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## Socioeconomic status on pregnancy outcomes in Indian scenerio

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### Abstract

**Background:** According to statistics from the Korean government, the MA system covered 2.9% of people in 2014, providing access to healthcare at “a minimum cost” to low-income individuals. Various maternal behaviors and experiences before, during, and after pregnancy are associated with adverse health outcomes for both the mother and the infant.<sup>5</sup> The most frequently occurring complications include anaemia, pregnancy-induced hypertension, haemorrhage, and infection. Preterm labor and gestational diabetes are also common complications.

**Materials and methods:** The study was conducted in the department of obstetrics and gynaecology of a private Hospital, for the period of one year. This is a tertiary care teaching hospital. 300 married women whose ages ranged between 15-45 years and who were attending obstetric OPD or were admitted in the ward were included in the study after taking informed consent. Data was collected using a questionnaire by interview. Study variables included monthly income (i.e. < Rs. 6000, 6000-12000 and > Rs. 12000) lifestyle, eating habits and type and amount of food consumed, pattern of health care utilization, literacy level, chronic illness, history of illicit drug use by women or husband, and employment status of husband and women.

**Results:** 300 women were approached for the interview and all participated. As monthly income was used as the dependant variable, therefore, three socioeconomic groups were made i.e. lower, middle and upper. Almost 58.33% of the study population belonged to lower socioeconomic group of income below Rs 6000 which were extremely poor and 33.33% had income between Rs. 6000 to 12000 per month and only 8.33 were earning above Rs. 12000 rupees.

**Conclusion:** Women empowerment through education and financial assistance by providing jobs can improve this gender both socially and economically and reduce the above mentioned adverse outcomes resulting in psychological and physical suffering.

**Keywords:** Gestational Diabetes, Preeclampsia, Eclampsia, Socioeconomic

### Introduction

Socioeconomic status (SES) is one of the most important factors associated with medical outcomes. When SES is low, medical care is inadequate and this has been attributed to adverse outcomes<sup>[1, 2]</sup>. In pregnant women, low SES can increase the risk of adverse pregnancy outcomes. Previous studies have revealed that low SES is associated with pregnancy complications such as abortion, preterm delivery, preeclampsia, eclampsia, and gestational diabetes<sup>[3, 6]</sup>. According to statistics from the Korean government, the MA system covered 2.9% of people in 2014, providing access to healthcare at “a minimum cost” to low-income individuals. Various maternal behaviors and experiences before, during, and after pregnancy are associated with adverse health outcomes for both the mother and the infant<sup>[5]</sup>. The most frequently occurring complications include anaemia, pregnancy-induced hypertension, haemorrhage, and infection. Preterm labor and gestational diabetes are also common complications<sup>[6]</sup>.

Inadequate prenatal care is associated with poor obstetric outcomes, including preterm delivery, preeclampsia, and stillbirth<sup>[1, 4, 7]</sup>, and women with low SES are less likely to receive prenatal care<sup>[1, 2, 8]</sup>. In fact, the risk of preterm delivery, preeclampsia, and gestational diabetes increases with both inadequate prenatal care and low SES<sup>[3, 5]</sup>. In Korea, the healthcare security system is divided into two sections according to income: the Medical Aid (MA) system for low-income individuals and the National Health Insurance (NHI) for middle/high-income individuals<sup>[9]</sup>. A healthy diet is associated with a successful pregnancy. Malnourished mothers are at increased risk for complications and death during pregnancy

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And childbirth. In addition, their children are likely to have low birth weight, fail to grow at a normal rate, and have higher rates of disease and early death [8]. Anemia can be due to inability to buy adequate and good quality food or due to poor eating habits [7]. These pregnancy-related complications affect many women and infants [6] but they are most likely to affect those women and infants with unfavorable health conditions and lower socioeconomic status.

**Materials and methods**

The study was conducted in the department of obstetrics and gynaecology of a private Hospital, for the period of one year. This is a tertiary care teaching hospital. 300 married women whose ages ranged between 15-45 years and who were attending obstetric OPD or were admitted in the ward were included in the study after taking informed consent. Data was collected using a questionnaire by interview. Study variables included monthly income (i.e. < Rs. 6000, 6000-12000 and > Rs. 12000) lifestyle, eating habits and type and amount of food consumed. Pattern of health care utilization, literacy level, chronic illness, history of illicit drug use by women or husband, and employment status of husband and women. Violence (verbal, physical, sexual and psychological) was categorized. Psychological abuse was undermining her sense of self esteem or self worth, insulted or talked down to her. Medical risk factors in pregnancies i.e. anemia (WHO definition of hemoglobin < 11.0 g/dL), pregnancy induced hypertension, pre-eclampsia, eclampsia, chronic hypertension; gestational diabetes and chronic diabetes were studied. Reproductive history variables included age, parity, still-births, low birth weight babies (birth weight below 2,500g), preterm or small-for-gestational-age babies and cesarean sections. Data was

entered and analyzed using SPSS version16. Descriptive statistics were used to describe the data frequencies along with percentages. The chi-square test for significance was used for comparing categorical variables. The level of significance was taken as p<0.05. Monthly income was taken as the dependent variable.

**Results**

300 women were approached for the interview and all participated. As monthly income was used as the dependant variable, therefore, three socioeconomic groups were made i.e. lower, middle and upper. Almost 58.33% of the study population belonged to lower socioeconomic group of income below Rs 6000 which were extremely poor and 33.33% had income between Rs. 6000 to 12000 per month and only 8.33 were earning above Rs. 12000 rupees (Table-1). Majority of women in all three groups were housewives and only 4-6% were employed, therefore, the monthly income were mainly earned by their spouses. Significantly more women in the lower socioeconomic group were uneducated as compared to those in upper socioeconomic group. The number of children in upper socioeconomic group was less as compared to the lower socioeconomic group (significant). (Table-2). The association of maternal health conditions to fetal outcome and postpartum complications they were also compared in the three socioeconomic groups and are shown in Table-3. Anemia, pregnancy induced hypertension, underweight mother and frequency of cesarean section and wound infection were significantly more in lower socioeconomic women as compared to their upper socioeconomic counterparts. Frequency of producing low birth weight babies was also more in women of lower socioeconomic strata.

**Table 1:** Demographic Characteristics of women

Characteristics	Number	Percentage
<i>Age groups</i>		
15-25	150	50%
26-35	100	33.33
36 onwards	50	16.66
<i>No. of children</i>		
1-2 children	203	67.66
>3 children	97	32.33
<i>Education</i>		
Primary	100	33.33
High	25	8.33
Uneducated	175	58.33
<i>Monthly income</i>		
Below 6000 PKR	175	58.33
6000-12000 PKR	100	33.33
Above 12000 PKR	25	8.33

**Table 2:** Demographic characteristics of the women according to monthly income

Demographic Characteristics of the women	Monthly income below 6000 PKR (n=175)	Monthly income 6000-12000 PKR (n=100)	Monthly income above 12000 PKR (n=25)	p-value
<i>Age groups</i>				
15-25	49.2	47.0	41.0	
26-35	43.3	38.1	40.0	0.064
36 onwards	6.5	14.9	19.0	
<i>No. of children</i>				
1-2 children	65.7	59.4	65.7	
More than 3 children	34.3	40.6	34.3	0.341
<i>Education</i>				
Primary	26.3	32.5	32.3	

Middle	9.3	17.2	14.3	
High	1.7	5.4	5	0.000
uneducated	62.9	44.9	14.3	
<i>Violence history</i>				
Yes	16.0	21.2	7.7	
No	81	78.8	91.3	0.564
<i>Antenatal care</i>				
Regular Antenatal care	2.3	23.8	52.3	
Infrequent/irregular antenatal care	60.5	62.8	47.6	0.128
No antenatal care.	13.5	14.2	-	
<i>Nutrition (balanced diet)</i>				
Once in 2 weeks	82.1	4	41.0	
1-3 times a week	17.8	34.7	27.4	0.000
4-7 times a week	-	1.3	33.6	

**Table 3:** Fetal and pregnancy characteristics of the women according to monthly income

<i>pregnancy Characteristics of the women</i>	<i>Monthly income below 6000 PKR (n=175)</i>	<i>Monthly income 6000-12000 PKR (n=100)</i>	<i>Monthly income above 12000 PKR (n=25)</i>	<i>p-value</i>
<i>Maternal medical conditions</i>				
Anemia	52	47.5	41	
Pregnancy induced Hypertension	6.8	8.5	6.8	
Gestational diabetes	2.1	1.31	6.7	0.302
Asthma	0.4	0.4	6.7	
Under weight	12.6	7.7	6.7	
Over weight	10.9	14.5	6.7	0.240
Obese	1.0	1.4	6.7	
Normal weight	74.0	76.7	78	
<i>Mode of delivery</i>				
Vaginal deliveries	73.3	71	81	
Caesarean section	26.7	32	19	0.371
<i>Postpartum complications</i>				
PPH	0.86	0.4	-	
Wound infection	09.79	16.8	27.5	0.021
Postpartum Depression	0.6	17.2	6.4	
<i>Fetal Outcome</i>				
Alive	76.5	74.1	79	
Low birth weight (< 2.5 kg)	10.1	16.4	6.6	
Preterm	4.24	4.4	-	0.411
Small for gestational age	11.1	2	13.4	
Still Births	5.2	4	-	

**Discussion**

The present study showed poor educational, nutritional and other health indicators during pregnancy and post natal period in women of lower socioeconomic status as compared to those with upper socioeconomic status. Consequently the more preterm deliveries were seen during this economically deprived population. Pakistan could be a poor country where about 23% of the population lives below the personal income [9]. Antenatal care is one amongst the key strategies in maintaining safe motherhood. Within the present study it's seen that despite being poor, most ladies did receive irregular antenatal care and also the main reason for this good change is that the availability of a public sector hospital near their homes which provides free health services. Overall 87% women received antenatal care within the present study and these figures are comparable to 71% figures seen in another study [9]. The infrequent/ irregular checkups were 61% whereas regular checkups were 26% and these figures are comparable with 28% in an exceedingly WHO study which recommends four antenatal care visit model [10]. In the present study the frequency of certain maternal health conditions like diabetes, hypertension, anemia and obesity were comparable the findings of other studies tired poor

women [6, 12]. If uncontrolled, these conditions can result in poor infant outcome and might have long-term negative impact on a woman's health it absolutely was observed within the present study that in lower and middle socioeconomic group the frequency of anaemia and pregnancy induced hypertension was almost same showing some association with lower socioeconomic and literacy status while within the upper socioeconomic group anaemia was less frequent but during this group gestational diabetes was more again showing some association with affluence. it's estimated that over half the pregnant women in developing countries suffer from anemia [13] and also the prevalence of anaemia in pregnancy in South Asia is 75% as compared to 18% in developed countries [14]. World Health Organization recommended supplementation of all pregnant women with a daily dose of 60 mg iron and 400 g folate to manage iron deficiency anaemia as a primary prevention method [15]. The ladies during this study could neither afford these supplements nor were provided by the hospital. One of the indications of malnutrition is underweight, which significantly contributes towards mothers' poor health and consequently passed on as low birth weight babies. This association of low weight mothers and new borns was also seen within the present study. It's prudent to notice that

malnourished mothers are at the verge of increased risk for complications and death during pregnancy and childbirth<sup>[16]</sup>. Hypertension in pregnancy is another major reason behind maternal mortality and a contributing factor to still birth<sup>[7]</sup>. The female empowerment within the kind of financial contribution is incredibly important because it helps prevent the family from falling further into poverty<sup>[17]</sup>. This financial dependence is often related to helplessness, fear and insecurity, and position the ladies at more vulnerable situation for poor psychological state like depression.<sup>18</sup> Over 90% of the ladies during this study were housewives and belonged to low socioeconomic strata, therefore, they were almost exclusively dependent on their male relations to eat a better food or to select antenatal check-ups. Violence against women is another contributing factor towards unfavourable health. In the present study the occurrence of violence was significantly high in economically disadvantaged women and same is reported from a study in Kenya. 16 Regarding neonatal outcome, the low birth weight was seen in 12.8% babies and this figure is not up to the Pakistan's overall 19% and 29% from India<sup>[19]</sup>. the explanation for this disparity might be that this study was a hospital based study which was catering for antenatal care altogether antenatal women but specially for lower socioeconomic group. Two other population based studies had still birth rate of 3.2%<sup>[20]</sup> which is analogous to our study of 3. Most of those still births are preventable with appropriate obstetric care, improving nutritional trends and overcoming unwanted pregnancies and behaviours. A high rate of caesarean section was seen within the lower socioeconomic group and also the reason might be manifold like poor health indicators of the mother and late arrival to the hospital after having complications e.g. prolonged or obstructed labor, abnormal condition etc. High wound infection within the upper socioeconomic group i.e. 26.6%, is also associated with poor adherence to infection control guidelines by the hospital staff together with high gestational diabetes in this group. Malnutrition and anemia also can be contributing factors for this complication as reported by others<sup>[14, 21]</sup>.

### Conclusion

Women empowerment through education and financial assistance by providing jobs can improve this gender both socially and economically and reduce the above mentioned adverse outcomes resulting in psychological and physical suffering.

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