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Original Research Article

"Clinical Profile on Epidemiology of Adolescent Pregnancy and Labour"

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Abstract: ***Introduction****:* Adolescence is a period of rapid physical, emotional, cognitive andsocial growth and development. Generally adolescence begins at age11-12 years and ends between 18 and 21. In a developing country, once a girl from an economically disadvantagedfamily has reached puberty; the greatest threat to her life is pregnancyand childbirth. In recent decades adolescent pregnancy has become an importanthealth issue in a great number of countries, both developed and developing. ***Objective:*** To assess the clinical study on epidemiology of adolescent pregnancy and labour. ***Materials and Methods:*** This is a prospective case control study was carried out in the Department of Obstetrics and Gynaecology of Dhaka Medical College Hospital, Dhaka, Bangladesh. One hundred pregnant women of 15 to 19 years case group and One hundred pregnant women of 20 to 35 years control group who were admitted in hospital between 1st January 2008 to 1st July 2008.The type of study followed was a prospective case control study wherepatients belonging to 15 to 19 years age group constitute the cases andthose belonging to 20-35 years age group constitute the control group. ***Results:*** This study shows frequency of adolescent patients admitted in DMCH was 5.75%. The majority of adolescent motherswere between more than 17 years upto 19 years (88%). The majority of adolescent mothers were muslim (86%).88% of older group were muslim. Adolescentgroup in this series shows 29% from different places outside of Dhakacity. 20% of older controls were from outside the Dhaka city.Most of the adolescent group were house wife (86%) and older controlwere 84% house wife. 68% of adolescent patient belong to the monthlyincome group below Tk. 3000 and 52% of control group belong to thisincome group38% adolescent mothers were illiterate, 32% hadprimary education, 8% had secondary education and 22% could signonly.33% of this group of adolescent patient never heard about anycontraceptive device. On the other hand 5% of control group neverheard about it. 94% of adolescent group never used contraceptives.54% of pregnancies among adolescents was unplanned. On the otherhand 30% of pregnancy among older control group was unplanned.55% of adolescent patient had no antenatal checkup, 18% had irregularantenatal checkup and 27% had regular checkup. Whereas in control group 45% had regular antenatal checkup. 89% of adolescents were primigravida and 38% of control group were primigravida. 64% of adolescent mothers were anaemic, 26% had oedema, 14% were proteinuric and 22% were

hypertensive. Eclampsia, preeclampsia, preterm labour, prolong labour, obstructed abour, PROM were significantly higher among the adolescent mothersthan among the older mothers. 54% of adolescent mothers have normalvaginal delivery, 4% had assisted breech delivery, 2% had forcep delivery, 4% had ventouse delivery and 36% had caesarean section. Post-partum haemorrhage, postpartum eclampsia, puerperal sepsis, wound infection were more in adolescent group thanin control group. 41% of adolescents developed complications and 12%of older group developed complications.Mortality in adolescent is higher than the control group. 60% ofneonates of adolescent mothers were healthy and 76% of neonate's ofolder mothers were healthy. Adolescent mothers delivered low birthweight babies in larger number than older control group. 9% perinatalmortality in adolescent group and in the control group it was 6%. ***Conclusion****:* Adolescents are real assets and can be the driving force of positivechange in the society. They need to be brought up with care andtenderness and it is our duty to help them grow safe and with highquality of life.Adolescence pregnancy is universally accepted as high-risk pregnancy.

Keywords: Epidemiology, Adolescent Pregnancy, Clinical Outcome.

INTRODUCTION

Adolescence is a period of rapid physical, emotional, cognitive andsocial growth and development. Generally adolescence begins at age11-12 years and ends between 18 and 21[1]. WHO defines adolescence as the period between 10 and 19 years ofage which broadly corresponds to the onset of puberty and the legal ageof adulthood [2]. Adolescence (Latin: adolescere= to grow) is the period of life duringwhich the carefree child becomes the responsible adult [3]. For years it has been accepted that adolescent is a high risk pregnancy.In a developing country, once a girl from an economically disadvantagedfamily has reached puberty, the greatest threat to her life is pregnancyand childbirth. In South Asia, 54% of teenagers are married compared to24% in Southest Asia and only 2% in East Asia. In Bangladesh 90% ofgirls are married before the age of 18 and 33% of these below the ageof 19 years are mothers of two children [4]. The adolescent mother is more likely to developed anaemia, eclampsiaand obstructed labour as reported from Nigeria and Bangladesh. Thehighest MMR of 38 per 1000 was seen in girls 15 years and youngercompared to 5.8 in the 21-24 years age group. In Bangladesh MMR inthe 15 to 19 years age group was almost twice the rate seen in 20-34years [4]. In 1998 Halida *et al*. have found that marriage in Bangladesh is verycommon between age 15 to 19 years. 69% of female marry by thisage [5]. In 1998 BIRPERHT study showed that 16.7% were married teenagers and 7.8% were pregnant [6]. In 1996 Bangladesh Bureau of Statistics showed that 66% adolescentsare married out of which 33% become pregnant and the fertility rate ofadolescents in Bangladesh is 78/1000 which is high in comparison tothe developed countries [7]. In recent decades adolescent pregnancy has become an importanthealth issue in a great number of countries, both developed anddeveloping. However, pregnancy in adolescence is by no means a newphenomenon. In large regions of the world (eg. South Asia, the Middle East and North Africa) age at marriage has traditionally been low inkingship based societies and economics. In such cases most girls aremarried soon after menarche, fertility is high and consequently manychildren are born from adolescent mothers [8]. Many pregnant adolescents come from low socioeconomic backgroundand have poor education and perhaps poor general health due toinadequate nutrition, cigarette smoking, drug abuse or STDs. Nutrition isan important problem. So optimal careshould be given to teenage mothers, not only to improve the pregnancyoutcome but also to enhance their social, educational and emotionaladjustment [9]. Complications of labour and delivery are highly dependent on the qualityof prenatal care. Pre-eclampsia, which is more common in a firstpregnancy, occurs more frequently among adolescents than among adult women. Prematurity and small-for-dates infants are a majorproblem in adolescent pregnancies. Predisposing factors are high riskfactors such as low prepregnancy weight, poor weight gain, adversesocioeconomic conditions, cigarette smoking, anaemia, first pregnancy, and deficient prenatal care, all of which occur more commonly inadolescents. In Bangladesh marriage is common especially in rural areas at the age of 15 to 19 years. About 69% of the girls get married before crossing theiradolescence and of them 34% give birth to children exposingthemselves to major health hazards. Teenage pregnancy is fairly, common in Bangladesh due to early marriage, lower educational statusand marrying before 20 years of age [10]. Adolescent girls do not reach their adult

size during this period but theyare reproductively capable, so first pregnancy at this time carries a riskof prolonged labour and obstructed labour due to underdeveloped bonestructure [11]. Independent of socioeconomic background teenage mothers face anincreased risk of premature death later in life compared with other oldermothers [12]. An estimated 70000 adolescent mothers die each year in thedeveloping countries because they have children before they are physically ready for parenthood [13]. Complication from pregnancy and childbirth are the leading cause of death in young women aged 15 to 19years in developing countries [14]. Early teenage pregnancy and its effect cause very serious problem forthe individual, family and society as a whole in Bangladesh becausemore than 75% of adolescent pregnancies are unplanned [13]. In Bangladesh, adolescents constitute more than 23% of the totalpopulation [13]. According to Bangladesh Reproductive Health Statistics (BBS, 1998)12.7% of adolescents were already married. The higher death rate among girls compared tothat of boys aged 15 to 19 years (1.81 against 1.55 per, 10000population) is mainly due to maternal causes and in true sense it isgross violation of human rights [15]. In developed country modernization may contribute tounwanted pregnancy as a result of relaxation of traditional, culturalnorms prohibiting premarital sexual activity. But in our country earlymarriage, ignorance, illiteracy, lack of adequate healthcare facilities, failure to seek family planning advice due to social taboos and shynessare the cause of this problem [16]. In our country, maternal mortality ratefor 13 to 19 years group is 5.8/1000 compared to 1.8/1000 for 20 to 25.Neonatal death rate was 80/1000 for younger group and 43/1000 for older group [16]. Inspite of government's efforts to raise the legal age of marriage from 16to 18 years, most marriage in villages occur soon after the menarchae. These early marriages result in high proportion of first pregnanciesbefore age 19 and consequent high rates of complications such asanaemia, abortion, prematurity, toxaemia of pregnancy, eclampsia and obstructed labour with subsequent fistula formation and uterineprolapse. This study is designed to determine the correlation between thematernal age and outcome of pregnancy in patients admitted in DhakaMedical College Hospital, Dhaka by which suggestions will be made forimproving maternal and child health care in Bangladesh.

MATERIALS AND METHODS

This is a prospective case control study was carried out in the Department of Obstetrics and Gynaecology of Dhaka Medical College Hospital, Dhaka, Bangladesh. One hundred pregnant women of 15 to 19 years case group and One hundred pregnant women of 20 to 35 years control group who were admitted in hospitalbetween 1st January 2008 to 1st July 2008. The type of study followed was a prospective case control study wherepatients belonging to 15 to 19 years age group constitute the cases andthose belonging to 20-35 years age group constitute the control group. A much larger sample from control group could have been taken to ensure representativeness of the sample but due to time and resourceconstraints a sample of 100 was selected as control group following thesame sampling scheme as stated earlier.

After formulation of aims and objectives of the study, a data sheet andquestionnaire form (Appendix) were made for recording all relevant parameters and these were then compared with control group andcases.Careful history and thorough clinical examination was performed withthe aim of detecting clinical symptoms and signs suggesting or warning complication of pregnancy and delivery including perinatalcomplications.At entry into the study, a detailed history about socio-demographic, pastobstetric history, present history, record of antenatal checkup andpresent complications where studied and a comparison of thesevariables were made between teenagers and older group.On admission into the labour ward a questionnaire was filled up. Age of the patients was calculated in years and was recorded accordingly.

Inclusion criteria

- Known gestational age
- Singleton pregnancy
- Absence of medical disorders

Case: One hundred pregnant women of 15 to 19 years admitted in hospitalbetween 1st January 2008 to 1st July 2008.

Exclusion criteria:

- Patients having known medical diseases which can adverselyaffect the outcome
- Essential hypertension
- Diabetes mellitus
- Kidney disease
- Heart disease
- Twin pregnancy

Control: One hundred pregnant women of 20 to 35 years who were admitted intothe hospital during the same period.

Exclusion criteria:

- Age > 35 years
- Grand multipara - para more than 5

- Age 19 years and less
- Medical diseases
- Essential hypertension
- Diabetes mellitus
- Kidney disease
- Heart disease
- Twin pregnancy

Neonatal assessment

1. Condition at birth was assessed by Apgar score at 1 and 5 minutes.
2. Babies were examined for any congenital malformation.
3. Perinatal mortality rate was calculated death after 28 weeks of gestation up to death within one week of delivery per 1000 live birth.
4. The birth weight of the babies of two groups of patient were recorded Ingrams and analyzed.

DATA ANALYSIS

Data were analyzed by using computer based programme statistical package for social science (SPSS) for window version 12.

OBSERVATION AND RESULTS

The overall percentage of adolescent mother during this study period among total 4592 obstetric cases admitted in Dhaka Medical College Hospital (DMCH), Dhaka, Bangladesh is 5.75% (264 cases were teenagers and 4202 were between 20-35 years old control group). Statistics significant test for difference in proportions were conducted in some of the events of both groups (Table-1) shows the frequency of adolescent patients admitted in DMCH was 5.75%.

Table -1: Distribution of admitted adolescent pregnant patient in DMCH.

Name of institute	Total No. of obs. patient	Total no. of obs adolescent patient	% of adolescent patient
DMCH	4592	264	5.75

Table 1 shows the frequency of adolescent patients admitted in DMCH was 5.75%.

Table-2: Demographic details of admitted adolescent pregnant patient and comparing it with no adolescent pregnant mother.

Age group	Case (n=100)		Age group	Control (n=100)	
	No.	%		No.	%
<17 years	12	12	20-30 years	74	74
> 17-19 years	88	88	> 30-35 years	26	26
Religion					
Muslim	86	89		88	88
Hindu	12	12		11	11
Others	2	2		1	1
Resident					
City dwellers	71	71		80	80
Non city dwellers	29	29		20	20
Occupation					
House wife	86	86		84	84
Day labourer	3	3		6	6
Housemaid	2	2		1	1
Work in garments factory	9	9		3	3
Student	0	0		2	2
Service in office	0	0		4	4
Income/ month					
<3000 TK.	68	68		52	52
3000-5000 TK.	17	17		20	20
> 5000 Tk.	15	15		28	28
Education status					
Illiterate	38	38		20	20
Can sign only	22	22		24	24
Primary education	32	32		38	38
Secondary education	8	8		18	18
Knowledge about it					
Never heard	33	33		5	5
Heard	27	27		28	28
Known about it	40	40		67	67

Majority of adolescent mothers were Muslim (86%) and 88% of older group were Muslim. Above table shows majority of adolescent mothers were between more than 17 years up to 19 years (88%). In control group majority from age20-30 years (76%). Above table shows geographical distribution of cases in this series shows 29% from different places outside of Dhaka city. 20% of older control was from outside the Dhaka city. Most of the adolescent group was house wife (86%) and older control were 84% house wife. 68% of adolescent patient belong to the monthly income group below Tk. 3000and 52% of control group belong to this income group. Above tables shows 38% adolescent mothers were illiterate, 32% had primary education, 8% had secondary education and 22% could sign only. In control 20% illiterate, 24% could sign only, 38% had primary education and 18% had secondary education. 33% of this group of adolescent Patient never heard about any contraceptive device. On the other hand, 5% of control group never heard about it. 94% of adolescent group never used contraceptives. Only 3% of this group used regularly but among control, 41% regularly used contraceptive device. The differentiation was statistically significant between two groups (P<0.05) (Table-2).

Table-3: Antenatal checkup.

Antenatal checkup	Case (n=100)		Control (n=100)		X^2	P value
	No.	%	No.	%		
Regular	27	27	45	45	7.141	0.028
Irregular	18	18	15	15		
No checkup	55	55	40	40		

Table-3 shows 55% of adolescent patient had no antenatal checkup, 18% had irregular antenatal checkup and 27% had regular checkup. Whereas in control group 45% had regular antenatal checkup and 15%had irregular checkup and 40% had no checkup. The differentiation was statistically significant between two groups (P<0.05).

Table-4: Parity distribution.

Parity and gravidity	Case (n=100)		Control (n=100)		X^2	P value
	No.	%	No.	%		
Primigravida	89	89	38	38	56.110	0.001
Multigravida	11	11	62	62		

Above table-4 shows 89% of adolescents were primigravida and 38% of control group were primigravida. The differentiation was statistically significant between two groups (P<0.001).

Table-5: Clinical state.

Parameters	Case (n=100)		Control (n=100)		X^2	P value
	NO.	%	NO.	%		
Anaemia	64	64	40	40	6.666	0.010
Jaundice	0	0	0	0		
Oedema	26	26	4	4		
BP						
<90 mmofHg	76	76	90	90	8.150	0.017
90-110 mmofHg	14	14	8	8		
>110 mmofHg	10	10	2	2		
Hypertension	22	22	2	2	21.429	0.001
Albumin in urine	14	14	4	4		

Table-5 shows clinical examination findings and difference between two groups. 64% of adolescent mothers were anaemic, 26% hadoedema, 14% were proteinuric, 22% were hypertensive. In control group 40% were anaemic, 4% had edema, 4% were proteinuric and 2% hypertensive. The differentiation was statistically significant between groups (P<0.05)

Table-6: Mode of delivery.

Mode of delivery	Case (n=100)		Control (n=100)		X^2	P value
	NO.	%	NO.	%		
Normal vaginal delivery	54	54	59	59	0.020	0.887
Assisted breach delivery	4	4	0	0		
Forceps	2	2	0	0		
Ventouse	4	4	3	3		
Caesarean section	36	36	38	38		
Destructive operation	0	0	0	0		
Laparotomy	0	0	0	0		

Table-6 shows 54% of adolescent mothers have normal vaginal delivery, 4% had assistedbreech delivery, 2% had forcep delivery, 4% hadventouse delivery and 36% had caesarean section. Whereas in controlgroup caesarean section was 38% and normal vaginal delivery 59%. The differentiation was not statistically significant between two groups (P>0.05).

Table-7: Maternal mortality.

Cause of maternal death	Case (n=100)		Control (n=100)	
	No.	%	No.	%
Eclampsia	1	1	0	00
Sepsis	1	1	0	00
DIC	0	0	0	00

Table-7 shows the mortality in adolescent is higher than the control group.

Table-8: Perinatal morbidity.

Foetal	Case N=100		Control N=100		X^2	P value
	No.	%	No.	%		
Prematurity	16	16	6	6	8.889	0.114
Birth asphyxia	27	27	19	19		
IUGR	2	2	1	1		
Birth injury	2	2	0	00		
Jaundice	7	7	4	4		
Septicaemia	2	2	0	00		

Table-8 shows perinatal morbidity in two groups. The differentiation was statistically not significant between two groups (P>0.05).

Table-9: Perinatal mortality.

Death	Case N=100		Control N=100		X^2	P value
	No.	%	No.	%		
Antepartum & intrapartum	7	7	4	4	0.227	0.634
Neonatal	2	2	2	2		
Total	9	9	6	6		

Table-9 shows 9% perinatal mortality in adolescent group and in the control group it was 6%. The differentiation was statistically notsignificant between two groups (P>0.05).

DISCUSSION

In this study, we evaluated the socio-demographic profile, with Adolescent Pregnancy compared with Case and control group. This study shows frequency of adolescent patients admitted in DMCHwas 5.75%. The majority of adolescent mothers were muslim (86%).88% of older group were muslim. The majority of adolescent motherswere between more than 17 years upto 19 years (88%). Bangladesh is a developing country with about 140.3 million population.About 50% of them are women and 15.4% belonging to less than 20years of age. 30.57 million Women are between the ages of 15-49 years (Cencus 2001 primary report) [17]. In my study adolescent pregnancy is

5.75%.According to Bangladesh Bureau of Statistics [18], which shows thatmarriage rate of adolescents per 1000 adolescent girl is 8.5. In 1998 Halida *et al*. have found that marriage in Bangladesh is verycommon between age 15 to 19 years. 69% of female marry by this age [19]. In 1996 Bangladesh Bureau of Statistics showed that 66% adolescents were married out of which 33% became pregnant [18]. Adolescent group in these series shows 29% from different places outside of Dhakacity. 20% of older controls were from outside the Dhaka city. Most of the adolescent group were house wife (86%) and older controlwere 84% house wife. 68% of adolescent patient belong to the monthlyincome group below Tk. 3000 and 52% of control group belong to thisincome group38% adolescent mothers were illiterate, 32% hadprimary education, 8% had secondary education and 22% could signonly.33% of this group of adolescent patient never heard about anycontraceptive device. According Susan *et al*. [20], pregnancy of teenage patient's was32%In South East Asia 54% of teenagers are married compared to only 2%in East Asia [21]. In US about 11% of all births in 2002 were to teens (ages 15 to 19) [22]. According to Sundari TK 13% pregnant women were adolescent between 15 and 19 years of age [23]. In a study of Zeck W *et al*. [2] 51% of adolescents had been 17years old at the time of delivery.Table IV shows that 29% of adolescents came from places outsideDhaka. Study of Sarker *et al*. shows 51.3% of adolescent mothers come from rural areas [25]. My study shows that 68% of the adolescent mothers have come fromlow socioeconomic class. The increase risk of adverse pregnancyoutcome associated with low maternal age has largely been attributed topoor socioeconomic conditions among teenagers [26]. Study of Yodev and Yong showed most of the teenage mothers were from a lowersocioeconomic background [27]. Table V shows that most of adolescent group are housewife (86%).Cooksey et al. have shown that increases maternal education leads tofirst intercourse at a later age and a higher likelihood of usingcontraceptives at first intercourse [28]. In a study of Zeck *et al*. [24], two thirds of the adolescents had notused any type of contraception before becoming pregnant.DHS and UNIS (1999-2000) [29] and BDHS report (1999-2000) [30] show that contraceptive prevalence in Bangladesh is 53.8%. My study shows thatonly 6% adolescents used contraceptives and 94% of adolescent's neverused contraceptives. According to BANBEIS report 2003, 65.5% Bangladeshi are educated [31]. In my study 32% adolescent mother have primary education and 8%have secondary education. In study of Zeck *et al*. [24] the majority of pregnancy among theadolescents was unintended (84%). Table IX shows that 54% ofpregnancies were unplanned, main causes of which are ignoranceabout contraceptives. According to BDHS report (1999-2000) 48% have antenatal checkup inBangladesh [30]. Study of Yodev states that adolescent mother useprenatal care less than the older mother [27]. In my study 27% adolescenthad regular antenatalcheckup and 55% adolescent had no antenatalcheckup. But 45% of the older mothers had regular antenatal checkup. According to Osbourne G K *et al*. a study shows that "anaemia was theonly antenatal complication that was significantly increased [32]. Study ofSusan *et al.* shows that pregnancy with maternal anaemia is 26.3%, UTI-19.9%, respiratory tract infection- 5.4% [33]. My study shows that 64% of adolescent mothers are anaemic, 26% has oedema, 22% arehypertensive and 14% have proteinuria. Study of Sarker CS et al. showed that eclampsia and pre-eclampsia affected teenage mothers (10.6%) were much more frequent than mother of 20 yearsofage andabove (5.2%). Incidence of 30% low birth weight baby, 21.1%prematurity and 16.4% perinatal mortality were recorded [25]. In a study it is showed that the normal more of deliverywas commoner in teenagers (89.5%) in comparison to control group (72%) probably because of higher number of low birth weight baby. There was lower caesarean and instrumental delivery [34]. According toBritish journal of obstetrics and gynaecology-the caesarean sectionrates were not higher for younger adolescents in comparison to the control group [17]. My study shows that 54% adolescents had normalvaginal delivery, 36% had caesareanion, 2% had forceps delivery and 4% had ventouse delivery. On the other hand caesarean sectionwas 38%, normal vaginal delivery was 59%, ventouse delivery was 3%in the control group. Here caesarean section was low and vaginaldelivery was more in the adolescent group.

CONCLUSION

Adolescents are real assets and can be the driving force of positivechange in the society. They need to be brought up with care andtenderness and it is our duty to help them grow safe and with highquality of life. Adolescence pregnancy is universally accepted as high-risk pregnancy.Due to complications like ecla obstructed labour, prolongedlabour, CPD. preterm labour, low birth weight baby etc. But we caneasily reduce the number of such high risk teenage, unwanted andunplanned pregnancy through improved family planning services.We can reduce the number and severity of obstetric complicationsthrough regular antenatal check up.

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