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Research Article

Pregnancy Outcomes among Adolescents Attending a Rural Health Facility in Uganda a Case of Apac General Hospital, Apac District, Northern Uganda

Oula Alex[1*]

[1] Busitema University, Busia District, Eastern Uganda.
*Corresponding email: oula_alex@yahoo.co.uk

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Abstract

Background: Adolescent pregnancy is a public health problem and it is estimated that about 23 million adolescent girls aged 15 to 19 years become pregnant and around 16 million give birth every year globally. About 95% of these births are concentrated in middle and low-income countries. Adolescent pregnancy is associated with high maternal and perinatal morbidity and mortality. Despite interventions by the government, adolescent pregnancy has remained high.

Objective: This study, therefore, aimed to determine pregnancy outcomes among adolescents who delivered at Apac general Hospital from first July 2016 to 30th June 2018

Methodology: This was a cross-sectional study in which records of adolescent women aged 15-19 years who delivered at Apac general hospital from July 2016 to June 2018 were reviewed. Data was collected using a data abstraction tool, coded and entered into Microsoft Excel, and exported to Stata 14.0 statistical software for analysis. At the Univariate level, descriptive statistics like mean, frequencies, and percentages were used to assess the maternal and fetal outcomes among adolescent mothers who delivered at Apac general hospital. Bivariate analysis (chi-square test) was carried out between the dependent and independent variables to determine their association and help in selecting variables to enter into the multivariate models. Variables with a P-value 0.05 at bivariate levels were selected for entry into the multivariate models. Other variables selected for entry into the multivariable models were those with biological plausibility and those known to be confounders. Multivariable logistic regression analysis was carried out to assess the strength and direction of statistical association of fetal outcomes, maternal outcomes, and the independent factors affecting these outcomes. For fetal outcome which was sparsely distributed, penalized logistic regression was conducted to adjust for the sparse distribution. The strength of statistical association was measured by adjusted odds ratios at 95% confidence intervals. Statistical significance was declared at P<0.05. The results were presented in form of tables, figures, and charts.

Results: Of the 501 records reviewed and analyzed, most adolescents, 79.4% (n=398) who delivered at Apac hospital were 18-19years, and most of them were from rural

areas, 70.0% (n=353). The prevalence of stillbirth was at 4.4% (n=22), low birth weight at 20.9% (n=106), and birth asphyxia was at 9.6% (n=48). The commonest maternal outcomes were; post-partum hemorrhage (PPH) at 11.2 %(n=56), followed by obstructed labour at 10.2% (n=51) and cesarean delivery at 10.2% (n=51). At multivariate level, for fetal outcomes, low birth weight babies (<2.5kg) had higher odds of death, aOR 0.50(95%CI; 3.73-24.25, P<0.0001), as well as male babies, aOR 3.96(95%CI; 1.33-11.77, P=0.013). Infants born to adolescents with a parity of 2 or more had higher odds of death compared to infants born to adolescents giving birth for the first time, aOR 4.89 (95%CI; 1.65-14.55, P=0.004). For maternal outcomes, adolescent mothers not monitored using a partograph had higher odds of delivery by caesarian section compared to those monitored using a partograph, aOR 2.42 (95%CI; 1.22-4.80, P=0.011).

Conclusion: Adolescent pregnancy is associated with poor fetal and maternal outcomes, including perinatal death (stillbirth), low birth weight, birth asphyxia, high rate of caesarian delivery, obstructed labor, and postpartum hemorrhage.

Recommendation: All adolescent mothers in labor should be monitored on partograph as non-partograph use was associated with higher odds of caesarian section. Adolescent pregnant women with low birth weight babies (estimated) and those with a repeat pregnancy should be closely monitored right from antenatal, through the perinatal period to minimize stillbirth.

Keywords: Pregnancy Outcome; Adolescent; APGAR score; Pre-eclampsia; Eclampsia; Low Birth Weight; Postpartum Hemorrhage; Premature Rupture of Membranes.

Introduction

Adolescent pregnancy is of growing public health concern worldwide with approximately 16 million babies born to adolescents aged 15 to 19 every year, and about 95% of these births occur in low and middle-income countries [1]. The burden is more in sub-Saharan Africa where it is estimated that about half of the women give birth before the age of 20 years, with a resultant high pregnancy-related morbidity and mortality [2,3]. In addition, babies born to adolescent mothers have an increased risk of adverse outcomes like prematurity and its related complications, perinatal and neonatal death, and low birth weight [4].

Complications during pregnancy and childbirth are the main cause of death among adolescents globally and the main causes of death include; postpartum hemorrhage, pregnancy-induced hypertension, and obstructed labor. Increased risk of stillbirth, preterm delivery, low birth weight, perinatal death, perineal tears, obstetric fistulae, and maternal deaths has also been reported. Unsafe abortions and perinatal deaths are the most common poor pregnancy outcomes that lead to maternal death [3].

Early pregnancy exposes adolescents to poor outcomes of pregnancy, as a result, many adolescent girls do exit schooling and are sometimes rejected by their parents with long-lasting mental torture and a girl with little or no education has fewer skills and opportunities to find a job. In addition, children born to adolescents have a higher risk of poverty and low intelligent quotient with its associated poor school performance

and are unemployed in the future. The result of this is its contribution to the vicious cycle of ill health, neglect, and poverty worldwide [3].

Uganda has one of the highest rates of adolescent pregnancy in Sub- Saharan Africa with 25% of adolescent girls becoming pregnant before the age of 20years [5]. Several studies have shown that adolescent pregnancy is associated with an increased incidence of several adverse maternal and perinatal outcomes such as low birth weight, preterm delivery, low APGAR scores, small for gestational age infants, perinatal death, Eclampsia, operative vaginal delivery, obstructed labor, fistula, stillbirths, neonatal death and maternal death [6–9]. The risk of pregnancy-related death is twice as high for girls aged 15-19 years and five times higher for girls aged 10-14years compared to women above twenties [10]. Most of these studies were however done in urban settings. There are few studies on pregnancy outcomes among adolescents in rural settings [2,11].

Methodology

Study design: It was a cross-sectional study in which records of mothers who delivered from July 1st, 2016 to June 30th, 2018 in Apac hospital were reviewed and analyzed.

Target Population: Adolescent mothers in Uganda.

Sample Size Estimation

The sample size was determined using Leslie Kish's formulae (1965). According to a study done in Mbarara Regional Referral hospital, the proportion of adolescents who had poor maternal outcomes were 50.2% and those who had poor fetal outcomes were 19.3% [29].

Sampling Strategy

Records of the delivery books were reviewed to determine the number of adolescent mothers within the study period (1st July 2016- 30th June 2018). In this period there were 2144 deliveries of which 639 were for adolescents aged 15 to 19 whose files were retrieved and reviewed for inclusion into the study. Out of these, there were 501 who met the eligibility criteria. All the 501 adolescent mothers meeting the eligibility criteria were included in the study since it was already a small population that could all be studied.

Data Collection and Management**:** Data was collected using a data abstraction tool designed based on the commonly collected parameters in the patient admission file.

Data Analysis: Data were analyzed at three different levels of univariate, bivariate, and multivariate. At the Univariate level, descriptive statistics like mean, median, frequencies, and percentages were done to assess the maternal and fetal outcomes among adolescent mothers who delivered at Apac hospital. Bivariate analysis (chi-square test) was carried out between the dependent and independent variables to

determine their association and help in selecting variables to enter into the multivariate models.

Variables with a P-value 0.05 at bivariate levels were selected for entry into the multivariate models. Other variables selected for entry into the multivariable models were those with biological plausibility and those known to be confounders.

Multivariable logistic regression analysis was carried out to assess the strength and direction of statistical association of fetal outcomes, maternal outcomes, and the independent factors affecting these outcomes. For fetal outcome which was sparsely distributed, penalized logistic regression was conducted to adjust for the sparse distribution. The strength of statistical association was measured by adjusted odds ratios at 95% confidence intervals. Statistical significance was declared at P<0.05. The results were presented in form of tables, figures, and charts.

Ethical Considerations: Ethics was assured by approval, confidentiality, permission and informed consent.

Results

Socio-demographic characteristics

Table 1. Socio-demographic characteristics of the study participants

Characteristics		Frequency(n=501)	Percent (%)
Age /years	<18(15-17)	103	20.6
	≥18(18-19)	398	79.4
Location	Rural	353	70.5
	Urban	148	29.5
Education Level	Primary	452	90.2
	Post Primary	49	9.8
Religion	Catholic	261	52.1
	Protestant	184	36.7
	Others	56	11.2
Occupation	Unemployed	475	94.8
	Employed	26	5.2
Marital Status	Not Married	45	8.9
	Married	456	91
Antenatal Attendance	No	104	20.8
	Yes	397	79.2
Parity	One	432	86.2
	>One	69	13.8
Partograph use			

	No	80	15.9
	Yes	421	84.0

Results in Table 1 show that most adolescents who delivered at Apac hospital were 18 years and above, contributing to 398(79.4%) and most of them were from rural areas 353(70%). Most adolescents were prime gravida 432(86.2%), married by 19 years 456(91%), and stopped in primary 452(90.2%).

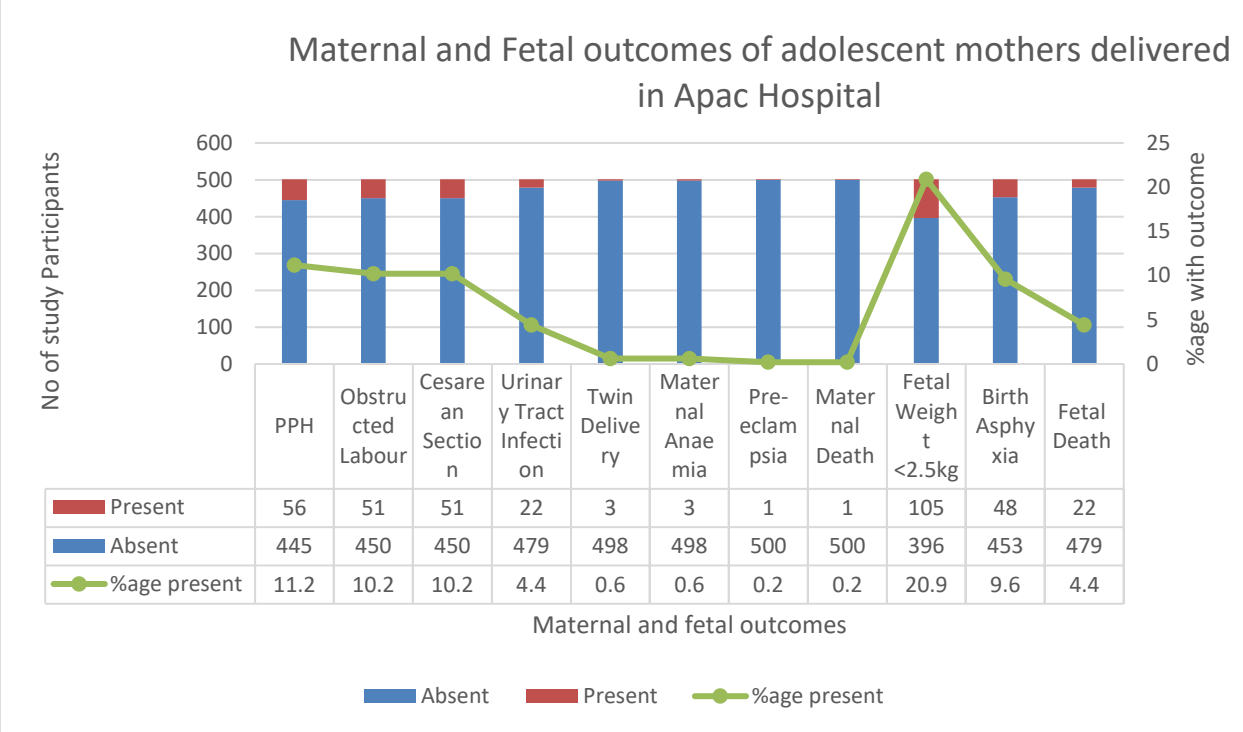

Figure 1. Maternal and Fetal Outcomes of adolescent mothers delivered at Apac Hospital

In the figure 1, the prevalence of still birth was at 4.4% (n=22), low birth weight at 20.9% (n=106), and birth asphyxia was at 9.6% (n=48). The commonest maternal outcomes were; post-partum hemorrhage (PPH) at 11.2 %(n=56), followed by obstructed labour at 10.2% (n=51) and cesarean delivery at 10.2% (n=51).

Table 2. Bivariate analysis for Fetal Outcomes of adolescent deliveries in Apac Hospital

Variables		**Still Birth n (%), n=22**	**Live Birth n (%), n=479)**	χ^2	**P-Value**
Age/years	<18 (15-17)	7(6.8)	96(93.2)	5.7083	0.222
	≥18 (18-19)	15(3.8)	383(96.2)		
Location	Rural	15(4.3)	338(95.8)	0.0573	0.811
	Urban	7(4.7)	141(95.3)		
Education Level	Primary	19(4.2)	433(95.8)	0.3877	0.533
	>Primary	3(6.12)	46(93.9)		
Occupation	Unemployed	21(4.4)	454(95.6)	0.0194	0.889
	Employed	1(3.9)	25(96.2)		
Marital Status	Single	3(6.7)	42(93.3)	0.6097	0.435
	Married	19(4.2)	437(95.8)		
ANC Attendance	No	4(3.9)	100(96.2)	0.0929	0.761
	Yes	18(4.5)	379(95.5)		
Parity	One	15(3.5)	417(96.5)	6.3098	**0.012**
	>One	7(10.1)	62(89.9)		
Partograph used	No	5(6.3)	75(93.8)	0.7835	0.376
	Yes	17(4.0)	404(95.9)		
Fetal Sex	Female	4(1.8)	219(98.2)	6.4584	**0.011**
	Male	18(6.5)	260(93.5)		
Anaemia	No	21(4.2)	477(95.8)	6.0215	**0.014**
	Yes	1(33.3)	2(66.7)		
Fetal Weight	<2.5	15(14.3)	90(85.7)	30.9768	**<0.0001**
	≥2.5	7(1.8)	389(98.2)		
UTI	No	22(4.6)	457(95.4)	1.0568	0.304
	Yes	0(0.0)	22(100.0)		

(Bold= statistically significant at p-value < 0.05)

In the table 2 above results show that stillbirth was significantly associated with Parity (p=0.012), fetal sex (P=0.011), anaemia (p=0.014) and birth weight (p<0.0001). Bivariate analysis for Maternal Outcomes of adolescent mothers (Mode of delivery) using chi-square test.

Table 3. Cesarean section rates were found to be significantly associated with partograph

Variables		C- Section n=51, n (%)	Vaginal delivery n=450, n (%)	χ^2	P-Value
Age/years	<18(15-17)	11(10.7)	92(89.3)	0.0354	0.851
	≥18(18-19)	40(10.1)	358(89.9)		
Location	Rural	40(11.3)	313(88.7)	1.7338	0.188
	Urban	11(7.4)	137(92.6)		
Education	Primary	48(10.6)	404(89.4)	0.9778	0.323
Level	>Primary	3(6.1)	46(93.9)		
Occupation	Unemployed	50(10.5)	425(89.5)	1.2031	0.273
	Employed	1(3.9)	2 (96.2)		
Marital Status	Single	7(15.6)	38(84.4)	1.5627	0.211
	Married	44(9.7)	412(90.4)		
ANC	No	13(12.5)	91(87.5)	0.7728	0.379
Attendance	Yes	38(9.6)	359(90.4)		
Parity	One	43(9.9)	389(90.1)	0.1751	0.676
	>One	8(11.6)	61(88.4)		
Partograph	No	1518.8)	65(81.3)	7.6478	**0.006**
Used	Yes	36(8.6)	385(91.5)		
Fetal Sex	Female	21(9.4)	202(90.6)	0.2556	0.613
	Male	30(10.8)	248(89.2)		
Anaemia	No	49(9.8)	449(90.2)	10.5322	**0.001**
	Yes	2(66.7)	1(33.3)		
Fetal Weight	<2.5	11(10.5)	94(89.5)	0.0128	0.91
	≥2.5	40(10.1)	356(89.9)		
UTI	No	46(9.6)	433(90.4)	3.9622	**0.047**
	Yes	5(22.7)	17(77.3)		

(Bold= statistically significant at p-value < 0.05)

In the table 3; Cesarean section rates were found to be significantly associated with partograph use, (p=0.006), anaemia (p=0.001), and Urinary tract infection during labor (=0.047).

Table 4. Multivariate analysis for Fetal Outcomes using penalized logistic regression.

Variables		Still Birth, n(%) n=22	Live Birth, n(%) n=479	aOR(95%CI)	P-Value
Age/years	<18(15-17)	7(6.8)	96(93.2)	1	
	≥18(18-19)	15(3.8)	383(96.2)	0.43(0.15 - 1.20)	0.107
	Rural	15(4.3)	338(95.8)	1	
Location	Urban	7(4.7)	141(95.3)	1.32(0.51 - 3.44)	0.569
Education Level	Primary	19(4.2)	433(95.8)	1	
	PostPrimary	3(6.1)	46(93.9)	1.64(0.43 – 6.25)	0.465
Marital Status	Single	3(6.7)	42(93.3)	1	
	Married	19(4.17)	437(95.8)	0.78(0.20 - 3.05)	0.717
ANC Attendance	No	4(3.9)	100(96.2)	1.04(0.33 - 3.28)	0.944
	Yes	18(4.5)	379(95.5)	1	
Parity	One	15(3.5)	417(96.5)	1	
	>One	7(10.1)	62(89.9)	4.89(1.65- 14.55)	**0.004**
Partograph used	No	5(6.3)	75(93.8)	0.90(0.29-2.82)	0.852
	Yes	17(4.0)	404(95.9)	1	
Fetal Sex	Female	4(1.8)	219(98.2)	1	
	Male	18(6.5)	260(93.5)	3.96(1.33 – 11.77)	**0.013**
Fetal Weight	<2.5	15(14.3)	90(85.7)	9.50(3.73 – 24.25)	**<0.0001**
	≥2.5	7(1.8)	389(98.2)	1	

(Bold= statistically significant at p value < 0.05).

In the table 4, at multivariate level, low birth weight babies (<2.5kg) had higher odds of death, aOR 9.50(95%CI; 3.73-24.25, P<0.0001), as well as male babies, aOR 3.96(95%CI; 1.33-11.77, P=0.013). Infants born to adolescents with a parity of 2 or more had higher odds of death compared to infants born to adolescents giving birth for the first time, aOR 4.89 (95%CI; 1.65-14.55, P=0.004).

Table 5. Multivariate analysis for Maternal Outcomes (Mode of delivery).

Variables		Caesarian Section n=51,n(%)	Normal Delivery n=450,n(%)	aOR(95%CI)	P-Value
Age/years	<18(15-17)	11(10.7)	92(89.3)	1	
	≥18(18-19)	40(10.1)	358(89.9)	0.85(0.40 – 1.81)	0.674
Location	Rural	40(11.3)	313(88.7)	1	
	Urban	11(7.4)	137(92.6)	0.61(0.30-1.24)	0.171
Marital	Single	7(15.56)	38(84.44)	1	
Status	Married	44(9.65)	412(90.35)	0.70(0.27 - 1.78)	0.453
ANC	No	13(12.5)	91(87.5)	1.33(0.66-2.67)	0.421
Attendance	Yes	38(9.6)	359(90.4)	1	
Parity	One	43(9.9)	389(90.1)		
	>One	8(11.6)	61(88.4)	1.66(0.50- 2.69)	0.724
Partograph	No	15(18.8)	65(81.3)	2.42(1.22-4.80)	**0.011**
Used	Yes	36(8.6)	385(91.5)	1	
Fetal Sex	Female	21(9.4)	202(90.6)	1	
	Male	30(10.8)	248(89.2)	1.13(0.62 - 2.07)	0.683
Fetal Weight	≥2.5	40(10.1)	356(89.9)	1	
	<2.5	11(10.5)	94(89.5)	0.92(0.44- 1.89)	0.813
UTI	No	46(9.6)	433(90.4)	1	
	Yes	5(22.7)	17(77.3)	2.87(1.00 - 8.42)	0.055

(Bold= statistically significant at p-value < 0.05)

In table 5 above, adolescent mothers not monitored using a partograph had higher odds of delivery by caesarian section compared to those monitored using a partograph, aOR 2.42 (95%CI; 1.22-4.80, P=0.011). All other factors were not significantly associated with the modes of delivery at the multivariate level.

Discussion

My study found the proportion of stillbirth among adolescent mothers delivering in Apac hospital to be 4.4 % (44 stillbirths per 1000 hospital deliveries). For the past 20 years, Uganda has put interventions to reduce neonatal mortality, including promotion of early ANC attendance, community awareness on seeking care, hospital deliveries, increasing the number of midwives for skilled birth attendants. However, all these interventions have not resulted in significant improvement in neonatal death as it has remained stagnant at 27 per 1000 live births for the last 15 years [5]. My study shows that the rate of stillbirth among adolescent mothers delivering in the hospital is almost twice as high as the national average of 27 per 1000 live births. This could be worse if adjusted for adolescent mothers who deliver from home and no records are collected by the health facilities.

Still, birth accounts for the highest proportion of neonatal mortality in Uganda at 35%[34]. Since the 2016/2017 period, overall, stillbirth was at 21 per 1000 health facility deliveries [35]. My study found extremely high rates of stillbirth among

adolescent mothers of 44 per 1000 hospital deliveries. This rate is higher than the overall neonatal death rates and the national rates of stillbirth. This, therefore, implies that adolescent mothers are at increased risk of delivering stillbirth as compared to the older mothers, thus deliberate efforts need to be designed to target adolescent mothers in the community to come early for delivery so that they are screened for risk factors of stillbirth and manage appropriately.

The high rates of stillbirth observed is however not unique to my study as similar observation was made in Ghana [36] and Tanzania [37] found it to be at 3.4% and 3.5% respectively. My study findings are also similar to studies in low and middle-income countries who found extremely high stillbirth rates among younger adolescents <16 years at 5.2%, closely followed by adolescents aged 17/18 years which was at 4.2% and those aged 18/19 years was reported at 3.6%. The high rates of stillbirth are a unique feature among adolescent pregnancies which has to be studied further [38]. There is a need for deliberate efforts to monitor adolescent mothers from the onset of pregnancy, until delivery, identify risk factors for poor pregnancy outcomes and provide adequate support to the adolescent mothers so as to minimize these poor outcomes.

At the multivariate level; babies born <2.5kg were more likely to have stillbirth than their counterparts. The high rates of stillbirth among adolescent births were associated with complications related to the low birth weight which include; Hypoglycemia, infections, and hypothermia. This is similar to a study done in Tanzania where adolescent babies <2.5kg were significantly associated with an increased odds of stillbirth (AOR=9.98, 95% CI:8.95-11.13) [37] and significant findings were also observed in Ghana that neonates with low birth weight were at a higher risk of stillbirth; p<0.001 [36]. A study done elsewhere found that the increased risk of stillbirth was significantly associated with low birth weight. However, other observations made by the same study such as poor antenatal attendance, no Partograph use to monitor labor progress, distance from the health facilities, and maternal delivery complications [39] which were affecting stillbirth did not have any significant effect on stillbirth in my study.

Also in my study; male fetuses had higher odds of stillbirth than female fetuses; this reaffirms studies were done in Scotland which found out that male fetuses had a higher risk of dying than the female (RR = 1.19, 95% CI: 1.10, 1.29) [40] and in Ghana who found female neonates were less likely to be stillborn (AOR = 0.62, 95%CI: 0.46-0.84; P= 0.002) compared to male neonates [36]. These findings suggest that mothers more likely to carry male fetuses need to be given extra attention to reduce the risk of stillbirth.

This study also found out that adolescents who had delivered more than once were more likely to deliver stillbirth babies (aOR= 5.5,95% CI 1.7- 17.6, p=0.004), This result is supported by a study done in Eastern Uganda which found that stillbirth was associated with multiple births (AOR 2.57, CI 1.66-3.99) [41]. Repeat adolescent pregnancy is one of the factors which need to be reduced to reduce the risk of stillbirth among adolescent mothers.

On the other hand, my study found the prevalence of Cesarean Section at Apac general hospital to be 10.2% among adolescent mothers. This caesarian section rate is within the WHO recommendation which is between 10 to 15% out of the total deliveries [42] . Apac general hospital is able to achieve the WHO-recommended Caesarian section rate because it has essential staff to carry out emergency obstetric and newborn care services, attributed to a good staffing level. In addition, the referral system from the lower health facilities is strong and there is a functional ambulance service in the district.

The caesarian delivery rate observed in my study is similar to findings earlier observed by Atuheire in Uganda [17] where they found the facility-based caesarian section rate to be 9.9% overall. However, they found that the caesarian section rates were higher in Regional Referral Hospital (23%) and district hospitals (25%). These rates were above the WHO recommendation of 15% and this could have been contributed by two factors, that is; most Health center IVs were not conducting caesarian deliveries but instead referring their mothers to the district or regional referral hospitals. The second reason could have been that there were unnecessarily high caesarian section rates in these Ugandan districts and regional referral hospitals. Apac district on the other hand has maintained a functional two private hospitals within the district that also offer cesarean section thereby leaving Apac hospital caesarian section rate to be within the acceptable limits.

The commonest indication of Cesarean section in my study was obstructed labor. This was similar to a study carried out in Ngora in eastern Uganda which was 14% [19]. Another study in Ghana found the rate of the caesarian section to be 6.59% [20]; significantly lower than in my study. They however used demographic surveillance data and not health facility-based data, which could have caused this significant difference in the rates as their finding reflected a community-based caesarian rate other than a facility-based rate as for the case of my study.

WHO recommends that all mothers in labor should be monitored on partograph. In this study, Partograph use was at 84.1%. The 15.9% who were not monitored on Partograph were mothers who came with complications that needed emergency delivery. The high use of partograph in Apac can be explained by good staffing levels. This was different from other studies in Ethiopia [24] and in Uganda [43] where partograph use was low 6.9% and 69.9% respectively. One study which reported high Partograph utilization at 98% was in Bangladesh and it was a follow-up study after training and mentorship of the family welfare visitors on the use of the Partograph [23]. Therefore, finding a Partograph use rate in a rural district hospital as in my study in Uganda at 84.1% is commendable and this should be encouraged for the other health facilities to emulate. Of importance to note is that most mothers who were referred from lower health facilities (Health Centers IIs and IIIs) were monitored on a Partograph and this aided their early referral to the district hospital.

My study found that adolescent mothers not monitored using a partograph had higher odds of delivery by caesarian section compared to those monitored using a partograph, aOR 2.42 (95%CI; 1.22-4.80, P=0.011). This finding is similar to a hospital-based

study done in Egypt which found that adolescent mothers who were monitored on a Partograph were less likely to be delivered by Cesarean section, aOR 0.3(95%CI; 0.1-0.8) [25] . Similar to this was a study done in Northern England which found that adolescent mothers whose labor was monitored using Partograph were less likely to be delivered by Cesarean section aOR=0.53 (95% CI 0.42 to 0.67) [44].

A significant finding was also made in Ethiopia where an independent risk factor statistically associated with cesarean delivery was labor monitored without Partograph (AOR=15.6, 95%CI: 6.12-40.0)[26]. This was further affirmed by other studies done elsewhere which found out that adolescent mothers whose labor was monitored on a Partograph had a reduced risk of Cesarean section than their counterparts (aOR= 0.75, 95% CI: 0.70–0.80) [45]. All these findings indicate the need for health facilities providing obstetric care to closely monitor adolescent mothers during labor using a Partograph as it is proved to be effective in reducing the unnecessary caesarian section for these adolescents.

The reduction in caesarian section rates for adolescent mothers monitored with a Partograph could have resulted from the fact that poor labor progress among those who get monitored is detected early and interventions to improve the chances of vaginal delivery are made early. Interventions such as rehydration of the mother, augmentation of labor, emptying of the bladder can all be effectively done early with the help of a Partograph, and these increase the chances of vaginal delivery. Also, of importance is the fact that assisted vaginal delivery is made possible when the labor is being closely monitored with a Partograph.

Globally post-partum hemorrhage remains the leading cause of maternal death among adolescents, however in many low- and middle-income countries there is scarcity of information on the magnitude and risk factors for postpartum hemorrhage. In my study, the incidence and risk factors for postpartum hemorrhage were assessed. My study found out that the prevalence of postpartum hemorrhage was 11.2% out of 501 adolescent deliveries. This finding is similar to a study done in Uganda which found out the prevalence of post-partum Hemorrhage to 9.0% [16].

Conclusions

The prevalence of caesarian delivery among adolescent mothers in Apac general hospital was 10.2%. Not monitoring adolescent mothers with a partograph was associated with higher odds of caesarian delivery. The prevalence of stillbirth among adolescents was 4.4% which was higher than the national prevalence of 2.1%. Stillbirth was significantly associated with low birth weight babies (< 2.5kg), fetal sex being male, and babies born to adolescent mothers of repeat delivery.

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