

# Effects of Poverty on Pregnant Women

Shazia Aftab, Jahan Ara, Sarah Kazi, Farah Deebe

Department of Gynae and Obstetrics, Dow University of Health Sciences, Lyari General Hospital, Karachi.

## Abstract

**Objectives:** To estimate the effects of low maternal education, malnutrition, anemia, pre-eclampsia, gestational diabetes, depression, domestic violence on pregnancy outcome.

**Study type, settings and duration:** Hospital based cross sectional study done in obstetrics and gynecology department of a tertiary care teaching hospital from November 2010 to April 2011.

**Subjects and Methods:** Five hundred married women between 15-45 years of age attending the obstetric clinic for any problem or were admitted in the obstetrics ward were interviewed and data entered in a questionnaire. Apart from basic demographic information, their educational level, nutritional status, anemia, history of eclampsia, diabetes, depression and domestic violence were recorded. Socioeconomic groupings was done on the basis of monthly income i.e. monthly income less than Rs. 6000 (lower), 6000-12000 (middle) and more than Rs. 12000 (upper).

**Results:** For the ease of analysis, the study population was divided into three socioeconomic groups. Majority (62.4%) were in the lower socioeconomic bracket while 34.6% were in the middle and only 3% were in the upper strata. In the lower socioeconomic group 62% women were uneducated, only 25.3% women had regular antenatal care, and only 80% could afford balanced diet once in two weeks. Almost 50% were anemic, 13.1% were under weight, 12.1% had low birth weight babies and 3.2% had still births. Violence was reported by 17%. In the high socioeconomic group only 13% women were uneducated and all parameters were 50% better than those in the lower socioeconomic group with 53.3% women having regular antenatal care, 40% taking balanced diet once in two weeks, 6.7% being under weight and 6.7% having low birth weight babies. The frequency of anemia was slightly less (40%) when compared with the lower socioeconomic group. Violence was reported by 7%. Mode of delivery was a cesarean section in 26.4% with 13.4% ending up in wound infection.

**Conclusions:** Poverty is a key hindrance to women's wellbeing especially during pregnancy resulting in malnutrition, anemia, low birth babies or fetal loss.

**Policy message:** Poverty alleviation and nutritional support programs should be aimed for women of reproductive age and packaged in the MNCH program.

**Key words:** Women, poverty, adverse side effects.

## Introduction

The definition of poverty varies depending on the social, cultural and political systems in a particular region. Poverty is a multidimensional social phenomenon.<sup>1</sup> From an epidemiological perspective, poverty means low socioeconomic status (measured by social or income class), unemployment and low levels of education.<sup>2</sup>

The Millennium Development Goals (MDGs) set for 2015 and its specific objectives are to eradicate extreme poverty and hunger, achieve universal primary education, promote gender equity and empower women, reduce child mortality, improve maternal health, control infectious diseases, ensure environmental sustainability, and develop a global partnership for development.<sup>3</sup> Women's empowerment and improvement in women's

health are linked to the issue of poverty. Several reports from the United Nations, World Health Organization, and World Bank indicate that worldwide 70% of women live in poverty and earn only 10% of the world's total income.<sup>4</sup> The World Bank report of 2003 on poverty in Pakistan indicated that poverty exists in various forms in Pakistan.<sup>3</sup>

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 pregnancy-induced hypertension, hemorrhage, and infection. Preterm labor and gestational diabetes are also common complications.<sup>6</sup> Anemia can be due to inability to buy adequate and good quality food or due to poor eating habits.<sup>7</sup> These pregnancy-related complications affect many women and infants<sup>6</sup> but they are most likely to affect those women and infants with unfavorable health conditions and lower socioeconomic status.

A healthy diet is associated with a successful pregnancy. Malnourished mothers are at increased risk for complications and death during pregnancy and

### Corresponding Author:

Shazia Aftab  
Department of Gynae and Obstetrics  
Dow University of Health Sciences  
Lyari General Hospital  
Karachi.  
Email: [drshaziaaftab@gmail.com](mailto:drshaziaaftab@gmail.com)

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.<sup>8</sup> Antenatal care is the basic component of maternal care on which the life of mothers and babies depend and poverty negatively effects the utilization of health services.<sup>9</sup> According to a study, the low status of women in Pakistan hinders female participation in health development and results in high morbidity among women.<sup>10</sup> Similarly, poverty, illiteracy, and low status of specific groups (women, minorities, and ethnic groups) in the society have been identified as contributing factors to the high mortality and morbidity in developing countries.<sup>11</sup>

During her life time, a Pakistani woman has a 1 in 23 chance of dying from maternal causes compared to 1 in 5,000 in the industrialized world.<sup>12</sup> In another study one woman in 38 dies during pregnancy or childbirth in Pakistan, compared with a regional average of one in 230.<sup>10</sup>

### Subjects and Methods

The study was conducted in the department of obstetrics and gynaecology ward 4 of Lyari General Hospital, Karachi from November 2010 – April 2011. This is a tertiary care teaching hospital. Five hundred married women whose ages ranged between 15-45 years and who were attending obstetric OPD or were admitted in the obstetrics ward were included in the study after taking informed verbal 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 like meat, fish eggs, vegetables fruits, milk, bread, butter. The consumption was categorized as (i) Once in 2 weeks (ii) 1-3 times a week; (iii) 4-7 times a week. 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. Verbal abuse was defined as shouting, yelling, cursing, insulting, talked down to her. Physical abuse was defined as slapped or hit, hair pulled, pushed, choked, burned or use of any weapon. Sexual abuse was performing sexual intercourse against her will or using physical force for sexual intercourse. 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 hypotension; gestational diabetes and chronic diabetes were studied.

BMI was calculated on the basis of self-reported pre pregnancy height and weight or from the mother's card (when available) and final weight and height were obtained in the maternity ward prior to delivery. Respondents were categorized as underweight if their BMI was <19.8 before pregnancy, overweight if BMI was 26.0-29.0, and obese if BMI was >29.0.

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 version 16. 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

Five hundred 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 62.4% (n=195) of the study population belonged to lower socioeconomic group of income below Rs 6000 (US\$ 71.4) which were extremely poor and 34.6% (n=102) had income between Rs. 6000 to 12000 per month (US\$ 71.4 to 142.8) and only 3% were earning above Rs. 12000 rupees (US\$ 142.8) (Table-1).

**Table 1: Demographic characteristics of the women.**

Characteristics of the women	Number (500)	%
<i>Age groups</i>		
15-25	246	49.2
26-35	202	40.4
36 onwards	52	10.4
<i>No. of children</i>		
1-2 children	313	62.6
>3 children	187	37.4
<i>Education</i>		
Primary	139	27.8
Middle	65	13.0
High	21	4.2
Uneducated	275	55
<i>Monthly income</i>		
Below 6000 PKR	312	62.4
6000-12000 PKR	173	34.6
Above 12000 PKR	15	3.0

Majority of women (92-95%) in all three groups were housewives and only 5-8% were employed, therefore, the monthly income were mainly earned by their spouses. Significantly more (62%) women in the lower socioeconomic group were uneducated as

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

Demographic Characteristics of the women	Monthly income below 6000 PKR (n=312) 62.4%	Monthly income 6000-12000 PKR (n=173) 34.6%	Monthly income above 12000 PKR (n=15) 3.0%	p-value
<i>Age groups</i>				
15-25	50.3(157)	48.0(83)	40.0(6)	0.066
26-35	42.3(132)	37.0(64)	40.0(6)	
36 onwards	7.4(23)	15.0(26)	20.0(3)	
<i>No. of children</i>				
1-2 children	64.7(202)	58.4(101)	66.7(10)	0.362
More than 3 children	35.3(110)	41.6(72)	33.3(5)	
<i>Education</i>				
Primary	25.3(79)	33.5(58)	33.3(5)	0.000
Middle	10.3(32)	16.2(28)	13.3(2)	
High	2.6(8)	6.4(11)	6(40)	
uneducated	61.9(193)	43.9(76)	13.3(2)	
<i>Violence history</i>				
Yes	17.0 (53)	20.2 (35)	6.7 (1)	0.586
No	83 (259)	79.8 (138)	93.3 (14)	
<i>Antenatal care</i>				
Regular Antenatal care	25.3(79)	24.8(43)	53.3( 8 )	0.137
Infrequent/irregular antenatal care	61.5(192)	61.8(107)	46.6(7)	
No antenatal care.	13.1(41)	13.2(23)	-	
<i>Nutrition (balanced diet)</i>				
Once in 2 weeks	80.1(250)	63(109)	40.0(6)	0.000
1-3 times a week	19.8(62)	35.8(62)	26.6(4)	
4-7 times a week	-	1.2(2)	33.3(5)	

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

pregnancy Characteristics of the women	Monthly income below 6000 PKR (n=312) 62.4%	Monthly income 6000-12000 PKR (n=173) 34.6%	Monthly income above 12000 PKR (n=15) 3.0%	p-value
<i>Maternal medical conditions</i>				
Anemia	50 (156)	48.5(84)	40(6)	0.305
Pregnancy induced Hypertension	7.4(23)	7.5(13)	6.7(1)	
Gestational diabetes	2.2(7)	2.31(4)	6.7(1)	
Asthma	0.6(2)	0.6(1)	6.7(1)	
Under weight	13.1(41)	8.7(15)	6.7(1)	
Over weight	10.9(34)	14.5(25)	6.7(1)	0.259
Obese	1.0(3)	1.2(2)	6.7(1)	
Normal weight	75.0(234)	75.7(131)	80(12)	
<i>Mode of delivery</i>				
Vaginal deliveries	75.3(235)	70(121)	80(12)	0.371
Caesarean section	24.7(77)	30(52)	20(3)	
<i>Postpartum complications</i>				
PPH	0.96(2)	0.5(1)	-	0.027
Wound infection	10.89(31)	17.9(31)	26.6(4)	
Postpartum Depression	0.6(2)	17.3(3)	6.7(1)	
<i>Fetal Outcome</i>				
Alive	78.5(245)	75.1(130)	80(12)	0.422
Low birth weight (< 2.5 kg)	12.1(38)	14.4(25)	6.7(1)	
Preterm	2.24(7)	4.6(8)	-	
Small for gestational age	12.1(38)	3(5)	13.3(2)	
Still Births	3.2(10)	3(5)	-	

compared to those in upper socioeconomic group (13.3%). The number of children in upper socioeconomic group was less as compared to the lower socioeconomic group (significant). Only 20% women could take a balanced diet 1-3 times a week in the lower socioeconomic group and 80% could take it once in 2 weeks as against 26.6% and 40% respectively in the upper socioeconomic group and the difference was

significant. Women of the upper socioeconomic group had regular antenatal checkup as compared to irregular or no antenatal check up in the lower socioeconomic group (significant). About 6.7-17.0% women had been subjected to violence (verbal, physical, sexual and psychological) in their lifetime.

Other demographic characteristics in relation to socioeconomic level are shown in 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.

### 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 in this economically deprived population. Pakistan is a poor country where about 23% of the population lives below the poverty line.<sup>13</sup> Antenatal care is one of the key strategies in maintaining safe motherhood. In the present study it is seen that despite being poor, most women did receive irregular antenatal care and the main reason for this good change is the availability of a public sector hospital near their homes which provides free health services. Overall 87% women received antenatal care in the present study and these figures are comparable to 71% figures seen in another study.<sup>9</sup> The infrequent/irregular checkups were 61% whereas regular checkups were 26% and these figures are also comparable with 28% in a WHO study which recommends four antenatal care visit model.<sup>14</sup>

In the present study the frequency of certain maternal health conditions like diabetes, hypertension, anemia and obesity were comparable with the findings of other studies done in poor women.<sup>6,15,16</sup> If uncontrolled, these conditions can lead to poor infant outcome and can have long-term negative impact on a woman's health. It was observed in the present study that in lower and middle socioeconomic group the frequency of anemia and pregnancy induced hypertension was almost same showing some association with lower socioeconomic and literacy status while in the upper socioeconomic group anemia was less frequent but in this group gestational diabetes was more again showing some association with affluence. It is estimated that more than half of the pregnant women in developing countries suffer from anemia<sup>17</sup> and the prevalence of anemia in pregnancy in South Asia is 75% as compared to 18% in developed countries.<sup>18</sup> World Health Organization recommended supplementation of all pregnant women with a daily dose of 60 mg iron and 400 g folate to control iron deficiency anemia as a primary prevention method.<sup>18</sup> The women in this study could neither afford these supplements nor were provided by the hospital.

One of the indicators 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 newborns was also seen in the present study. It is prudent to note that malnourished mothers are at the verge of increased risk for complications and death during pregnancy and childbirth.<sup>19</sup> Hypertension in pregnancy is another major cause of maternal mortality and a contributing factor to still birth.<sup>7</sup>

The female empowerment in the form of financial contribution is very important as it helps prevent the family from falling further into poverty.<sup>20</sup> This financial dependence is frequently associated with helplessness, fear and insecurity, and position the women at more vulnerable situation for poor mental health like depression.<sup>21</sup> Over 90% of the women in this study were housewives and belonged to low socioeconomic strata, therefore, they were almost exclusively dependent on their male family members to eat a better food or to go for antenatal checkups.

Violence against women is another contributing factor towards unfavorable 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.<sup>16</sup>

Regarding neonatal outcome, the overall low birth weight was seen in 12.8% babies and this figure is lower than the Pakistan's overall 19%<sup>22</sup> and 29% from India.<sup>23</sup> The reason for this disparity could be that the present study was a hospital based study which was catering for antenatal care in all antenatal women but specially for lower socioeconomic group. Two other population based studies had still birth rate of 3.2%<sup>7,15</sup> which is similar to our study of 3%. Most of these still births are preventable with appropriate obstetric care, improving nutritional trends and overcoming unwanted pregnancies and behaviors.

A high rate of cesarean section was seen in the lower socioeconomic group and the reason could be manifold like poor health indicators of the mother and late arrival to the hospital after having complications e.g. prolonged or obstructed labor, fetal distress etc. High wound infection in the upper socioeconomic group i.e. 26.6%, may be related to poor adherence to infection control guidelines by the hospital staff along with high gestational diabetes in this group. Malnutrition and anemia can also be contributing factors for this complication as reported by others.<sup>14,24</sup>

In relation to poverty a number of correlates have been identified which have adverse side effects in pregnancy and these include low socio economic status, low maternal education, malnutrition, anemia, depression and domestic violence and each of these showed direct or indirect association with poor maternal and neonatal outcome.

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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