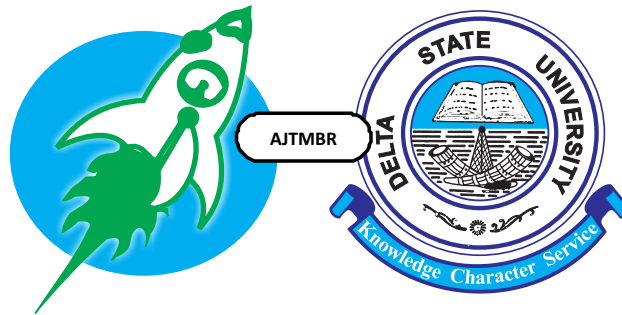


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Sociodemographic Characteristics And Outcomes of Teenage Pregnancy at the John. F. Kennedy(JFK) Maternity Center, Monrovia, Liberia.

Odunvbun, W.

Abstract

Background: Teenage Pregnancy is a high-risk condition with adverse maternal and perinatal outcomes. The Literatures suggest an increase in global trend, as a result of sociodemographic variables.

Aim: To determine the sociodemographic characteristics and pregnancy outcomes among teenage mothers at John F. Kennedy Maternity Center.

Methods: A retrospective study involving the evaluation of obstetric records of teenage mothers at the JFK maternity center, Monrovia from October 1, 2018, to September 30, 2019. Data was analyzed using IBM SPSS statistics for windows, version 20.

Results: Total antenatal registration was 5,560. Total delivery was 3,600, made up of 73.0% vaginal deliveries and 27.0% caesarean sections. Teenagers accounted for 11.6% and 4.0% of all pregnancies and deliveries, respectively. Compared to the general obstetric population, teenagers had fewer caesarean sections (21.0% versus 27.0%). The mean age of subjects was 16.0 ± 1.1 years. About 50.0% (63/124) of the subjects were below 17 years, they were all single and mostly (90%) residing with their parents. One-fifth (25/124) of the subjects had no formal education. All the pregnancies were not desired. About a quarter (29/124) had pregnancy-related complications. There were two perinatal deaths from cord prolapse and obstructed labour. Prenatal care was associated with less complication and improved fetal weight. There was no mortality among subjects.

Conclusion: This study established an institutional prevalence of teenage pregnancy of 11.6% and delivery rate among teenage mothers of 4.0%. Low level of education was associated with higher pregnancy complications, while booking status and prenatal care was associated with improved fetal weight.

Keywords: Teenage pregnancy, Prevalence, Pregnancy outcome, Fetal outcome

Corresponding Author: Odunvbun, W.

Introduction.

Teenage pregnancy remains a global challenge, requiring attention all over the world.¹ Sub-Saharan Africa is reported to have had the highest prevalence of teenage pregnancy in the world in 2013.¹ The consequences following teenage pregnancy are numerous. These include obstetric, health, economic and social problems. Pregnancy in a teenager is more likely to

result in obstetric complications such as incontinence from obstetric fistula, eclampsia, postpartum haemorrhage, sepsis, and a five-fold increased risk of maternal mortality.^{2,3}

Teenage pregnancy contributes to lifelong health disparities for both the mother and the child.⁴ In contrast to adult women who become pregnant, teenage mothers are more likely to have low educational attainment and

fewer employment opportunities.^{5,6} Recent studies on teenage pregnancy in sub-Saharan Africa have looked at individual-level demographic, socio-economic, and reproductive health knowledge and behavior parameters.⁷⁻¹⁰

Many physical, psychological, environmental, and socio-cultural factors, such as peer pressure, lack of knowledge of reproductive health, have been associated with adolescent pregnancy, especially in developing countries, as this is a transition period.¹¹ Access to pregnancy preventive measures such as contraceptives, sexual health information, and family planning services are not available to adolescents in many societies.¹² Even when contraceptives are widely available, adolescents are less likely to use them, compared with adults.¹²

Between 1989 and 2003, Liberia suffered two civil wars, with significant disruption in family life and human casualty, estimated to be over 500,000, and well over a million people displaced from their homes.¹³ About two decades after the end of the second war in 2003, the extent of the social and family disruption is not known. Teenage pregnancy is one of such social and family disruptions that could occur during and after war. Therefore, the objective of this study was to determine the prevalence of teenage pregnancy in post-war Liberia and the pregnancy outcome.

Materials and Methods

This was a cross-sectional retrospective study of teenage mothers who were managed at John. F. Kennedy (JFK) Maternity Center, Monrovia, Liberia, from October 1, 2018, to September 30, 2019. This is a public health facility established in 1971. It provides tertiary health services and training in Obstetrics and Gynaecology, Paediatrics, Surgery, Internal Medicine,

among other specialties. Services are paid for by patients, though subsidized by the Liberian government. However, teenage mothers whose education was interrupted by pregnancy and are living with their parents are supported by a program designed by the JFK maternity center management, called "Parenting the parent." It involves cost-free maternity services, while the teenage mother is encouraged to continue her education after childbirth. Most of the other public health facilities in the remaining 14 counties of Liberia provide free maternity services.

This study involved reviewing pregnancies managed at the John .F. Kennedy Maternity Center, from October 1, 2018, to September 30, 2019. Relevant information was obtained from the ANC register, labour ward, and theatre records.

Included in the study were case notes of all pregnancies occurring between the age range of 13 to 19 years. Case notes of patients whose ages were not documented was excluded.

Information on teenage mother's socio-demographic variables and booking status was obtained. Also captured were variables relating to teenage pregnancy outcome, such as complication and mode of delivery. Birth weight and neonatal intensive care unit (NICU) admission were used to assess fetal outcome.

Ethical approval was obtained from the Institutional Review Board (IRB) of John F. Kennedy Medical Center, Liberia.

Data analysis

Data collected were analyzed using IBM SPSS statistics for windows, version 20.0 (IBM Corp, Armonk, NY, USA), and presented in the form of frequency tables and descriptive statistics. Chi-square was used for tests of

statistical differences, for categorical variables. $P < 0.05$ was considered statistically significant.

Results

Case note retrieval from the medical records on teenagers' deliveries was 124/145 (85.5%).

The total antenatal registration during the study period was 5,560. The total delivery was 3,600, made up of 2,640/3,600 (73.0%) vaginal deliveries and 960/3600 (27.0%) Caesarean section.

Teenage pregnancies accounted for 645/5,560 (11.6%) during the study duration. Mothers whose ages were from 13 to 19 years accounted for 145/3600 (4.0%) of the total deliveries. Vaginal deliveries by teenage mothers, accounted for 98/124 (79.0%) while Caesarean section was 21.0% (26/124). When compared with total deliveries, there was fewer caesarean sections among the teenage mothers (21.0% versus 27.0%).

About 63/124 (50.0%) of the subjects were below the age of 17 years. The mean age of subjects was 16.0 ± 1.1 years. They were all single, with the majority (90%) of the

teenagers residing with their parents. Over 80% of the parents of the subjects were cohabitating with their spouses. One-fifth (25/124) of the subjects had no formal education. Eighty-four percent (104/124) were students. [Table 1]

About a quarter (29/124) of the subjects had complications, with pre-eclampsia and anaemia, being the leading two complications [Table 2]

A low level of education was associated with more complications among teenage mothers ($P < 0.001$). [Table 3]

A total of sixteen (12.9%) neonates delivered by the subjects were admitted into NICU due to birth asphyxia. There were two (1.6%) perinatal deaths from cord prolapse and obstructed labour. Both were fresh still birth (FSB) and referrals from the county hospitals, located several kilometers from JFKMC [Table 4].

The mean weight of neonates was 2.85 ± 0.51 Kg. Booking status was associated with higher foetal weight ($P < 0.001$). [Table 5]

There was no maternal death in this study.

Table 1: Socio-demographic characteristics of subjects of teenage pregnancies

	Frequency	Percentage
Age (Years)		
13-16	63	50.8
17-19	61	49.2
Marital Status		
Single	124	100
Married	0	0
Type of parental relationship		
Cohabitation	110	88.7
Married	14	11.3
Place of residence		
With parents	122	98.4
With boyfriend	2	1.6
Educational qualification		
No formal education	25	21.0
Primary	53	42.0
Secondary	45	36.2
Tertiary	1	0.8
Booking Status		
Yes	85	68.5
No	39	31.5

Table 2: Frequency distribution of Booking Status, the desirability of pregnancy, Complications and Type of complications among subjects.

	Frequency	Percentage
Pregnancy Desired		
Yes	0	0
No	124	100.0
Pregnancy complication		
Yes	29	23.4
No	95	76.6
Types of complication		
Pre-eclampsia	8	27.6
Anaemia	6	20.7
Malaria	5	17.2
Intra-uterine growth restriction	4	14.0
Prolonged labour	3	10.3
Obstructed labour	2	7.0
Cord prolapse	1	3.2

Table 3: Relationship between socio-demographic characteristics with pregnancy complications among subjects

	Pregnancy complication at Presentation		c ²	p
	Yes	No		
Age Group				
13-16	15(23.8)	48(76.2)	0.013	0.910
17-19	14(23.0)	47(77.0)		
Marital Status				
Single	29(23.8)	93(76.2)	0.621	0.431
Co-habiting	0	2		
Educational qualification				
None	4(16.0)	21(84.0)	17.803	<0.001
Primary	22(41.5)	31(58.5)		
Secondary	3(6.7)	42(93.3)		
Tertiary	0(0.0)	1(100.0)		
Booking Status				
Yes	16(18.8)	69(81.2)	3.141	0.076
No	13(33.3)	26(66.7)		

Table 4: Mode of Delivery and Fetal Outcome among subjects

	Frequency	Percentage
Type Delivery		
Spontaneous Vaginal delivery	98	79.0
Caesarean Section	26	21.0
Fetal Outcome		
NICU Admission	16	12.9
FSB	2	1.6

Table 5: Relationship between Booking Status and Birth weight of Neonate delivered by teenage mothers

	Birth Weight		Chi-square	P
	<2.5kg	≥2.5kg		
Booking Status				
Yes	14(16.5)	71(83.5)	28.5	<0.001
No	20(69.0)	9(31.0)		

Mean Weight of Neonates 2.85 ± 0.51

Discussion

The institutional prevalence of teenage pregnancy and birth was 11.6%, and 4.0% respectively. These rates were lower than the rates quoted in similar studies in Africa.^{12,14,17}

John F. Kennedy (JFK) Maternity Hospital is the only fully functional, tertiary health facility in Liberia. Services are paid for by patients, except those who meet the selection criteria of the "parenting the parent" program of JFK management. Maternity services in the other 14 county

government health facilities are cost free. Therefore, it is likely that the population prevalence of teenage pregnancy may be higher than the 11.6% recorded in this study. Family disruption was reported to be inversely related to teenage Pregnancy in East Africa.¹⁸ Liberia suffered two civil wars in about a decade, resulting in major socio-economic and family disruption, resulting in a loss of half-a-million lives.¹³

The social practice of cohabitation is accepted in Liberian society, which is the rule

rather than the exception. The extent to which the civil war contributed to this practice is not fully known. The combined roles of fractured family life, low level of education, and poverty, as a consequence of the war, may indirectly have a link with teenage pregnancy in any society, including Liberia. All the pregnancies were undesired. This raises some concern about adolescent sexuality and contraception, in Liberia. In a study conducted, it was discovered that 97% of adolescents from 14-17 years among non-students and those with low educational level, have sexual relations at least once a month.¹⁹ The mean age of teenage birth in this study was 16 ± 1.3 years. Education and socio-economic status have been identified consistently as determinants of teenage pregnancy in different studies.⁷ A previous study shows that neighborhoods characterized by poverty had higher levels of teenage pregnancy, as teens living in poor communities with fewer opportunities are more likely to engage in sex at earlier ages and eventually become pregnant.²⁰ Additionally, in localities where poverty is rife, young people may also turn to transactional sex as an economic survival strategy with a pregnancy resulting if contraception fails or the need is unmet.²⁰ In a descriptive study conducted in Nigeria by Isa and Gani,⁸ it was discovered that most 14 to 19-year girls who got pregnant were from low social class.¹⁰ Arguments justifying teenage marriage have often been based on the economic ground and seen as a means of reducing economic burden within the household by marrying off female children and reducing household size with provisions made, through dowry obtained from the groom upon marriage.¹⁸ The situation in Liberia is similar, as opinions and views among citizens suggest that some mothers compel their teenage daughters to

contribute financially to the home, through relationship with male partners. In addition, the increasing level of poverty in post war Liberia has increased the economic burden on many families. These could contribute to the prevalence of teenage pregnancy in the country.

The mitigating effect of ANC on the adverse effect of teenage pregnancy was identified in our study. Studies suggest that low education levels and inadequate prenatal care are a contributory factor for the higher incidence of adverse pregnancy outcomes among teenagers.^{22,23} Even after adjusting for socio-economic characteristics, de Vinne *et al.* found an association between poor antenatal care and pregnancy outcomes.²² Our finding of fewer caesarean delivery and higher normal vaginal delivery among teenage mothers is consistent with the findings in a study in Cameroon that suggested that adolescents were likely to have a vaginal delivery and had a lower risk of Caesarean section than adults. These findings contradict reports in the literature.¹² An explanation for this may include the fact that the majority (85/124) of subjects were booked and received prenatal care in the facility, and labour was adequately supervised.

The leading pregnancy complication among teenage mothers in this study was pre-eclampsia and anaemia. Some studies showed that teenage pregnancy was significantly associated with anaemia.^{23,2} Underlying poverty and poor nutrition may be the reason for the anaemia in these young mothers. The teenage mothers of the two FSB traveled over several kilometers from the referring county hospitals. There was no death among teenage mothers. The relatively small sample size may be an explanation for the absence of maternal death.

Limitations in our study included the small sample size with a relatively high attrition rate (14.5%) in case note retrieval. The retrospective study design is another limitation. The study site is the only functional tertiary health facility in Liberia, with out-of-pocket services. This contrasts with ANC services in the county health facilities that are free and consequently attract more patronage, consequently, the population prevalence of teenage pregnancy is likely to be higher. Despite these limitations, this study has established the institutional prevalence of teenage pregnancy at the JFK maternity center. A prospective, multi-center study to examine the impact of social and economic factors on teenage pregnancy in Liberia is recommended.

Conclusion

This study established an institutional prevalence of teenage pregnancy of 11.5% and delivery rate among teenage mothers of 4.0%. Low level of education was associated with higher pregnancy complications, while booking status and prenatal care was associated with improved fetal weight.

Acknowledgements

The author would like to appreciate the contributions of the following persons to this study, Drs Numeine E. Enders and Galakpa G. Johnson, resident doctors in the department. Special thanks also to the head of department, medical records and theater.

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- Citation:** This article should be cited as: Odunvbun W. Sociodemographic Characteristics and Outcomes of Teenage Pregnancy at The John. F. Kennedy (JFK) Maternity Centre, Monrovia, Liberia. *Afr. J. Trop. Med. & Biomed. Res.* 2021; 5(1): 54-63