



A STUDY OF VARIOUS SOCIOECONOMIC FACTORS RELATED TO PREMATURITY IN EARLY VS LATE PRETERMS

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ABSTRACT

Preterm birth is a syndrome with multiple causes and socioeconomic factors are one of the main causes of prematurity and neonatal morbidity and mortality. **Objectives:** To study various maternal socio-economic factors responsible for prematurity in newborn. **Materials And Method:** In this hospital based observational prospective study, 300 preterm newborn babies were enrolled and compared in terms of various socioeconomic factors. **Results:** In both the groups (early as well as late preterm group), maximum number (60 (85.72%) and 143 (62.17%)) of preterm babies belonged to upper lower socioeconomic class. Early preterm births were more common 67 (95.71%) in illiterate mothers while late preterm births were more common 96 (41.74%) in mothers with primary education. In early preterm group, all mothers 70 (100%) were housewives as compared to late preterm group where majority 130 (43.33%) were employed (p=0.001). As per antenatal care, all women 70 (100%) had less than three antenatal visits in early preterm group while majority 105 (50.24%) had more than three antenatal visits in late preterm group (p=0.001). **Conclusion:** Socioeconomic factors were great determinants of prematurity.

KEYWORDS :

INTRODUCTION

In the era of modern Obstetrics, where there has been a rapid advancement in all specialties preterm labour still remains an enigma for the obstetrician and pediatrician today and is the leading cause of neonatal morbidity and mortality.^[1] Preterm birth is defined by WHO as all births before 37 completed weeks of gestation or less than 259 days since the first day of a woman's last menstrual period.^[2] These babies are known as preemies or premmies.

Factors Affecting Prematurity

1. Maternal
2. Placental
3. Fetal

Maternal Factors

a. Socioeconomic factors

- Age
- Antenatal Care
- Education
- Income
- Occupation

b. Anatomic Abnormalities

- Uterine Malformations
- Short cervix

c. Medical Conditions

- UTI
- PIH
- STI
- GDM
- Multiple gestation

d. Miscellaneous

- PROM
- Smoking
- Alcohol
- Illegal drugs^[3-5]

Socioeconomic status, as indicated by level of income, education, wealth, occupation and access to resources, is well established as associated with an individual's health and well-being.^[3-4] Keeping the magnitude of the problem and its

co-relation with socio-economic profile in view, the study was undertaken to evaluate the socio-economical factors.

AIMS AND OBJECTIVES

The study was carried out with the following aims and objectives:

To study various maternal socio-economic factors responsible for prematurity in newborn.

MATERIAL AND METHODS

Study Design

This was an observational, prospective study and was conducted on 300 preterm newborn babies delivered in the labour room of Obstetrics and Gynaecological Department and admitted to neonatology section of Department of Pediatrics.

Inclusion Criteria

- Live-birth singleton infants born between 24 and 36 weeks of gestation
- Baby born by vaginal delivery

Exclusion Criteria

1. Congenital abnormal babies
2. Pregnant woman who had medical complications like diabetes mellitus, heart disease, chronic lung disease, jaundice.
3. Pre-eclamptic and eclamptic subjects
4. Multiple pregnancies
5. Caesarian section cases
6. Patient's refusal to participate in the study.

DATA COLLECTION PROCEDURE

After obtaining informed consent, the eligible subjects were interviewed in person by using a proforma. The proforma was completed from an interview with the women during their stay in the maternity unit after the delivery and data was collected about age, social status, education level, occupation, marital status and obstetric history, intake of iron and vitamins, knowledge on antenatal advice and danger signs of pregnancy.

On the basis of gestation babies were categorized as under: Standard international definition of prematurity available till

date is as explained by WHO⁽⁶⁾ :-

Preterm Baby:

Liveborn infants delivered before 37 weeks from the first day of the last menstrual period.

- a. Early preterm: Born before 34 completed weeks of gestation calculated from first day of last menstrual period.
- b. Late preterm: A subgroup of infants born at 34 through 36 weeks gestational age (238-258 days)⁽⁷⁾

Three indicators were used to define the Family's socio-economic status i.e. Family income, Education of the Head of family and Occupation of the Head of family and were scored using the modified kuppuswamy scale.

Seven groups were defined in education.

Education	Score
Professional or Honours	7
Graduate or Post graduate	6
Intermediate or post-high-school diploma	5
High school Certificate	4
Middle school certificate	3
Primary school or Literate	2
Illiterate	1

Occupation was scored in seven groups.

Occupation	Score
Profession	10
Semi- profession	6
Clerical	5
Skilled worker	4
Semi- skilled worker	3
Unskilled worker	2
Unemployed	1

In the same way family income was scored. Seven groups were defined.

Family Income	Score
>36,997	12
18,498-36,996	10
13,874-18,497	6
9,249-13,873	4
5547-9248	3
1866-5546	2
<1865	1

From the above data socioeconomic status was calculated and classified in five classes.⁽⁸⁾

Social Class	Score
Lower	5
Upper Lower	4
Lower Middle	3
Upper Middle	2
Upper	1

Mother's education was divided in four groups.

Education
Illiterate
Primary
Secondary
Graduation

Mother's Occupation Was Divided In Two Groups.

Occupation
Housewife
Employed

Maternal age was divided in four groups.

Age Group (yrs)
18-21
22-25
26-29
30-33

Data thus obtained was collected, compiled and analyzed statistically to know socio-economic causes of prematurity.

OBSERVATIONS

Table-1 Comparison Of Cases According To Socioeconomic Status Of The Family In Both The Groups

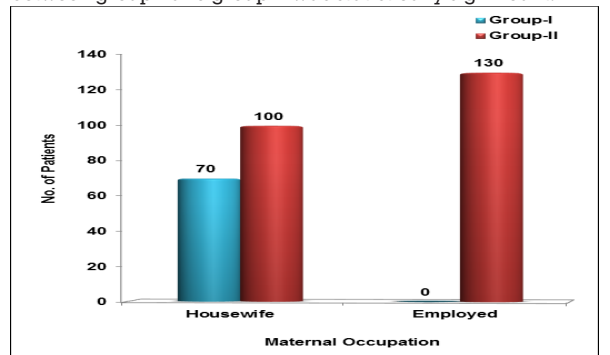
SES Class	Group-I <34 Weeks (n=70)		Group-II ≥34 Weeks (n=230)		Total	%age	χ ²	p value
	N	%age	N	%age				
	Lower	0	0%	0				
Upper Lower	60	85.72%	143	62.17%	202	67.33%		
Lower Middle	5	7.14%	58	25.22%	64	21.33%		
Upper Middle	5	7.14%	29	12.61%	34	11.33%		
Upper	0	0%	0	0%	0	0%		
Total	70	100%	230	100%	300	100%		

As shown in above table, maximum number of premature births in early as well as late preterm group occurred in upper lower socioeconomic class. However the difference between group-I and group-II was statistically significant.

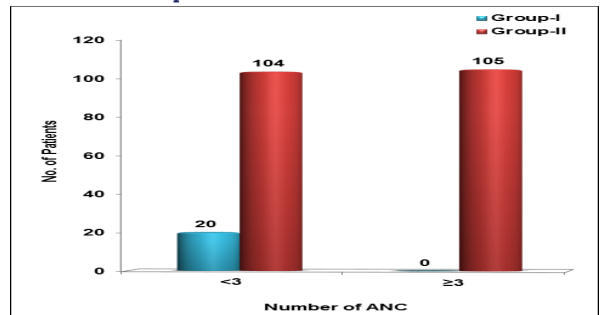
Table- 2 Comparison Of Cases According To Maternal Education In Both The Groups

Maternal Education	Group-I <34 Weeks (n=70)		Group-II ≥34 Weeks (n=230)		Total	%age	χ ²	p value
	N	%age	N	%age				
	Illiterate	67	95.71%	51				
Primary	3	4.29%	96	41.74%	99	33%		
Secondary	0	0%	68	29.57%	68	22.67%		
Graduation	0	0%	15	6.52%	15	5%		
Total	70	100%	230	100%	300	100%		

So early preterm births were more common in illiterate mothers while late preterm births were more common in mothers with primary education. However the difference between group-I and group-II was statistically significant.



Comparison Of Cases According To Maternal Occupation In Both The Groups



Comparison Of Cases According To Number Of Antenatal Visits In Both The Groups

DISCUSSION

Table-3 Various Studies Showing Relationship Of Prematurity And Socio-economic Status In Both Early And Late Preterm Groups

Author and year of study	Number of Cases in Upper Lower Socio-Economic Class		p value
	Early Preterm <34 Wks	Late Preterm ≥34 Wks	
Ancel et al ^[6] (1999)	657 (42.1%)	1430 (37.7%)	<0.01 (S)
Goswami et al ^[10] (2014)	42 (71.1%)	156 (54.9%)	0.04 (S)
Present Study (2017)	60 (85.71%)	143 (62.17%)	0.032 (S)

In the present study, when compared in groups, in early as well as late preterm group, maximum number (85.72% and 62.17%) of premature births occurred in upper lower socioeconomic class. However the difference between two groups was statistically significant (table 1).

Low socioeconomic status has an association with increasing various medical and behavioural risk factors that may lead to deliver preterm birth.

Table-4 Various Studies Showing Relationship Of Prematurity And Maternal Education In Both Early And Late Preterm Groups

Author and year of study	Number of Illiterate Mothers		p value
	Early Preterm <34 Wks	Late Preterm ≥34 Wks	
Ancel et al ^[6] (1999)	762 (45.5%)	1504 (34.2%)	<0.01 (S)
Bellah et al ^[11] (2010)	143 (61.6%)	301 (48.3%)	<0.05 (S)
Present Study (2017)	67 (95.71%)	51 (22.17%)	0.022 (S)

Our study is consistent with the studies conducted by Ancel et al^[6] (1999); Bellah et al^[11] (2010), which also showed that maximum number of premature births occurred in illiterate mothers in early preterm group as compared to late preterm group.

Illiteracy is an important risk factor for preterm delivery compared to mothers who reached primary education level or higher, which is due to limited access to services, information and knowledge on different health prevention skills.

Table- 5 Various Studies Showing Relationship Of Prematurity And Maternal Occupation In Both Early And Late Preterm Groups

Author and year of study	Number of Unemployed Mothers		p value
	Early Preterm <34 Wks	Late Preterm ≥34 Wks	
Bellah et al ^[11] (2010)	203 (87.2%)	232 (42.3%)	0.02 (S)
Field et al ^[12] (2016)	640 (56.7%)	443 (35.1%)	0.001 (HS)
Present Study (2017)	70 (100%)	100 (43.48%)	0.001 (HS)

Our study was consistent with the studies done by Bellah et al^[11] (2010); Field et al^[12] (2016), which also showed that prematurity was more common in unemployed mothers in early preterm group as compared to late preterm group.

In the present study, there was a significant relationship between employment status and gestational age. As housewives took care of themselves less during pregnancy and perform heavy tasks more frequently and thus had more complications than working women who look after themselves better.

Table-6 Various Studies Showing Relationship Of Prematurity And Number Of Antenatal Visits

Author and year of study	Number of Women with <3 Antenatal Visits	Percentage	p value
Vintzeles et al ^[13] (2002)	African- 470676 White- 295352	68.1 52.2	<0.05 (S)
Aragao et al ^[14] (2004)	157	52	<0.05 (S)
Debiec et al ^[15] (2010)	19800	66.4	<0.05 (S)
Gogoi et al ^[16] (2014)	2393	54.7	<0.05 (S)
Kunle-Olowu et al ^[17] (2014)	86	63.4	<0.05 (S)
Present Study (2017)	124	55.15	0.005 (S)

Our study was in accordance with all the above studies which also showed that premature births were more common in mothers with less than three antenatal visits.

SUMMARY AND CONCLUSIONS

The gestational age was correlated with various maternal socio-economic factors and the following conclusions were obtained.

1. Prematurity was most common 202 (67.33%) in upper lower socioeconomic class. In both the groups (early as well as late preterm group), maximum number (60 (85.72%) and 143 (62.17%)) of babies belonged to upper lower socioeconomic class. The difference recorded was statistically significant in relation to distribution of premature births as per socioeconomic status.
2. A maximum number 118 (39.33%) of premature births occurred in illiterate mothers. Overall and in groups ie early preterm (<34 wks) and late preterm (≥34 wks), the statistical analysis revealed highly significant correlation between prematurity and maternal education. Mother's education was linked to an appreciable risk of preterm and low education level was more strongly related to early than to late preterm births.
3. A majority 170 (56.67%) of mothers were housewives. In groups, in early preterm group, all mothers 70 (100%) were housewives as compared to late preterm group where majority 130 (43.33%) were employed (p=0.001). This study suggests that, overall, employment during pregnancy is associated with a reduction in the risk of preterm birth.
4. A majority 229 (76.34%) of the women had antenatal care but maximum 124 (54.15%) had less than three antenatal visits as compared to those who had more than three antenatal visits (p=0.001). In comparison between groups, all women 70 (100%) had less than three antenatal visits in early preterm group while majority 105 (50.24%) had more than three antenatal visits in late preterm group (p=0.001).

It is anticipated that the results of this review were of interest and value to policy makers. Thus, the development of strategies for improving access to effective care in developing countries must remain a top research and operational priority. The key goal is prevention of preterm birth by addressing socioeconomic problems.

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