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MATERNAL ADVERSE OUTCOMES OF TEENAGE PREGNANCY: A CROSS-SECTIONAL STUDY FROM PESHAWAR

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ABSTRACT

Objective: To determine the adverse maternal outcome in teenage pregnancies reported to a tertiary care hospital in Peshawar.

Methodology: A descriptive cross-sectional study was conducted among 177 females (15-19 years of age) and gestational age of more than 28 weeks was confirmed through ultrasonography. Adverse maternal outcomes such as anemia, eclampsia, pre-eclampsia, preterm deliveries, and lower segment cesarean section (LSCS) were measured as per defined in the operational definition. Maternal outcomes were stratified among residence and educational level to see effect modifiers.

Results: In this study, anemia was detected in 45 (25.4%) patients while eclampsia and pre-eclampsia were noted in 44 (24.9%) and 45 (25.4%) patients respectively. Pre-term delivery and LSCS were observed in 79 (44.6%) and 53 (29.9%) patients respectively. Lower educational level was associated with eclampsia, preterm delivery, and lower segment cesarean section.

Conclusion: Teenage pregnancy was reported to be related to a high rate of adverse maternal outcomes like anemia, eclampsia, pre-eclampsia, premature birth, and LSCS.

Keywords: Teenage Pregnancy; Preeclampsia; Eclampsia; Anemia; Preterm Delivery; Lower Segment Cesarean Section (LSCS).

INTRODUCTION

Teenage pregnancies also known as adolescent pregnancies are considered high risk because of associated adverse fetomaternal outcomes.¹ Adolescence is the age between 10-19 years according to World Health Organization.¹ Statistics show that each year 11% (13 million) of all births are given by girls aged 15 to 19 years.² Developing countries are the hub of the problem and Pakistan is no different with a teenage pregnancy rate of 44 per 1000 live births.³

Adolescent pregnancy is strongly associated with maternal anemia, preeclampsia, gestational hypertension, preterm births, stillbirths, operative vaginal births, and cesarean section.⁴ During pregnancy several changes occur throughout a women's body primarily to support the fetus during different stages of development. Adjustments of pregnancy are superimposed on changes occurring in puberty. Hence it becomes difficult for a teenager to meet the physiological demands of pregnancy resulting in complications.⁵ Teenagers comprise almost a quarter of the Pakistani population and studies carried out locally show a wide range of

poor maternal and fetal outcomes in this age group.⁶

Adolescent pregnancy has always been a hot topic in local and international research. Regular review of local trends and generation of statistics for a problem with long-term and sometimes lifelong health and social implications is the only way of drawing the attention of stakeholders for targeted and proper policy making. This study focused on adverse maternal outcomes associated with teenage pregnancy in Lady Reading Hospital, Peshawar, the largest tertiary referral hospital of the province.

METHODOLOGY

This was a descriptive cross-sectional study carried out from December 2017 to December 2019. Patients with teenage pregnancy meeting inclusion criteria were recruited from labour suites of Obstetrics & Gynaecology Department, Lady Reading Hospital Peshawar, Pakistan. A total of 177 pregnancy cases (15-19 years of age) were included taking a proportion of eclampsia in teenage pregnancy at 6%, level of significance at 5%, and confidence interval of 95%.⁷ The study protocol

was approved by the ethical committee of the institution. Predesigned proformas were used for data collection. Written informed consent was taken before data collection.

Pregnant patients in the age range of 15-19 years with singleton alive pregnancy of 28 weeks or more were included in the study. Patients with chronic illnesses, previous history of preterm delivery, blood disorders, non-nutritional anemia, folic acid, and B12 deficiency anemia were excluded from the study. In the present study, data was collected from 177 pregnancy cases by non-probability consecutive sampling technique. Pre-planned proforma was used for data collection which included information regarding age, gestational age determined by available ultrasound, address, level of education, and working status. Maternal outcomes such as iron deficiency anemia, pre-eclampsia, eclampsia, preterm deliveries, and LSCS were also recorded in proforma.

For study purposes, iron deficiency anemia was defined as a hemoglobin level of 10 g/dl or less at 28 weeks gestation or more with decreased mean corpuscular volume, mean corpuscular hemoglobin, and mean corpuscular hemoglobin concentration. Pre-eclampsia was defined as new onset hypertension (140 mmHg systolic or 90 mmHg diastolic or over) after 20 weeks of pregnancy along with 2 proteinuria on urine dipstick testing or maternal organ dysfunction e.g., renal dysfunction (serum creatinine of 1.02

mg/100 ml or more), alanine aminotransferase over 40 IU/ liter, platelet count below 150000/microliter. Eclampsia was defined as a convulsive condition associated with preeclampsia. Lower segment cesarean section was defined as abdominal delivery of fetus, placenta, and membranes through a transverse incision in the abdominal wall and lower uterine segment. Preterm delivery was defined as birth after 24 completed weeks of gestation and before 37 completed weeks of gestation. Collected data was analyzed in SPSS version 22.0. Mean and standard deviation was calculated for numerical variables (age and gestational age). Frequencies and percentages were calculated for categorical variables (residence, educational level, maternal outcomes i.e., anemia, eclampsia, pre-eclampsia, preterm deliveries, and LSCS). Maternal outcomes were stratified among residence and educational level to see effect modifiers. Post-stratification chi-square test was applied to keep the p-value < 0.05 as significant.

RESULTS

In the present study, mean maternal age was found to be 17.64±1.35 years while the mean gestational age of the total studied population was recorded as 35.11±3.49 weeks. Results of the present study showed that most of the patients belonged to rural areas 139 (78.5%) compared to urban 38 (21.5%). Similarly, the majority of patients were illiterate 111 (62.7%) followed by pri-

mary level education 43 (24.29%). Pre-term delivery was the most common complication observed in teenage women 79 (44.6%) followed by LSCS 53 (29.9%). Anemia and pre-eclampsia were found in 45 (25.4%) patients, each. Eclampsia accounted for 44 (24.9 %) of the patients. Lower educational level was associated with eclampsia, pre-term delivery, and lower segment cesarean section details are mentioned in table 1.

DISCUSSION

The present study concluded that a significant percentage of antenatal teenagers have to bear the complications of anemia, preeclampsia, eclampsia, preterm birth, and LSCS. Adolescent pregnancy and childbearing is a global health issue and economic challenge nowadays.

Although it occurs among all ethnic, cultural, and socioeconomic groups, several factors such as economic status, education, religion, place of residence, peer's and partners' behaviors, family and community attitudes, age, mass media, lack of reproductive health services and awareness are causal factors to increase complications associated with teenage pregnancy.⁸

In the present study mean maternal age was found to be 17.64±1.35 years while the mean gestational age of the total studied population was recorded as 35.11±3.49 weeks. A study from Sindh, Pakistan showed

Table 1: Stratification of complications according to residential area and educational status

Variables	Residential Status		p-value	Educational Status				p-value
	Rural (n=139)	Urban (n=38)		Illiterate (n=111)	Primary (n=43)	Middle (n=20)	Matriculat (n=3)	
	n (%)	n (%)		n (%)	n (%)	n (%)	n (%)	
Anemia	43 (95.6%)	2 (4.4%)	0.001	32 (71.1%)	11 (24.4%)	2 (4.4%)	0 (0.0)	0.240
Eclampsia	37 (84.1%)	7 (15.9%)	0.300	42 (95.5%)	1 (2.3%)	0 (0.0)	1 (2.3%)	0.000
Pre-Eclampsia	38 (84.4%)	7 (15.6%)	0.263	33 (73.3%)	11 (24.4%)	0 (0.0)	1 (2.2%)	0.046
Preterm Delivery	73 (92.4%)	6 (7.6%)	0.000	46 (58.2%)	32 (40.5%)	0 (0.0)	1 (1.3%)	0.000
Lower Segment Cesarean Section	25 (47.2%)	28 (52.8%)	0.000	32 (60.4%)	0 (0.0)	19 (35.8%)	2 (3.8%)	0.000

the same findings in the context of average maternal age but the difference concerning gestational age (Shah et al., 2011).⁹ Results of the present research indicated that teenagers belonging to rural areas were more likely to have pregnant (78.5%) compared to those in urban areas (21.5%). This might be so because the literacy rate of teenagers from rural areas is less and have limited access to contraceptives. This fact was also confirmed by the present study which depicted that majority of patients were illiterate (62.7%) followed by primary level education (24.29%). These findings are consistent with that of a study conducted in South Asia.¹⁰

Anemia complicated 24.4% of our study population. This figure is lower than 44% quoted by Junita Indarti et al¹¹ and 58% stated by Nusrat et al.⁹ This difference may be due to the small sample size in this study.

Almost a quarter of our study population had eclampsia (24.9%) and preeclampsia (25.4%). Indarti et al¹¹ however, reported 16.6% preeclampsia and 5% eclampsia in their study. This difference can be due to health care service utilization and nutritional status which might have resulted in a lower complication rate. Pre-term delivery and LSCS was present in 44.6% and 29.9% of patients respectively which is supported by other studies conducted in India^{12,13} and studies carried out by Sheikh et al and Shah et al in Pakistan.^{9,14} An investigation reported from Cameroon.¹⁵ Stress and anatomical immaturity can be causal factors for these results.

The findings of the present study depicted a significant association of anemia, preterm delivery, and LSCS with residential status. Similarly, a statistically significant association was observed between educational status with eclampsia and pre-eclampsia. Similar result was also reported in a cross-sectional study conducted in South Ethiopia.¹⁶ This study shows a high preva-

lence of teenage pregnancy in the area. The dilemma is lack of knowledge, non-availability of health services in rural areas, and poor antenatal care which predispose teenagers to these adverse events.

CONCLUSION

Teenage pregnancy is associated with adverse maternal outcomes including eclampsia, pre-eclampsia, anemia, preterm delivery, and Lower Segment Caesarean Section.

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Author's Contribution

SG supervised the study as the principal investigator. WS contributed in searching the literature. SS performed statistical Analysis. NL helped in writing the discussion. Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of Interest

Authors declared no conflict of interest

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None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.