

Adolescent Pregnancy: Associated Risk Factors with Maternal and Fetal Outcome at Maternity Hospital, Kathmandu.

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Abstract

This is a prospective study of the associated risk factors along with the maternal and fetal outcome among the 500 adolescent pregnant women admitted in the Maternity Hospital during the period of three months from Jestha to Srawan, 2059. The incidence of adolescent pregnancy was found to be 10.25% among the total number of Obstetric cases (5424) admitted in the Maternity Hospital. The major risk factors associated with the adolescent pregnant women were found to be low literacy, low socioeconomic status, lack of awareness on sexual and reproductive health and early marriage (18yr) with early pregnancy (19yr).

Moreover, 34.6 % of these adolescent pregnant women had not attended the regular antenatal checkup and 71.6% had no Iron or nutrients intake during their pregnancy. These factors had been found playing vital roles for anaemia, hypertensive disorders with pre-eclampsia along with the outcome of premature or low birth weight babies.

Thus, with these observations and findings, it has been highly recommended that the marriageable age should be increased up to 20 yrs age for the adolescent girls with special emphasis on family planning services and adolescent friendly clinical services. At the same time the qualitative and easily affordable antenatal services should be available besides promoting the educational status and socio-economic well being as a whole.



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1. Introduction

1.1 Background of the study

Adolescence is the period of physical, psychological and social maturing from childhood to adulthood. Generally the term adolescence refers to individual between the ages of 10-19 years of age .¹ Because of their biological, psychological and social factors adolescents face many health risk and problems.,

Teenage mothers are more likely to suffer from severe complications during pregnancy and childbirth, which can be detrimental to the health and survival of both mother and child ². In fact, teenage pregnancy with high fertility, poor nutrition, and poor parenting skills are some of the problems for low birth weight, increased neonatal, infant mortality and maternal death.⁸ Although nutrition, support and pre-natal care may reduce some complications, the maternal age has an independent influence on relative risks. However, in developing as well as in developed countries, pregnancy during adolescence has adverse effects on both maternal as well as fetal outcome.

Adolescents account for 1/5 of the world population. According to 1995 data, the global adolescent population is nearly 1.1 billion, 913 million in developing in countries and 160 million in developed countries. In Nepal, adolescents comprise more than 1/5 (22%) of the total population and because of high fertility, the population of adolescents is expected to be increased further. The existing study shows that nearly 50% of 15-19 years old adolescent girls and 20.6 % of the adolescent boys aged 15-19 years old are married (1991 census) ³.

According to Nepal Family Health Survey (NFHS, 1996), 24% (1/4) of the adolescent girls were pregnant or mothers with their first child. The contraceptive prevalence rate (CPR) was reported to be 6.5% among adolescents. There is a higher incidence of anaemia, hypertensive disorders, abnormal or premature deliveries and greater fetal demise among adolescent mothers as compared to the older mothers ⁴. Out of all the reproductive age group 27.5% suicides, were found among the adolescents group.⁵

From the Maternal Mortality and Morbidity Study (1998)⁷ conducted by FHD/MOH, it was found that 18.9% of maternal deaths occurred among the adolescent age group. With adolescent pregnancy, there are many associated risks factors like lack of awareness, knowledge about sexual and reproductive health, early marriage, early with frequent child bearing, unsafe abortion and higher risk of STD/HIV/AIDS infection. These problems occur due to poverty, illiteracy, gender discrimination, sexual abuse and violence. Since adolescent girls have nutritional deficiencies which may lead to low birth weight, disabled or dead babies leading to higher neonatal mortality rate. The numbers of studies from the developing countries have shown higher risks in the teenage pregnancies. Thus this study has been carried out to find out the associated risk factors with maternal as well as fetal outcome in adolescent pregnancy.

1. 2. Objectives

General Objective

To analyze 500 adolescent pregnant women admitted in the hospital regarding risk factors and outcome associated with adolescent pregnancy during the study period.

Specific Objectives

Following are the specific objectives of the study:

- a. To find out the incidence of adolescent pregnancy among the admitted cases during the study period.
- b. To analyze the risk factors associated with the adolescent pregnancy.
- c. To find out the maternal and fetal outcome of the adolescent mothers.

2. Methodology

2.1. Study Design

This is a prospective and descriptive study of 500 adolescent pregnant women admitted in the Maternity hospital, Thapathali.

2.2. Time Period From 1st Jestha 2059 – 28th Ashwin 2059

2.3. Sample size and procedures

All the adolescent pregnant women (10-19 yrs) who were admitted in the hospital during the study period were enrolled. The research assistants were trained for data collection. The data was collected and filled in a structured questionnaire by research assistants, while investigators checked the questionnaires for its completion periodically. Convenience sampling technique was adopted for selection of required sample. All these data were analyzed both manually and by computer.

2.4. Instrument

The instrument schedule consisting of several-structured questionnaire, was the main instrument for collecting necessary data required for this study. This format consists of general background of adolescent pregnant women with age, ethnic group. Parity, education. Occupation, illness during pregnancy and fetal or neonatal health after delivery.

2.5. Inclusion and Exclusion Criteria

Inclusion criteria

All the adolescent pregnant women (from 10-19 years age group) with labour pain (from 22nd week of gestation) admitted in the hospital during the study period were recruited in the hospital.

Exclusion criteria

a) All the adolescent pregnant women from 10-19 years who had abortion (gestation of less than 22 weeks or fetus weighing <500 gms) were excluded from the study.

- b) All the adolescent women who have come with gynaecological Problems such as vaginitis, cervicitis, pelvic infection, menstrual Disorders, dysmenorrhoea, tumours like fibroids and polyps were excluded from the study.

2.6. Data Collection Procedure-

The research assistants were trained in filling up and collecting data through interview schedule. The verbal consent was taken from the patient before collecting the data by the research assistant. The interview schedule was filled up by asking questions, reviewing patient's personal file and by observing both mother and baby. After preparing the draft tool, it was pre-tested in about 15 cases and was revised accordingly.

2.7. Data Analysis Procedure: -

The data was coded and tabulated manually and then using computer program with the frequencies of responses of each item totaled and percentage was calculated. Hence, the quantitative data were analyzed and interpreted using simple percentage.

3. Results

3.1. Sample Description

During the 3 months period of study (1st Jestha, to 28th Srawan, 2059), total 556 adolescent pregnancies were admitted, but only 500 cases who delivered in the hospital were analyzed. The following 56 cases were excluded from the study: -

▪ Home delivery with secondary PPH	-	5
▪ Home delivery with pyrexia	-	3
▪ Home delivery with retained placenta	-	28
▪ Home delivery with 3 rd degree tear	-	1
▪ Home delivery with para urethral tear	-	2
▪ Undelivered	-	<u>17</u>
Total	-	56

Total Abortion complication cases were 555 (55.5%) of total 1000 Gynae cases.

Total Post abortion case (PAC) was 476 (85%) of 1000 Gynae cases.

A total Post abortion case in adolescent was 72 (15.12%) of total PAC cases.

Table 1:

	Total No	%
Total admitted patients	6424	-
Total Obstetric patients	5424	84.4
Total Gynae. Patients	1000	15.6
Total adolescent pregnant women admitted	556	10.3
Total delivery	5109 (+7 twins)	
Total adolescent pregnant women delivered	500	9.8

The above table shows the incidence of adolescent pregnancy in admitted population was 10.25%. and the details of the finding are as follows:

3.2. Characteristics of Adolescent Mothers

Table 2 showing age distributions of the adolescent mothers

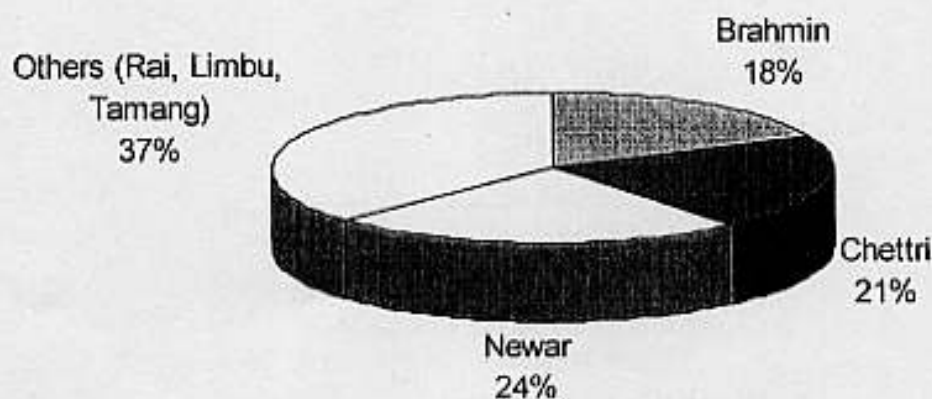
	Age /Yrs	Age of the Adolescent Mother		Age of Marriage		Age of first Pregnancy	
		No	%	No.	%	No.	%
	16	19	3.8	105	21	18	3.6
	17	102	20.4	137	27.4	104	20.8
	18	164	32.8	121	24.2	170	34
	19	215	43.0	137	27.4	208	61.6
Total		500	100	500	100	500	100

The above table shows, about three fourth (3/4) of the adolescents were between the age of 18-19 yrs and more than three fourth (3/4) of the adolescent mothers got married between the age of 17-19 yrs and almost 62 % of the adolescent mothers got first pregnancy at the age of 19 yrs.

Moreover, 46.8% of the adolescent got married with family pressure while 50.4% got married on their own.

Figure 1: Distribution of adolescent mothers by ethnic group

Distribution of Adolescent Mothers by Ethnic Group



The above chart shows that 37% of the adolescent mothers comprise of Rai, Limbu and Tamang Group.

Table 3. Showing the socio-economic status

Heating appliances	No	(%)
Gas	111	20.2
Stove	235	42.0
Fire wood	154	38.0

Only 20.2% of adolescent mothers used gas for cooking purposes and 80% used more inconvenient appliances such as stove or firewood.

Besides this, 334(66.8%) of the adolescent mothers were admitted in General ward, 149 (29.8%) in Semi Private ward. and only 17 (3.4%) were admitted in Private ward

Table 4. Showing distribution by level of education and Occupation Status

Education Level	Husband		Wife	
	No	%	No	(%)
Illiterate	179	35.8	206	41.2
Primary / Secondary	209	41.8	246	49.2
High School	89	17.8	37	7.4
Graduate	23	4.6	11	2.2
Occupation Status				
Service	142	28.04	7	1.4
Business	116	23.4	22	0.4
Agriculture	104	20.4	5	0.4
Daily Wages	96	19.2	484	1
House Wife	-	-	-	96.8
Unemployed	42	8.4		-

Regarding the educational status of the adolescent mothers, 41.2 % were illiterate, while 50% had only the basic education and 9.6% were high school graduate or graduate.

Almost 96.8% of the adolescent mothers were housewives and do not work outsidess. Only 1.8% was either in service or business. Whereas 8.4% of their husbands were unemployed. Among 500 adolescent mothers 61.2% come from the urban areas and rest 38.8% come from rural area.

It was found that 467 (93.4%) were primigravida and rest 33 (6.6%) was multigravida. Among the risk behaviors 14 (2.8%) were regular smokers and rest 9 (1.8%) were alcoholic.

3.3. Risk factors associated with adolescent pregnancy

Table 5. Showing Antenatal check up and Immunization Status of adolescent pregnant women

No. Of ANC Visit	No.	%
Nil	173	34.6
1-2	118	23.6
3-4	117	23.4
5 and >5	92	18.4
Immunization Status (TT)		
Nil	171	34.2
1-2	266	53.2
3-4	63	12.6

The table shows 34.6% of the adolescent pregnant women had no antenatal check up while only 23% had antenatal check up for 3 to 4 times.

Similarly above table also shows that 34.2% of the adolescent pregnant women had neither tetanus toxoid immunization nor any ANC checkup during pregnancy. The rest of the patients were immunized. About 53.2% of the total cases had 1-2 doses of TT and rest had 3 or more doses of vaccination. Overall vaccination coverage of TT is calculated as 65.8 %.

Table 6. Showing Iron intake and Haemoglobin during pregnancy

Iron Intake	No.	%
Yes	145	28.4
No	355	71.6
Total	500	100
Hb Level		
< 7	1	0.8
7-9	94	18.2
> 10	405	81.0

The table shows 71.6% of adolescent mothers had not taken iron during pregnancy whereas 28.4% have taken iron. The above table also shows 81% of the adolescent pregnant women have haemoglobin equal to and more than 10 gram %, where as only 0.8% had haemoglobin less than 7 gram %.

3.3.1 Nutrition of the adolescent girls during pregnancy

During pregnancy 356 (71.2%) of the adolescent girls had normal food whereas 144 (28.8%) have extra amount of food.

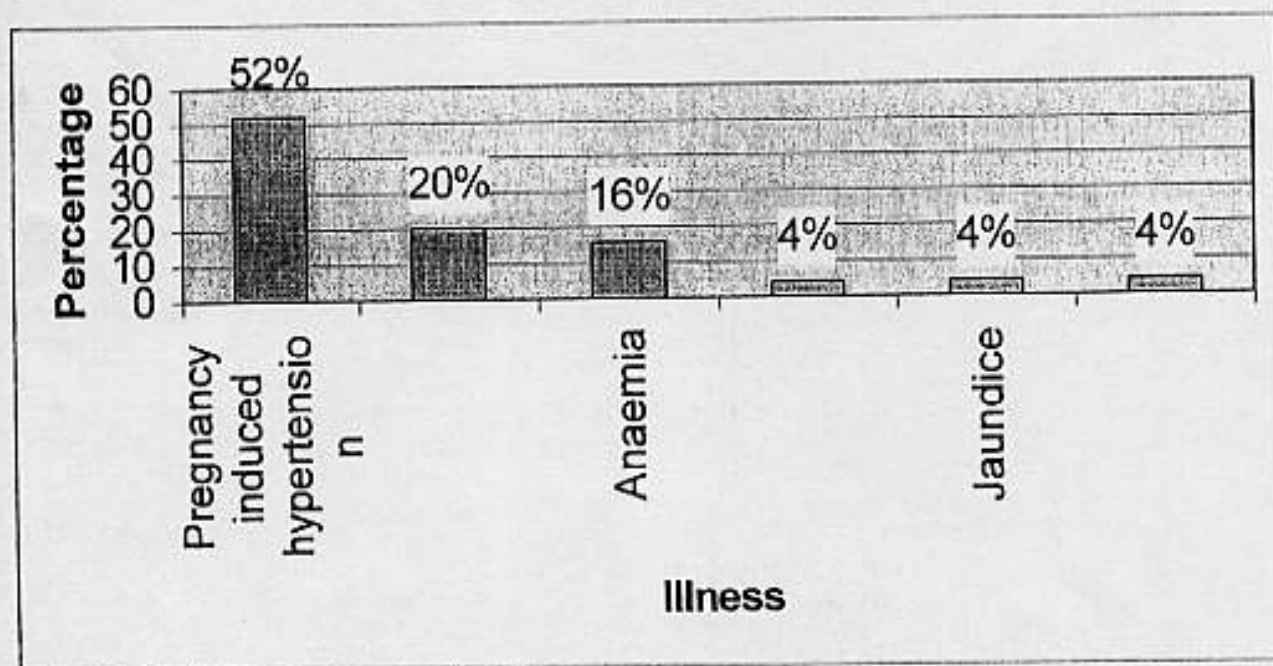
3.3.2 Table 7. Showing the Gestational Age (Weeks)

Gestational Age	No	(%)
< 28 Weeks	3	0.6
28 – 36 Weeks	67	13.4
37 Weeks	82	16.4
38 – 40 Weeks	300	60.0
41 Weeks and more	48	9.6

Almost 430 of the adolescent patients (86%) had delivery at term of which 60% delivered between 38 to 40 weeks of gestation, 16.4 % of patients delivered at 37 weeks and 9.6 % of patients at 41 weeks or more.

Only 70 pregnancies delivered pre-term (14%) among which, gestational week of 3 cases were below 28 weeks and 67 patients (13.4%) of total cases were between 28 to 36 weeks.

Figure 2: Showing illness during Pregnancy in Adolescent Pregnancy



The above figure showing 52% of the adolescent pregnant women had pregnancy-induced hypertension, 20% had pre-eclampsia and 16% with anaemia.

3.3.3 Previous illness in adolescent pregnancy

76.5% of the total cases had abortion in the past. Only 5.9% had history of typhoid and jaundice and 11.8% had chest infection.

3.4 Maternal Outcome

The maternal outcome of the adolescent pregnancy is described as follows:

3.4.1 Type of delivery in adolescent pregnancy

Table 8: Showing type of delivery

Abnormal delivery	No	(%)
Premature Delivery	37	36.6
Caesarian Delivery	25	24.8
Vacuum Delivery	21	20.8
Vaginal delivery with PPH	6	5.94
Breech Delivery	5	4.95
Forceps Delivery	4	3.96
Vaginal Delivery with still birth	3	2.97

The above table shows that 399 (78.8%) of pregnant women had normal deliveries whereas 101 (20.2%) had abnormal deliveries with 36.6% as premature deliveries, 24.8 % Caesarian deliveries and 3 % vaginal deliveries with stillbirth.

3.4.2 Complications following delivery

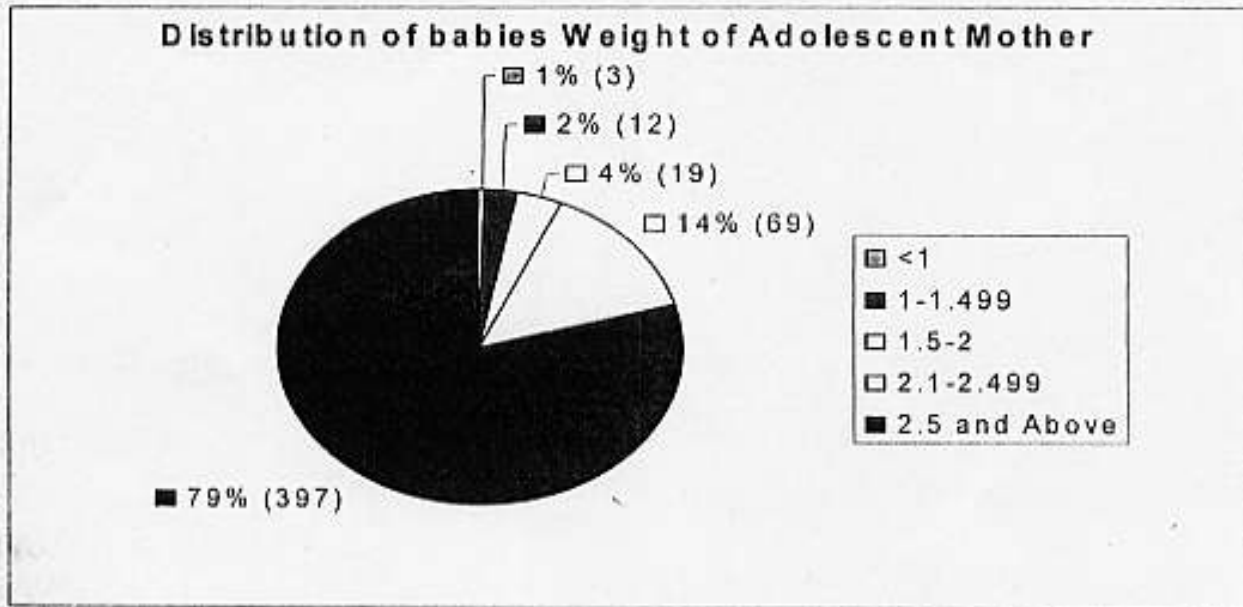
Complications	No.	%
Primary PPH	3	0.6
Puerperal pyrexia	2	0.4
Post partum toxaemia	2	0.4
Vulval haematoma	1	0.2
Episiotomy gapping	1	0.2
Total	9	1.8

The above table shows the total number of complications following delivery in adolescent pregnant women were 9(1.8%) of which major complications were primary PPH (0.6%), puerperal pyrexia (0.4%) and post partum toxaemia (0.4%). However, there was no maternal death among the adolescent pregnant women admitted in the hospital during the study period.

3.5. Fetal Outcomes

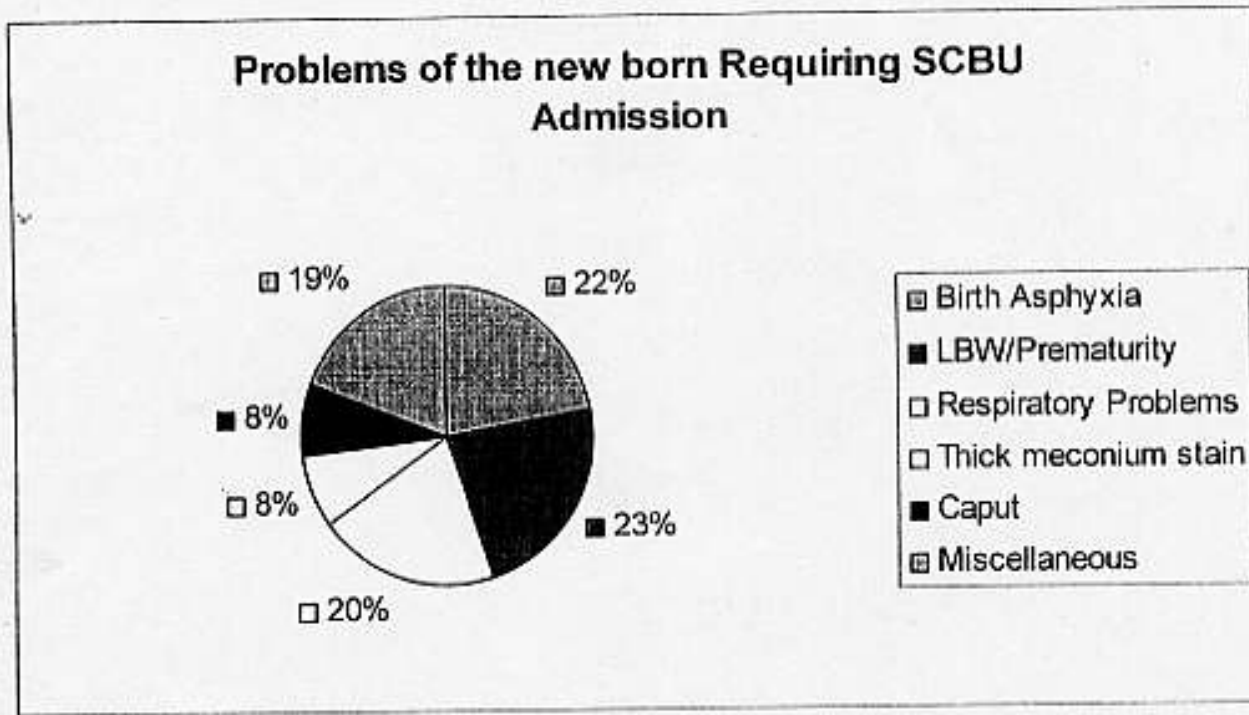
Among the total 500 babies born, 103 (21%) were of low birth weights (LBW). 62 babies (60.2%) were small for dates and 41 (39.8%) were pre-term babies. The still births rate was 6 per 1000, whereas the total early neonatal death rates were 14 per 1000 giving Perinatal Mortality Rate (PMR) of 20/1000 births. There was only one baby having a congenital anomaly with cleft lip.

3.5.1 Figure 3: Showing distribution of weight of the babies.



The above figure highlighted that the almost three fourth (79%) of the babies had the weight of 2.5kg or above whereas 21% of the babies had low birth weight.

3. 5. 2 Figure 4: Showing problems of the new born babies requiring SCBU Admission



The above figure has shown that 84.2% of the total babies required no admission in the special care baby unit, but 15.8% of the babies were admitted for various problems. Among the babies admitted in the SCBU unit, 23% of them for low birth weight and prematurely, 22% for birth asphyxia where as 8% for Caput formation (for observation).

4. Discussion

Adolescent pregnancy belongs to high-risk group who require proper care and services to prevent complications and to get favorable maternal and fetal outcome. There were 556 adolescent pregnant women, among which 56 cases were excluded because of home delivery with complication. Thus the remaining 500 cases were included in this study. The incidence of adolescent pregnancy during the study period was found to be 10.25% which is relatively low as compared to the previous observation of 18.25%⁴ⁱ and 20.6 %⁶ at the maternity hospital in 1996, where as the incidence of births in adolescents was 11.0% in TUTH¹². In this study the average age of marriage was found between 17-19 yrs (79 %) as compared to the previous study with 16- 17yrs (48.5%)¹². It shows that the age of marriage is slowly going up compared to the past five years. Similarly, the first pregnancy was observed at the age group of 19 yrs (61.6 %), which is much later compared to the 21% of early pregnancy at the age of 15 -19 yrs.²

It has been observed that 90.4% of the adolescent pregnant women were illiterate compared to only 40 % in the previous study.⁵

The present study has highlighted that pregnancy induced hypertension along with pre-eclampsia (72.0 %) was found to be significantly higher as compared to the previous observation of 11%⁶ and 12.5% in India⁹. Similarly hypertensive disorder of pregnancy (HDP) seem to be much more common in young women especially if they are primipara⁴. However, no case of eclampsia was noted in the present study as observed in the previous report with 18.18 % of all hypertensive disorder.⁴ On the other hand, the incidence of anaemia (16%) among present study group of adolescent pregnant women was found to be much lower than the previous study (39.7%)⁶.

Regarding the antenatal check up, only 23% of adolescent pregnant women had attended up to 3-4 times with intake of iron among 28.4% and 34.6% of them never attended antenatal clinic where as compared to previous study of 42.46% in 1996.⁴

The present study has shown higher incidence of caesarian section delivery (24.8%) compared to 12.0% in the previous studies done⁶ and similar observation with 13.7% and 10.6% in India⁹.

It has been observed that the incidence of pre-term babies was higher compared to the previous study (9.2%)⁶ against 4.1% done earlier.

Pregnancy

Similarly the incidence of low birth weight (LBW) babies with 21% in the study group was found to be lower compared to 32.6% in the previous study.⁶

At the same time, the common indication for admission of newborn babies in the special baby care unit was birth asphyxia (22%), which was 43.5% in the previous study.⁶

The present perinatal mortality rate of 20 / 1000 births was found to be much reduced than the previous findings of report of 56.7 / 1000 births.⁶

The congenital anomalies of the babies (0.2%) were found to be less as compared to the previous observation of 3.3% and even less than the rate of 8.6% of Kushwaha's observation¹⁰.

5. Conclusion

Pregnancy in adolescence constitutes a high-risk obstetric problem. The present Study about the incidence and the risk factors of adolescent pregnancy (10.25%) among admitted obstetric population in the Maternity Hospital have highlighted very significant information. The factors like lack of awareness or knowledge about sexual and reproductive health, early age of marriage with early childbirth, less or without regular antenatal check up have played important role in creating more problems among adolescent pregnant women. The illiteracy and low socio economic status particularly among housewives further added up more problems in adolescent pregnancy.

It has been observed that higher incidence of pregnancy-induced hypertension, pre-eclampsia and anaemia in pregnancy were found to be more prevalent among the adolescent pregnant women. Similarly, abnormal deliveries like pre-mature delivery, caesarian delivery and vacuum delivery were found to be higher in this study. However, there was no maternal mortality among the adolescent pregnant women during the study period.

Regarding the fetal factors, pre-maturity, low birth weight and birth asphyxia were found to be the main factors for the poor fetal outcome.

Thus maternal and fetal outcome will be significantly improved if proper sexual and reproductive health education with counseling and improvement in the antenatal checkup services and obstetric care are given to the adolescent pregnant women.

6. Recommendation

Globally it has been well recognized that too early marriage, early pregnancy with childbirth during adolescence are the major health problems especially in the developing countries like ours. Thus the following recommendations are being suggested in view of the present study-

1. The legal marriageable age should be increased up to 20 years and the Educational status of the women should be encouraged.
2. The sex education and reproductive health education should be given to the adolescent girls and boys along with the incorporation in the curriculum.
3. The family planning contraceptives should be available to the younger married adolescents and must be educated about pregnancy, childbirth and neonatal care.
4. The adolescent friendly clinic services should be easily accessible for the adolescent group.
5. Regular and proper antenatal care services should be accessible and affordable to adolescent pregnant women.
6. Proper co-ordination should be maintained between policy makers, advocating personnel for sex education and availability of contraceptive services to the adolescents.
7. Further more community based research study on this topic should be carried out to find out the risk factors contributing to the poor maternal and fetal outcome thereby reducing the over all present high maternal and neonatal mortality in the country.

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8. Annex

Adolescent Pregnancy: Associated Risk Factors with Maternal and Fetal Outcome at Maternity Hospital, Kathmandu.

Blood loss Normal Moderate Severe

Weight of placenta >500 gm <500 gm

Pregnancy

Do you smoke? Yes No

If yes < - 5/day 5 - 10/day > - 10/day

Do you take alcohol Yes No

If yes. once a week 2-3/wk. > -3/wk.

Type of Cooking fuel Gas F. wood Stove Other...

Ventilation in the kitchen Yes No

Activity in last trimester Usual activity Moderate rest More rest

Food Normal Any extra taken

Mothers Hb (G/dl) (before delivery)

Ht of mother (Cm)

Wt of mother (Kg)

Baby

D.O.delivery

Sex of baby Male Female

Apgar Score 1'

Wt of baby (Kg)

S C B U Admitted Not admitted

Apgar Score 5'

Problem in the hospital None Infection Asphyxia Jaundice Respiratory Hypoglycaemia Hypothermia Feeding Other...

Condition at discharge Good Fair Transferred LAMA Dead

Feeding Exclusive BF BF+Formula Formula

Mother's Knowledge about FP method Yes No

If Yes FP Depoprovera Norplant Tubeligation Vasectomy Natural Oral Pills IUD Condom Harbal Other

Any FP method used Non Oral Pills IUD Condom Harbal Other Depoprovera Norplant Tubeligation Vasectomy Natural

Name of Interviewer

Date

Checked by Supervisor

Enter by

Adolescent Pregnancy: Associated Risk Factors with Maternal and Fetal Outcome at Maternity Hospital, Kathmandu.

NO Hospital No Mother's Name

Age (Yrs.) Age at marriage Age at first pregnancy

Ethnic group Brahmin Chhetri Newar Magar Rai Other...

Cause of early marriage Family pressure Self Other..... Address Rural Urban

W.Education Illiterate Primary Secondary /LSC Certificate & above

Occupation of women Housewife Business Service Daily wages Agriculture Other...

H.Education Illiterate Primary Secondary/ SLC Certificate & above

Occupation of husband Daily wages Business Service Agriculture Other...

Antenatal care times nil 1-2 2-4 > T.T 0 1 2 >2 Knowledge about high risk pregnancy Yes

Medical illness None Chest disease Renal/ preexisting hypertension Other... Anaemia Heart disease Abortion

Illness this pregnancy None PIH PET APH Gest.Diabetes Eclampsia Other...

Previous pregnancy No. (not needed for primi) Have you taken iron tab and folic acid during this pregnancy Yes No

SB NND Prem. delivery How many months? 1 - month 2 - 3 month > - 3 month

Parity Primi Multi Grand multi Months since last delivery L.M.P E.D.D

Gest. age by date Type of delivery ND CS Forceps Breech Prem Vac Twins Others

Delivered by Specialist Doctor Nurse Trainee Other...

Annex - Consent Form

सहमति पत्र

यो अध्ययन किशोरीहरूमा हुने गर्भाधारण र त्यसबाट आउने परिणाम एवं जोखिम पुर्याउने तत्वहरूको बिषयमा यस परोपकार श्री ५ इन्द्र राज्यलक्ष्मी देवी प्रसूतिगृह बिकास समितिमा भर्ना हुन आउने किशोरी आमाहरूको अध्ययनका लागि गर्नलागेको हो । कृपया तपाईं हामीलाई आफ्नो यथार्थ जानकारी दिई यस अध्ययनमा सहयोग गरिदिनु हुन अनुरोध गर्दछौं । हामी यहांलाई सकेसम्म स्तरीय स्वास्थ्य सेवा प्रदान गर्न प्रयास गर्ने छौं । यहांले दिनु भएको सम्पूर्ण जानकारी गोप्य राखिने छ ।

मैले माथी उल्लेखित कुराहरू सुने । म तपाईंहरूको यस अध्ययनमा सहभागी हुन चाहन्छु ।

अन्तरवार्तालिने व्यक्ति

अन्तरवार्तादिने व्यक्ति

नाम:

नाम:

पद:

ठेगाना:

ठेगाना:

सही:

सही:

मिति :

मिति :