population:

Pregnant women coming to SBMCH OPD without any comorbidities.

Sampling size calculation:

The study was conducted over a period of one and half year. The sample size was estimated to be around 400 pregnant women in 1 and half year.

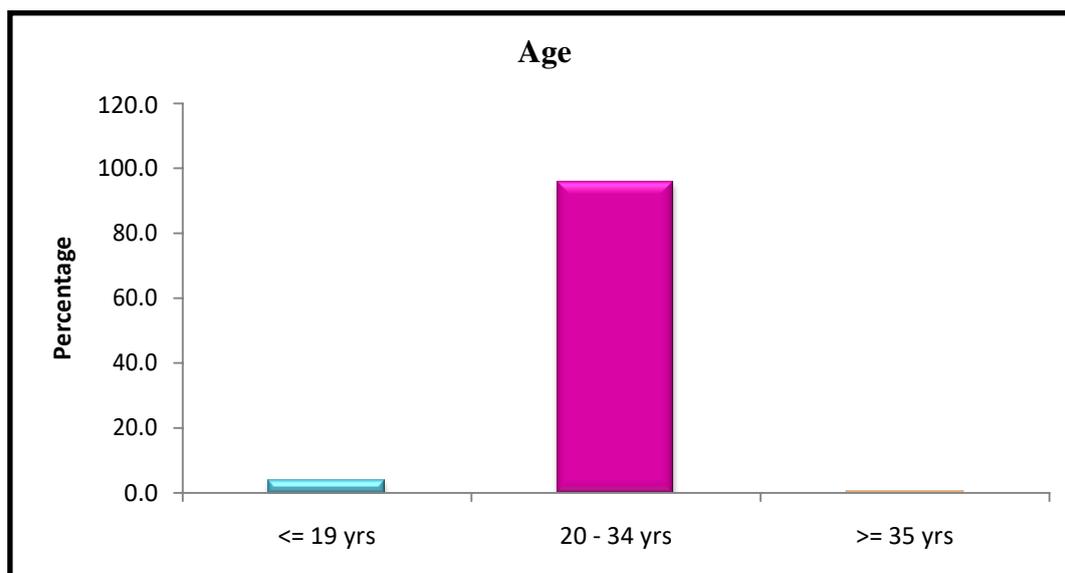
3.RESULTS

STATISTICS OF SOCIO-DEMOGRAPHIC DETAILS OF STUDY POPULATION

The collected data were analysed with IBM.SPSS statistics software 23.0 Version. To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the significance in categorical data Chi-Square test was used. In the above statistical tool the probability value .05 is considered as significant level.

It was observed that 95.7% women were of 20 -34 years age group. 4% were <= 19 years and 0.3% were >=35 years.

Fig. 1 :Age distribution of pregnant women



Body mass index was calculated based on pre pregnancy weight and height. And women were categorized according to the definition stated earlier.

Fig. 2 : Body mass index distribution in study population

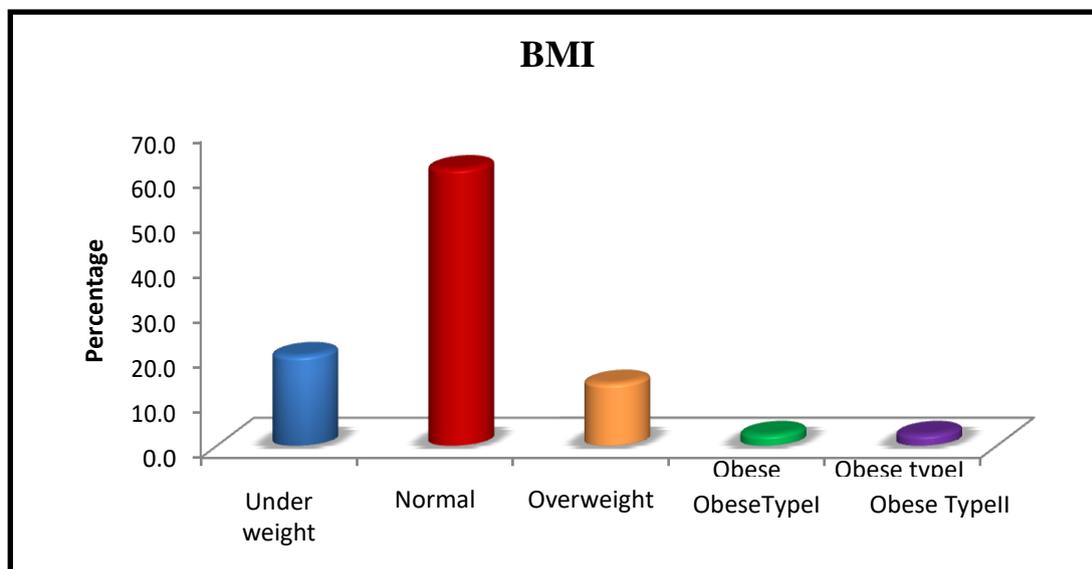


Table 1: Body mass index in study population

BMI	Frequency	Percent
Underweight	65	19.9
Normal	200	61.3
Overweight	45	13.8
Obese Type 1	8	2.5

Obese Type II	8	2.5
Total	326	100.0

In this study, maximum pregnant females i.e. 61.3% were with normal BMI, 19.9% were underweight, and 13.8% were overweight, and 2.5% were having obesity type 1 and 2.5% were having obesity type 2.

Table 2 : Frequency of education in our study population

Education	Frequency	Percent
Graduates	25	7.7
HSC	11	3.4
High school	211	64.7
Middle school	14	4.3
Literate	31	9.5
Illiterate	34	10.4
Total	326	100.0

64.7 % of females' head of the family did education upto high school, 10.4% were illiterate , 9.5% were literate , 7.7 % i.e. 25 pregnant females were graduates , 4.3% women did education upto middle school whereas 3.4% were educated upto 12th class.

Fig. 3: A diagram showing distribution of occupation in

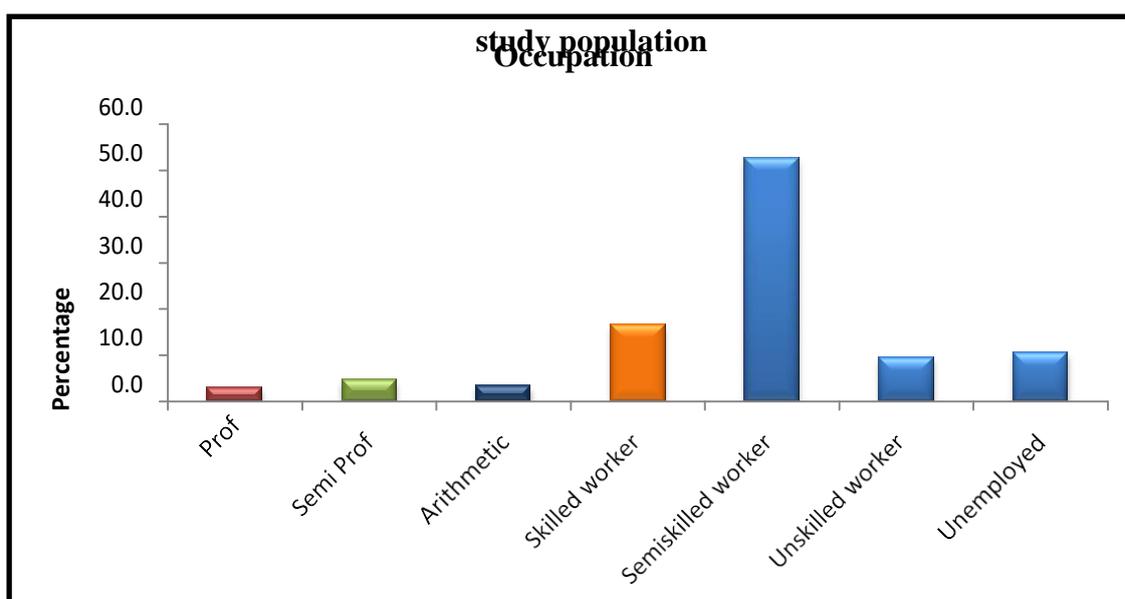
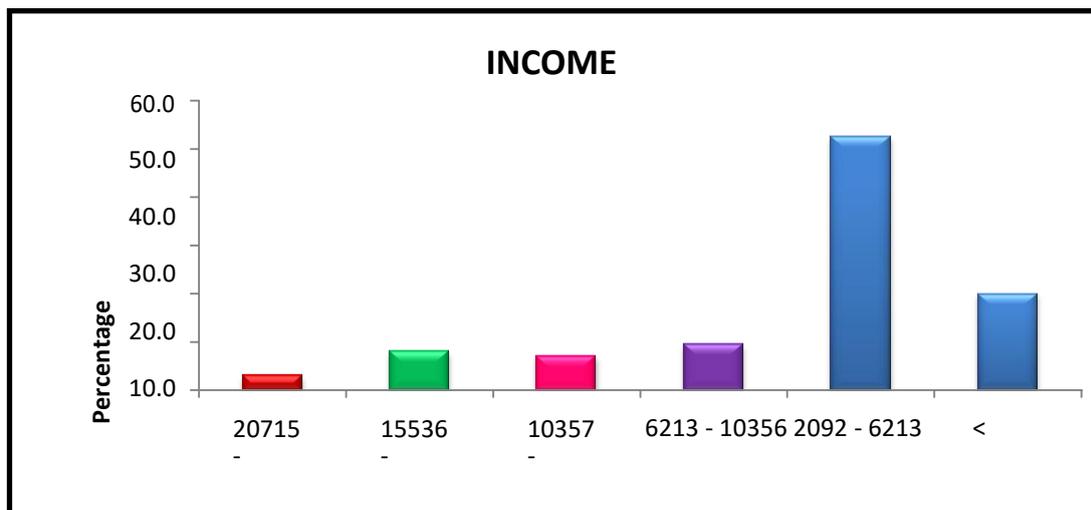


Fig. 4: Diagram showing income distribution in studypopulation



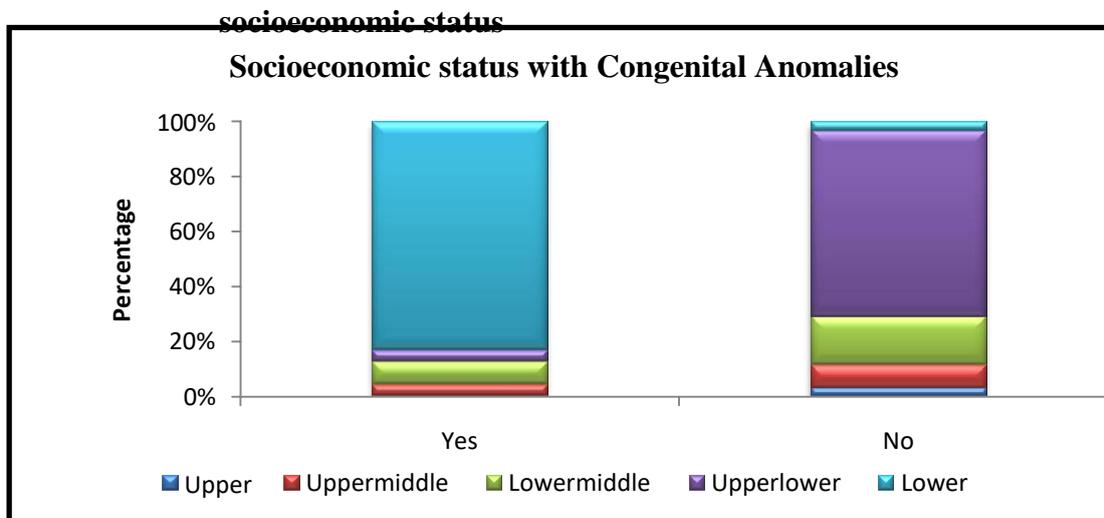
Based on the education , occupation and family income pregnant women were categorized into 5 socio economic classes namely, upper , upper middle, lower middle, upper lower , lower.

Table 3: Distribution of study population according to socioeconomic class

Socioeconomic class	Frequency	Percent
Upper	10	3.1
Upper middle	26	8.0
Lower middle	54	16.6
Upper lower	205	62.9
Lower	31	9.5
Total	326	100.0

62.9% of pregnant females were belonging to upper lower socio economic class (class 4), 16.6% were coming from lower middle socioeconomic class (class 3), 9.5% were from lower socioeconomic class (class 5) , 8% were hailing from upper middle socioeconomic class (class 2) , whereas only 3.1% i.e. 10 pregnant females belonged to upper socioeconomic class.

Fig. 4: Diagram showing distribution of congenital anomalies according to socioeconomic status



Out of the total percentage of congenital anomalies i.e. 6.4%, 83.3% of females were coming from lower socioeconomic class (class 5), 8.3 % from lower middle (class 3) 4.2% were from each upper middle and upper lowersocioeconomic class (class 2 and class 4).

Table 4 : Comparison between socioeconomic status and urinary tract infection

Comparison between Socio Economic Status with UTI							
			UTI		Total	χ^2 - value	P- value
			Yes	No			
SES	Upper	Count	0	10	10	26.71	0.0005 **
		%	0.0%	4.0%	3.1%		
	Upper middle	Count	2	24	26		
		%	2.6%	9.6%	8.0%		
	Lower middle	Count	4	50	54		
		%	5.2%	20.1%	16.6%		
	Upper lower	Count	56	149	205		
		%	72.7%	59.8%	62.9%		
	Lower	Count	15	16	31		
		%	19.5%	6.4%	9.5%		
Total		Count	77	249	326		

	%	100.0%	100.0%	100.0%	
** Highly Significant at P < 0.01 level					

Out of the 77 females, 56 were from upper lower socio economic class (class 4) i.e. constituting 72.7% of total, which is followed by lower socioeconomic class (19.5%) and 5.2% and 2.6% from lower middle and upper middle socioeconomic class (class 3 and class 2). None of the cases were noted from upper socioeconomic class. The correlation of low socioeconomic status and incidence of urinary tract infection was found to be statistically significant with p value of 0.0005. Thereby stating that upper socioeconomic class is inversely related to the incidence of urinary tract infections in pregnancy. The incidence of hypertensive disorders in pregnancy in our study population was found to be 35.9% i.e. 117 out of 326 pregnant females were diagnosed to have hypertensive disorders in pregnancy.

Table 5: Frequency of hypertensive disorders in study

population

	Frequency	Percent
Yes	117	35.9
No	209	64.1
Total	326	100.0

Table 6: Frequency of antepartum hemorrhage in study

population

	Frequency	Percent
Yes	19	5.8
No	307	94.2
Total	326	100.0

Out of 13 cases of PPRM, 6 i.e. 46.2% were from lower socioeconomic class (class 5). followed by 30.8% from lower middle socioeconomic class. And 23.1% from upper lower socioeconomic class. No cases were reported from upper and upper middle class. Thereby stating that there is strong association between low socioeconomic status of pregnant women and incidence of PPRM, with P value of 0.0005. Thus, low

socioeconomic class is directly related to PPRM incidence and upper socioeconomic class is inversely related to PPRM incidence.

4. DISCUSSION

This study is based on data from 326 pregnant women coming to SBMCH Chennai, were followed up and above mentioned results were obtained. The results indicate that in our area, 64.7% of pregnant females did education upto high school, 10.4% were illiterate which is more as compared to Gopalkrishnan et al (7), 46% of pregnant women in kanchipuram district (rural area) were educated till high school and 28.7% were educated upto higher secondary school and 4.7% were illiterate. 52.5% were semiskilled workers, 16.5% were skilled workers and 10.4% were unemployed. (8)

52.5% of females had family income in range of 2092 - 6213 Rs. And 19.9% of women had family income of <2091 Rs. Based on these three variables (education, occupation and income) pregnant women were classified in socio-economic classes. 62.9% were hailing from upper lower (CLASS 4) socioeconomic class, 16.6% from lower middle (CLASS 3) and 9.5% from lower (CLASS 5), 8% from upper middle socioeconomic class and 3.1% from upper socioeconomic class. (9,10) The aim of this study was to find out the prevalence of various complications in pregnancy and how socioeconomic status affects the prevalence of those complications. In this study we found out prevalence of abortions, congenital anomalies, anemia, gestational diabetes mellitus, hypertensive disorders in pregnancy, cervicovaginal infections, antepartum hemorrhage, preterm premature rupture of membranes, prelabour rupture of membranes, urinary tract infections in pregnancy. And also association of number of antenatal visits and socioeconomic status. It reflected that the frequency of certain maternal health conditions like abortions, anemia, hypertension, congenital anomalies, infections of lower genital tract, urinary tract infections, ante partum hemorrhage, PPRM, PROM were comparable with the findings of other studies done in poor women (low socioeconomic status women). (11,12)

Our result significantly revealed association of socioeconomic status and complications in pregnancy. It showed education, occupational status and family income during pregnancy in women of lower socioeconomic status as compared to those with upper socioeconomic status affects pregnancy complications. (13-18) Of all the variables studied only GDM was found to be strongly associated with high

socioeconomic status Our study demonstrates a correlation between socioeconomic status and incidence of abortions, rates of abortion were 64% (highest) in upper lower socioeconomic class(class 4) and lowest rate was in upper socioeconomic class(0.9%) , with P value of 0.0005, which is statistically significant. Congenital anomalies whose incidence was found to be increased in low socioeconomic status were non chromosomal. Vrijheid et al, (19) report that there is an overall 40% increased risk of congenital anomalies in socially deprived females. Rosano et al(6) supported the association, odds ratio was 2.73 at 95% CI for association of congenital anomalies(NTD) with low socioeconomic status.(20)

When the World Health Organization criterion for the diagnosis of anemia in pregnancy, i.e. hemoglobin <11g/dl in first trimester and third trimester and 10.5g/dl in second trimester is applied the prevalence of anemia in pregnancy seen in this study was 54.3% and out of this 73.4% were belonging from upper lower (class 4) socioeconomic class. And 0.6% were from upper socioeconomic class. There was significant association of socioeconomic status and PROM as well, 46.2% of cases were from lower socioeconomic class (class 5). 30.8% were from lower middle socioeconomic class (class 3) and 23.1 % were from upper lower socioeconomic class (class 4). Similar conclusions were reached by (21), 68.2% of cases of PPRM were from low socioeconomic status. Similar conclusions were obtained by (22), which concluded that family income is directly related to the incidence of PPRM with OR=3.1 . Low socioeconomic status pregnant females have infrequent antenatal visits and therefore are at greater risk for complications during pregnancy and are consistent with the findings of previous studies.

5. CONCLUSION

Among the population living in India, disparity in context to socioeconomic status is an aspect which cannot be ignored . This disparity affects maternal health in antenatal period in many ways . If left unchecked, it can have long term negative impact on a woman's health and can lead to poor infant outcome. In this study ,it is seen that the lower strata people have more chances of developing antenatal complications such as, anemia, abortions, infections , prom etc. . This is due to lack of awareness among the people and lack of effective utilization of health care services.

It is essential to create awareness among these women by counseling these

women at each antenatal visit regarding regular intake of hematinics, danger signs, regular antenatal visits, proper dietary habits, small family norms, use of contraceptives, proper personal hygiene and sanitation. Education is another aspect, since, illiteracy and lack of education is indirectly related to many maternal health problems. A portion of society is dependent on “Dais / traditional birth attendants” for deliveries which is a reason for complications during deliveries. To prevent this Government of India has launched health policies such as, Janani Suraksha Yojana ,National Iron Plus Initiative. Specific measures should be taken to increase awareness regarding access to health programs and proper execution of same, more importantly in slum areas , and rural areas. Hence, society should be educated about care during pregnancy, delivery and after birth.

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Ethical approval: The study was approved by the Institutional Ethics Committee

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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