Socioeconomic and Maternal Risk factors for Pre-Term Births in District Swat.

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ABSTRACT

Background: Pre-Term Birth is the single most important cause of Neonatal and perinatal morbidity and mortality and has substantial health and economic impact on our society and health facilities.
Objective: To determine various socioeconomic and maternal risk factors for Pre-Term births, in our population.
Materials & Method: This is descriptive Cross sectional study conducted in Neonatal ICU, Department of Pediatrics, Saidu Group of Teaching hospital, Swat, From January 2017 to June 2017. A total of 176 newborns (age <37 weeks) were included in our study. The data was collected by random and convenience sampling.
Results: Total number of Pre-Term birth included were 176 with frequency of5.6%.55.1% were male and 44.9% were female. Majority 128(72.7%) of newborn mothers were between 15-35 years of age. 81.2%of preterm Birth mothers were illiterate.74.4% mothers belonged to poor families. Majority of cases have history of PROM (40.3%), previous premature babies (38%),Low Birth weight Babies (30.1%) and Antepartum Hemorrhage (35.7%). 46.1% of mothers were Primigravida, 30.1%with more than 4 gravidity and 23.8% less than 4 gravidity. 65.3% have time interval less than 2 years between two pregnancies. UTI was found common with 34.6%, followed by Anemia 30.6% and pregnancy induced hypertension 30.1% in mothers. Eclampsia/pre-eclampsia, Diabetes mellitus and Fibroids were the least reported risk factors with 6.2%, 5.1% and 2.2% respectively.
Conclusions: Poverty, illiteracy, young age mothers, rural areas and no antenatal care were major socioeconomic risk factors for PTB and these all are interrelated. Maternal risk factors like UTI, Anemia, and Pregnancy Induced Hypertension are the treatable causes for Pre-Term births.
Keywords: *Pre-Term births, Maternal Risk factors, Socioeconomics*

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INTRODUCTION

Pre-term birth (PTB) is one of the leading cause of perinatal and neonatal mortality and morbidity especially in developing untries like Pakistan, due to limited health facilities. Roundabout 4 million children die within the newborn period. Knowing that this neonatal mortality account for 54% of all under-five deaths, improving neonatal survival is essential.[1-4]The occurrence of complications and mortality rate was higher in Preterm infant as compared to Full-term neonates.[5]The premature babies are prone to complications like birth asphyxia, Hypoglycemia, respiratory distress syndrome and long-term Neurological, respiratory and developmental complications.[6]

Prematurity is defined as gestational age at birth of less than 37 weeks of gestation. Further divided into three groups; Mild (32-36.5 weeks), Very Premature (28-31 weeks) and Extremely Premature (<28 weeks).[3]The burden of preterm birth is disproportionately concentrated in Africa and Asia, where about 85% of all preterm births occur (31% and 54%,respectively).[5]All over the world the rate of Pre-term births ranges from 5 to 18% of all babies born.[7,8]The prevalence of Prematurity is almost 5% in Europe and 18% in Africa.[8]In Asian region, unfortunately Pakistan has an increasing statistics with 748,100 Pre-mature Births annually and has fourth highest number after India, China and Nigeria.[9,10]

The main causes of prematurity have not been established in more than 70% of cases. Non Obstetrics risk factors include poor socioeconomics level[11], maternal age at extreme, cigarette smoking, low pre-pregnancy weight, psychosocial stress and illiteracy.[12-16] Obstetric risk factors for preterm birth include Placenta Previa, Abruptio-placentae, multiparty, previous preterm delivery and premature rupture of membrane.[16,17]

There are many maternal medical conditions associated with preterm Birth including: Pregnancy- induced Hypertension, Pre-Eclampsia and Eclampsia, Maternal Anemia[18], Urinary and genital tract infection[19], Diabetes mellitus and Psychological stress.[20-23]

The aim of our study was to determine both socioeconomics and maternal risk factors for prematurity that could be targeted to reduce the prevalence of prematurity.

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MATERIAL AND METHOD

The study was conducted in the department of Pediatric Neonatal Care unit, Saidu Group of Teaching Hospital during six months from January 2017 to June 2017. Preterm births Cases were selected from neonates admitted in NICU Saidu Teaching Hospital.

All alive preterm births between gestational age of 28-37 weeks were included in the study whereas twin pregnancies and those presented with congenital anomalies, not compatible with life were excluded.

The data was taken from all the mothers who give premature births admitted in NICU, Informed written consent was taken from all the mothers. All the information including the socioeconomics; per month income, Education status, antenatal Care etc. Risk factors regarding mother age, health status, present pregnancy and previous obstetric record and complication was taken into consideration. All the risk factors were analyzed by percentages and frequencies. The results were presented on graphs and tables. The data were analyzed by Statistical software SPSS-20.

RESULTS

During the study period from January 2017 to June 2017, total numbers of neonates, admitted to Neonatal Care Unit, Saidu Teaching Hospital, Swat, were 3115. The number of Pre-term births were 176 with the frequency of 5.6%. Male were 97(55.1%) and female 79(44.9%) as given in table No. 01.

The Socioeconomics and demographic risk factors are given in Table 2. On the basis of mother age group Majority 128(72.7%) were between 15-35 years of age, 46(27.3%) were between 35-45 years of age. The frequency of Preterm Birth is much higher in our study in illiterate mother with total number of 143(81.2%). 131(74.4%) preterm births belong to families with monthly income up to 15000. 78% were from joint families and 87% were housewives.

Table 1: Gender distribution of Pre-Term Births

Gender	No. and Percentages (%)
Male	97(55.1)
Female	79 (44.9)

Table 2: Socioeconomics Risk factors for Pre-Term Birth (n=176)

Risk Factors	No of cases and percentages (%)
Mother Age	
15-35 years	128 (72.7)
35-45 years	46 (27.3)
Education of Mother	
Illiterate	143 (81.2)
Matric	28 (15.9)
Higher Secondary	5 (2.9)
Socioeconomics Level(Monthly Income)	
Poor(Monthly income up to 15000	131 (74.4)
Middle(Monthly income>15000-30000)	45 (25.6)
Area	
Urban	74 (42)
Rural	102 (58)
Family Type	
Nuclear	38 (21.6)
Joint	138 (78.4)
Occupation	
Working	23 (13)
House Wife	138 (87)

The maternal risk factors in our study are given in Table 3. Majority of cases have history of Premature rupture of membrane (40.3%), previous premature babies (38%) and Low Birth weight Babies (30.1%) and Antepartum Hemorrhage (35.7%). In our Study 81(46.1%) mothers were Primigravida, 53(30.1%) with more than 4 gravidity and 42(23.8%) less than 4 gravidity. 115 (65.3%) have time interval less than 2 years between two pregnancies.

In Maternal medical associated conditionsthe most common was found Urinary Tract Infection with 34.6%, followed by Anemia 30.6%, and Pregnancy Induced Hypertension 30.1%. Eclampsia/pre-eclampsia, Diabetes mellitus and Fibroids were the least reported risk factors with 6.2%, 5.1% and 2.2% respectively.

DISCUSSION

In our study majority of women were in the age of 15-35 years which is comparable to both local and international studies.[11,12,22,23]Education of the mother was the main determinant for Pre-term birth as 143(81.1%) of the mother were illiterate as compared to 28(15.9%) were matriculated and higher secondary were 5(2.9%) cases. In Women who belong to poor socioeconomic status were 131(74.4%) cases of pre-term birth were reported as compared to average monthly income which was 45(25.6%).Most of the Pre-Term Birth mothers were from rural areas 102(58%) as compared to Urban 74(42%). In the analysis majority of women live in joint family 138(78.4%) and mostly were housewives 138(87%). In the above-mentioned data it is clear that low education with poor socioeconomic status and lack of antenatal care are associated with one another in the major cause of Pre-Term Birth, also supported by local and international studies.[11,23]

Table 3: Maternal Risk Factors of Preterm birth (n=176)

Risk Factors	**No. of cases and Percentages**
History of Premature rupture of membrane	71 (40.3%)
History of Previous Low birth Weight Babies	53 (30.1%)
History of Previous Premature Babies	67 (38%)
Antepartum Hemorrhage	63 (35.7%)
Threaten Abortion	44 (25%)
Polyhydramnios	29 (16.4%)
Maternal Pyrexia	23 (13.1%)
Parity	
Primigravida	81 (46.1%)
<4	42 (23.8%)
≥4	53 (30.1%)
Period of Gestation	
28-30 weeks	32 (18.1%)
31-36.5 weeks	144 (81.9%)
Antenatal Care	
Yes	70 (39.7%)
No	106 (60.3)
Time between two pregnancies	
1 to 2 years	115 (65.3%)
>2 years	61 (34.7%)
Maternal Gynecological Anomalies	
Placenta Previa	6 (3.4%)
Ovarian Cyst	2 (1.1%)
Maternal Medical Disorders	
Pregnancy Induced Hypertension	53 (30.1%)
Pre-Eclampsia/Eclampsia	11 (6.2%)
Urinary Tract infections	61 (34.6%)
Anemia	54 (30.6%)
Fibriod	4 (2.2%)
Diabetes Mellitus	9 (5.1%)

In the study different maternal risk factor were analyzed for Pre-Term Birth and it was found that premature rupture of membrane (PROM) was associated with preterm birth in 71(40.3%) women. PROM is one of the major maternal risk factor for Pre-Term Birth which was also highlighted in both local and international studies.[2,3,22,23] History of previous Low Birth weight 53(30.1%), history of previous premature births in 67(38%).[13] Per vaginal bleeding was also a major risk factor, intrapartum hemorrhage in 63(35.7%),[2,3,22] threaten abortion 44(25%). In our study primigravida, 81(46.1%) followed by Multigravida 53(30.1%) were a risk factor for Pre-Term Birth. In other comparative studies, multigravida was the main risk factor for prematurity[3,22], the disparity was mainly due to a high number of young ageprimigravida mothers in our study.106(60.3%) mothers didn't receive any antenatal care as compared to 70(39.7%) who received antenatal care. The time between two pregnancies, mostly women with less time interval between two pregnancies that's 1-2 years were 115(65.3%). The results are also comparable with both national and international studies.[13,23]

In our study, Urinary Tract Infection (UTI) was the main risk factor for Pre-Term Birth 61(34.6%)which is also evidenced by Waguraet al.[3] Followed by Anemia 54(30.6%) and Pregnancy Induced Hypertension 53(30.1%). In others studies, the Anemia was the main risk factors in medical associated condition affecting the pregnancy.[13,22] This may be due to under reporting of UTI by mother as it is asymptomatic in most cases. Local Uterine condition like Fibroids, ovarian cyst and Placenta Previa was in 4(2.2%), 2(1.1%) and 6(3.4%) respectively. In study diabetes mellitus and maternal pyrexia associated with pre-term birth was observed in 9(5.1%) and 23(13.1%). Maternal pyrexia was associated in significant cases. For this further workup should have done like septic screening and good antenatal care.

CONCLUSIONS

From our study it was obvious that Poverty, illiteracy, young age mothers, rural areas and no antenatal are major socioeconomic risk factors for pre-term births and these all are interrelated, so the main focus should be alleviating the poverty, promoting female Gender education. Maternal risk factors like UTI, Anemia, and Pregnancy Induced Hypertension are preventable cause for preterm births which can be identified in time with good antenatal care.

Recommendations: Female education should be promoted in society. Poverty alleviation and family planning is a key for good maternal and child health. A good antenatal care can reduce perinatal morbidity and reducing pre-term births.

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