

## LABOUR OUTCOME IN ADOLESCENT PREGNANCY

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### Summary

*Adolescent pregnancy is associated with increased risk of developing complications in both adolescent mother and neonates. It may lead to significant maternal and perinatal mortality and morbidity. To evaluate the labour outcome in adolescent and adult mothers' immediately after delivery and compare the result. A cross sectional comparative study was performed over a period of one year (September 2009- August 2010) at the obstetrics department of Chittagong Medical College Hospital. Consecutive three hundred pregnant mothers admitted for delivery that was fulfilled the inclusion criteria included in study group. Among them 150 were adolescent (13-19yrs) belongs to group A and 150 was adult (20-29 yrs) belongs to group B. Labour outcome (prolonged or obstructed, mode of delivery, stillbirth, birth weight and birth asphyxia were recorded on a preformed questionnaire and statistical analysis done by using SPSS package for windows version 12. Adolescent mother has significant lower mean age at delivery than adults (18.61±72 vs. 23.87 ± 2.8 yrs. P< 001). Antenatal check up were also (10% vs. 26%, P < 001) infrequent in them. Spontaneous vaginal delivery significantly less (34.7% vs. 48%, P<03) and Caesarean section and instrumental deliveries higher (59.3% vs. 48% & 6% vs. 2.6%. P<.03 respectively) in adolescent. Stillbirth and neonatal death also more (3.3% vs. 1.3 & 10% vs. 4.66%, P < 049 respectively) and birth weight less (2.7 kg vs. 2.88 kg, P <0.019) in group A in comparison with group B. Incidence of low birth weight and asphyxia higher in adolescent (12.4% vs. 5.4%, P<.03 & 20% vs. 14.9% P<.024).*

*Operative deliveries, stillbirth, birth asphyxia, low birth weight and neonatal death rate significantly higher in adolescent mothers where vaginal delivery significantly less in them in comparison with adult mothers. It indicates that adolescent pregnancy was associated with adverse labour outcome.*

### Key words

Adolescent pregnancy; Cesarean section; Stillbirth; birth asphyxia; Low birth weight; Neonatal death.

### Introduction

Adolescent is the period of life (11-19yrs) during which carefree child become responsible adult. In recent years incidence of adolescent pregnancy increasing due to early onset of puberty, sexual activities in girls and relative lack of education on contraceptive methods [1]. According to BMH & MMS 2010 adolescent constitute 32% of total population of 160 million in Bangladesh and birth rate 126/1000 live births. Marriage between 15-19 years are common in Bangladesh i.e. 69% female married before 20 years. Barkat a also states that immaturity of birth canal causes prolonged or obstructed labour [2]. A girl become parent before becoming an adult and both mother and fetus competes for nutrition. Usually growth restriction of fetus occur and cannot tolerate stress of labour results fetal distress and to manage this problem incidence of cesarean section/ instrumental delivery increased [3]. Lack of awareness, illiteracy, low socioeconomic condition, delay in seeking ante and intranatal care are the factors adding risk to increased operative interference and perinatal complications in adolescents[4]. In present study we have evaluated labour complications, mode of delivery and selected perinatal outcome i.e. stillbirth, low birth weight, birth asphyxia in adolescents and adult mothers in Chittagong Medical College Hospital and compare.

### Materials & methods

A cross sectional observational study was conducted in Obstetrics department of Chittagong Medical College Hospital from 1<sup>st</sup> September 2009 to 30<sup>th</sup> August 2010. Objective of this study to see labour outcome in adolescents and adult pregnant women and compare between them.

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Three hundred pregnant mothers admitted in labour ward consecutively included in this study. Among them 150 were adolescents (13-19yrs) belongs to group A and 150 were adult (20-29 yrs) in group B. Inclusion criteria was single tone full term pregnancy ( 38wks to 42 wks) with cephalic presentation. All other pregnancies having preexisting illness/ GDM/ Parity > 2/history of cesarean section were excluded. With informed consent age of the patient calculated in years from guardian's statement and records. Detail about parity and antenatal check up were enquired and noted in preformed data sheet. Gestational age calculated from LMP or early USG if available and clinical assessment. Details of delivery events i.e. prolong labour, obstructed labour and mode of delivery i.e. cesarean section , forceps delivery and ventouse delivery and perinatal outcome like stillbirth, low birth weight and birth asphyxia and neonatal death were observed and recorded .Calculated data were compiled, checked and analyzed by using statistical soft ware SPSS version 12 for windows. Result were tested by Chi- square test and unpaired student's 't' test and P value less than 0.05 considered as statistically significant.

### Results

Among 300 patients 150 were adolescents (13-19yrs) constituting study group A and 150 were adult (20 yrs- 29 yrs) group B belongs to comparison group.

In table I- Age of study group were between 16-19 years with a mean of  $18.61 \pm 0.72$  SD and in comparison group  $23.87 \pm 2.8$  SD, P value is <0.001 i.e. Highly significant. Table II shows that in group A 97% were primi para and 2.7% Para two, in B group 84% Para 1 and 16% Para 2. In group A antenatal checkup less than group B (10% vs. 26.7%,  $P < 0.001$ ) which was highly significant.

Table III shows that labour was initiated spontaneously in group A (63.4% vs.51%) and induction of labour given in both group (36.6% vs.48.2% . $P < 0.4$ ) which were significantly higher in adult mothers. Regarding mode of delivery vaginal delivery were significantly less in adolescent (33.3% vs.46.6%,  $P < 0.04$ ).

But operative delivery were more in them i.e. cesarean section rate were 59.3% vs. 48.7% and instrumental delivery 7.4% vs.4.7%,  $P < 0.03$  which was statistically significant.

In table IV complications during labour are mentioned. Obstructed labour more in adolescents in comparison to B (14.2% vs.10.6%), and fetal distress also more in A group 24.2% vs. 17.1%. In contrast hemorrhage and prolong labour more in adult group (5.2% vs. 14.9%) and (45.5% vs 55.3%) genital tract injury occurred only in adolescents 6.5%. Eclampsia was also more in adolescent (3.9% vs. 2.1%).

Table V shows that fetal outcome in both groups. In adolescent 90% baby born alive where as in adult group 95.4% baby alive. Stillborn and neonatal death were more in adolescent (3.3% vs. 1.35% and 6.7% vs. 3.3%,  $P < 0.049$ ) which was statistically significant. Birth asphyxia also more in group A (20% vs. 14.1%,  $P < 0.024$ ).

In table VI observation shows that birth weight of new born in both groups. Mean birth weight in adolescent is significantly less than adult ( 2.78 vs. 2.88,  $P < 0.019$  ) and incidence of low birth weight were more (12.4% vs. 5.4%,  $P < 0.03$ ) in group A.

**Table I:** Distribution of age among the study subject

	N	Mean	± SD	Median	Range	Sign.
GROUP A	150	18.61	0.72	19.00	16-19	P=0.000
Age (Years) GROUP B	150	23.87	2.80	24.00	20-29	Highly
TOTAL	300	21.24	3.33	19.50	16-29	Significant

**Table II :** Distribution of use of contraceptive, planned pregnancy and utilization of ANC

Pregnancy Related Variables		Study groups				Total		Sig.
		Group A		Group B		N	%	
		n	%	N	%	N	%	
Ante Natal Check Up	Regular	87	58.0	108	72.0	195	65.0	P=0.036
	Infrequent	20	13.3	15	10.0	35	11.7	S
	None	43	28.7	27	18.0	70	23.3	
Status of Pregnancy	Planned	113	75.3	122	81.3	235	78.3	P=0.207
	Unplanned	37	24.7	28	18.7	65	21.7	NS
Contraceptive History	Used	52	34.7	42	28.0	94	31.3	P=0.213
	Not Used	98	65.3	108	72.0	206	68.7	NS
Number of delivery	One	146	97.3	126	84.0	272	90.7	P<0.001
	Two	04	2.7	24	16.0	28	9.3	Highly S
	Total	150	100.0	150	100.0	300	100.0	

**Table III :** Distribution of labour and delivery related variables among the Study groups (with X<sup>2</sup> test as a test of significance)

Delivery variable		STUDY GROUPS						Sig.
		Group A		Group B		Total		
		N	%	N	%	n	%	
Initiation of labour (n = 284)	Spontaneous	92	63.4	72	51.8	164	57.7	P = 0.047 Significant
	Induced	53	36.6	67	48.2	120	42.3	
Mode of delivery (n = 300)	Spontaneous vaginal delivery	50	33.3	70	46.6	120	40	P = 0.030 Significant
	Instrumental vaginal delivery	11	7.4	07	4.7	18	6	
	LSCS	89	59.3	73	48.7	162	54.0	

**Table IV :** Distribution of complications during labour among the study groups (n = 124)

Complications during labour	Study groups					
	Group A		Group B		Total	
	n	%	n	%	N	%
Prolonged labour	35	45.4	26	55.3	61	49.2
Obstructed labour	11	14.3	05	10.6	16	12.9
Fetal distress	19	24.7	08	17.0	27	21.8
Hemorrhage	04	5.2	07	14.9	11	8.9
Genital tract injury	05	6.5	00	0.0	05	4.0
Sepsis	3	3.9	1	2.1	04	3.2
Total	77	100.0	47	100.0	124	100.0

**Table V :** Distribution of foetal outcomes among the study group (with X<sup>2</sup> test significance)

Foetal Outcome		Study Groups				Total	
		Group A		Group B		N	%
		n	%	n	%		
Baby alive		135	90.0	143	95.4	278	92.7
Still born		05	3.3	02	1.3	07	2.3
Neonatal death		10	6.7	05	3.3	15	5.0
Total		150	100.0	150	100.0	300	100.0
x <sup>2</sup> value 1.410. P=0.049, Significant							
Sex of the baby (n=293)	Male	78	53%	76	51.4	154	52.6
	Female	67	46.2	72	48.6	139	47.4
Birth asphyxia (n=293)	Present	29	20.0	22	14.9	51	17.4
	Absent	116	80.0	126	85.1	242	82.6
	P=0.024 Significant						

**Table VI :** Distribution of foetal variables among the study groups (With unpaired t –test of significance)

		N	Mean	± sd	Median	Range	Sign.
Birth weight (Kg)	Group A	145	2.78	0.37	2.80	1.5–3.4	P = 0.019 Significant
	Group B	148	2.88	0.37	2.80	2.2–4.4	
	Total	293	2.83	0.37	2.80	1.5–4.4	
Apgar Score	Group A	145	7.10	0.86	7.00	4–8	P = 0.024 Significant
	Group B	148	7.32	0.76	7.3	5–9	

### Discussions

In many studies the outcome of adolescent pregnancies was unfavorable compared to adult women. Objective of this study was to determine and explore the effect of young age on outcome of labour, whether they are associated with increased adverse birth outcome independent of known confounding factors.

In present study, the mean age of adolescents was 18.61 years, which was significantly lower than that of adult group (23.87 yrs P < 0.001). In Bangladesh 69% marriage during adolescent results in high proportion of adolescent pregnancies [2]. Regarding contraceptive use in group A is less than adult group (21% vs. 72%) according to BDHS 15.3% teenage not used any method in Bangladesh [5]. Illiteracy, lack of awareness, counseling about contraception, fear of future fertility may be the factor for lower contraceptive prevalence rate. In both groups only (18.4% vs. 24.7%) pregnancies were planned. So delay in marriage therefore a consequent delay in pregnancy gives opportunity for higher education and planned pregnancy. Current study shown only 10% adolescent mother receive antenatal care and adult group 20%. Nahathi W et al. reported adolescent mother had antenatal care less than four times than adult (13.4% vs. 25.9% [6]). In developing countries antenatal care often unsatisfactory but care of adolescent mother falls short even of national standard (48%) is insufficient [6].

In this study significant number were primi para 97.3%, para two only 2.7% whereas in adult group 16% para two. It may be due to age limit of adolescent, they have less time to be pregnant for second time.

Adolescent mothers had spontaneous labour 63.4% and 36.6% needed induction. In comparison 51.8% adult mother had spontaneous labour and 48.2% needed induction in this study and difference was statistically significant. It was also shown 34.7% vaginal delivery and 7.4% instrumental delivery, cesarean section rate 59.7% in group A and in B group 46.6% vaginal delivery, 4.7% instrumental delivery and cesarean delivery 48.7%. So there were significant number of ( $P < .03$ ) higher operative delivery in adolescent mothers. In one study done by Amber T et al. cesarean was the major route of delivery in adolescent (43.6% vs.10.6%,  $P < 0.001$ ) and vaginal delivery was lower (60% vs. 85%,  $P < 0.001$ ) [1]. Another study done in BSMMU shown 44% had Cesarean section which was higher in adolescent mother [7]. In one study done in Bangkok hospital shown prevalence of cesarean section is significantly higher and major route than adult (18.7 vs. 13.3%,  $P < 0.006$ ) [8]. In other study done in university hospital in Jordan shown higher incidence of forceps delivery in adolescent [9]. Present study matches with these studies. Immaturity of birth canal and growth restriction of fetus may be the cause of increased operative delivery. Regarding complication during labour in current study obstructed labour and fetal distress were more in group A in comparison with group B (14.3% vs. 10.6%) and (24.7% vs. 17% which was matched with one study in which they shown cephalo pelvic disproportion, Obstructed labour higher in adolescent mothers [10]. In contrast incidence of hemorrhage (5.2% vs.14.9%) and prolonged labour (45.5% vs.55.3%) were higher in adult group.

In present study 88% baby born alive, stillbirth rate 53.3% vs. 33% and death within 7 days of birth 6.7% vs. 3.9%. So total perinatal death was (12% vs. 6.6%,  $P < 0.049$ ) significantly higher in adolescent mothers. Similar result shown in some studies in South Asia and Jordan [11, 12]. Kumar A et al. shown group A associated with high fetal and neonatal mortality (1.9% vs. .3%, 3.8% vs. .5%,  $P < .05$ ) respectively [13]. In another study done in Princes Royal hospital, Hull UK were 13.6 vs. 15.7% lower in adolescent not matched with this study may be due to better neonatal care in developed country [14]. Birth asphyxia in group A significantly higher (20% vs. 14.91%,  $P < 0.024$ ) in present study. Among 293 alive baby born mean Apgar score at birth in adolescent was significantly lower than

adult group (7.1 vs. 7.3,  $P < .04$ ). Higher incidence of birth asphyxia and low Apgar score shown in some studies [15]. Growth restriction of fetus cannot tolerate delivery stress may be possible cause of low Apgar score, birth asphyxia and neonatal death.

In current study birth weight of the baby of group A significantly less (2.78 vs. 2.88,  $P < .01$ ) in comparison with adult group. Incidence of low birth weight also significantly more (12.4% vs. 5.4%,  $P < .03$  in adolescent. Sariat B et al. Described that incidence of low birth weight in Bangladesh is 30%, In Pakistan is 9.9% [16]. This finding matched with current study. Judith B et al. find in her study at Philippine birth weight of the baby of adolescent mothers were less than adult groups (2.7 vs. 2.8,  $P < .01$ ) [17]. which was completely matched with this study and in some other studies also shown same result [18, 19]. Low birth weight babies have increased risk of perinatal mortality and morbidity. Proper antenatal care and balanced nutritional supplement improved mean birth weight [20].

#### Conclusion

Adolescent pregnancy has poor outcome of labour. So women have encouraged being married and first pregnancy after adolescent period. Adolescent pregnant mother addressed as high risk and factors responsible for poor outcome of labour must be identified and treated earlier to improve this condition.

#### Disclosure

All the authors declared no competing interest.

#### References

1. Tufail A, Halima A, Hasmi. Maternal and Perinatal outcome in teenage pregnancy in a community based hospital. Pakistan journal of Surgery. 2008; 24(2):130-134.
2. Barkat A, Adolescent and youth reproductive health in Bangladesh. BGOG 2003;15 3):1-10.
3. Bari W, Chowdhury RT, Islam MA, Chacrabarti N, Akhter H A H. The determinants of perinatal mortality in rural Bangladesh. European J of Contra & Repro H C. 2002;7(48):216-222.
4. Paranjothy S, Broughton H, Adappa R, Fone D. Teenage pregnancy : who suffers? Arch Dis Child. 2009;94:239-245.
5. Prosannajid S. Determinants of adolescent fertility behavior in Bangladesh. Soc Sci. 2009; 4(6):680-684.

6. Nahathai W, Pitcha P, Somkid P. Incidence & complications of teenage pregnancy at Chonburi hospital. *J Med Assoc Thai.* 2006; 89(4):118-123.
7. Sultana N, Begum S, Parveen T, Haque S R, Ahmed S. Teenage pregnancy and its outcome in Bangladesh; Has the situation improved? *BJOG.* 2004; 19(4):123.
8. Ekachai K, Supanan C, Kasoran T, Suvanna A, Uriwan C. Outcome of teenage pregnancy in Rajavithi Hospital Bangkok. *J Med Assoc Thai.* 2010; 93(1):1-8.
9. Ramahi MA, Shawqi S. Outcome of adolescent pregnancy at University hospital Jordan. *Arch Gynecol Obstet.* 2006;273:207-210.
10. Province N, Suradet B, Chiraphorn M, Ngamboon R. Epidemiology and outcome of teenage pregnancy Wingsha district. *Med Asso Thai.* 2008; 84(6):21-26.
11. Acharya DR, Bhattari R, Poobalan A. Factor associated with teenage pregnancy in south Asia. *Health Science J.* 2010;4(1):3-6.
12. S Ziadeh. Obstetrics outcome of adolescent pregnancies in North Jordan. *Arch Gynaecol obstet.* 2001; 265:26-29.
13. Kumar A Singh T, Basu S, N Pandey S, V Bhargava. Outcome of teenage pregnancy. *Ind J of Paed.* 2007;74(10):927.
14. Konje JC, Palmer A, Watson A, Hay DM, Imrie A, Ewing P. Early teenage pregnancies on Hull. *Br J obst Gynaecol.* 2002;99(12):969-973.
15. Usta IM, Zoorob D, Abu Musa A, Naassan G, Nassar AH. Obstetrics outcome of teenage pregnancies compared with adult pregnancies. *Acta Obstet Gynaecol Scand.* 2008;87(2):178-183.
16. Sareer B, Linda M, Keneth M, Payne R, Lisboa P. Risk factor for low birth weight in the public hospital at Peshwar, NWFP -Pakistan. *BMC public Health.* 2008;8:197.
17. Judith BB, Linda SA. Assessing the net effect of young maternal age on birth weight. *Am J Hum Biol.* 2003; 15:733-740.
18. Aysun O, Mehmet Z, Barsen G. Adolescent pregnancy in west turkey. *Med Assoc Saudi.* 2006; 27(8):1177-1182.
19. PC Chandra, HJ Scheavello, B Ravi, AG Weinstein, FB hook. Pregnancy outcome in urban teenagers. *Int J of Gynae & Obst.* 2009; 79:117-122.
20. J M. Wallace, J S. Luther, J S Milne, R P Aitkin. Nutritional Modulation of adolescent pregnancy outcome-A review. doi;10.1016/j-placenta.2005.12.002.