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Factors contributing to increased caesarean deliveries among mothers at maternity ward of Kampala International University teaching hospital, Bushenyi District

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ABSTRACT

This study identifies factors contributing to increased cesarean section rates among mothers at the obstetrics department of Kampala International University Hospital, Bushenyi District. A cross-sectional study design and quantitative methodology were used. As expected, 70 participants (100%) had data analyzed using SPSS results presented in the frequency table. According to the research results, the highest number was 27 (38.6%) at the age of 25 to 31, the least 3 (4.3%) at the age of 39 to 45.The highest number is 31 (44.3%), who completed secondary school. However, 27 (38.6%) are self-employed and 24 (34.3%) are housewives. Socio-economically, only 9 people (12.9%) earn more than 500,000 Ugandan shillings per month. 11 (15.7%) admitted to requesting C/S. Among the causes of CS, fetal distress 16 (22.9%) was the highest and premature rupture of membranes (PROM) 4 (5.7%) the least became significant with P value < ;0.001.53 (75.7%) had gone for prenatal care during their previous pregnancy and among those who had gone for prenatal care, only 12.86% had gone for 4 or more prenatal care visits. 96.88% said that the idea of C/S (due to the condition of mother and baby) came from medical staff.54 (77.1%) participants disagreed with the notion that the hospital or its service providers practice C/S for profit. 24 (34.3%) said that medical service providers perform C/S for students to practice. C/S delivery at KIUTH is not in demand but is high and significant due to age (39-45 years old), occupation (self-employed) or prolonged rupture of membranes. Other obstetric, sociodemographic, and medical facility factors may confer a negligible risk of cesarean delivery.
Keyword: factors, caesarean deliveries, mothers and maternity ward.

INTRODUCTION

Cesarean section is a surgical procedure that involves incisions made through a mother's abdomen (laparotomy) and uterus (hysterectomy) to deliver one or more babies or to remove a dead fetus [1]. The cesarean section serves as a salvage surgical procedure facilitating rapid delivery of the fetus when prolongation of the pregnancy is deemed undesirable. A cesarean section could be performed as an elective procedure when there is a predictable risk to the mother or fetus during labor or in the presence of an identifiable indication for the procedure. The procedure is however undertaken as an emergency when a complication of pregnancy or labor warrants quick intervention to deliver the fetus which is referred to as an indication at that moment [2, 5].

Despite the fact that maternal request has been considered as one of the indications of caesarian section by activists, recognized indications for elective cesarean include having a previous cesarean section, Macrosomia, having a baby in transverse lie/unstable lie, placenta previa, having previous major shoulder dystocia, active genital Herpes infection and Cardiomyopathy with a reduced ejection fraction of less than 40%, among others whereas poor progress of labor, Cephalopelvic disproportion, fetal compromise, abruption placentae, Placenta previa with hemodynamic instability or placenta previa major, Cord prolapse with a live fetus, Transverse lie in labor Footling breech in labor, Uterine rupture, Previous cesarean in labor, Prolonged second stage and failed assisted

vaginal delivery are other most common indications for emergency cesarean sections [4, 5, 6].

In 1985, a panel of Reproductive health experts in a meeting organized by the World Health Organization in Fortaleza, Brazil came to a conclusion of having the ideal caesarian section rate for any region never to get higher than 10-15%, however, that the panel's conclusion was drawn from a review of the limited data available at that time which was mainly from northern European countries that demonstrated good maternal and perinatal outcomes with that rate of caesarean sections. There was scarcity of knowledge of the rate of caesarian section in African states with Uganda inclusive [7].

METHODOLOGY

Study Design

The study was quantitative cross-sectional survey, Questionnaires were administered to a cross section of mothers at maternity ward of Kampala International University. This approach involved finding out the factors contributing to increased cesarean deliveries.

Study Area

The research was conducted in Kampala International University Teaching Hospital. KIU-TH is located in Ishaka, Bushenyi District approximately 360kilometres (220miles) by road, south-west of Kampala, the Capital City of Uganda. It is situated on about 70 acres of land in Ishaka, Mbarara-Kasese highway in Western Uganda with seasonal climate. Geographic coordinates are: 0°32'19.0"S, 30°08'40.0"E at Latitude: -0.538611; and Longitude: 30.144444. (Kampala International University School of Health Sciences - Wikipedia, 2022.)

Study population

The study involved mothers who had undergone cesarean section and spontaneous vaginal delivery on maternity ward in Kampala international teaching hospital.

Inclusion criteria

The study included all mothers in maternity ward who had undergone cesarean section and Spontaneous Vaginal Delivery and have consented to participate in the study.

Exclusion criteria

All mothers found at the maternity ward who had under gone CS and SVD who had refused to give consent.

Sample size determination

The sample size was determined using the formula for simple random sampling using single proportion given by Kish Leslie (1965)

$$n = \frac{Z^2 pq}{d^2}$$

Where n= sample size,

z= value corresponding to 95% level of significance=1.96

P= expected proportion of mothers undergoing cesarean section 24 % [8] = 0.24, q =1-p = (1-0.24) =0.713

d= absolute precision 5% =0.05

$$n = \frac{1.96^2 \times 0.24 \times 0.76}{0.05^2} = 280$$

Therefore n = 280 mothers (minimum sample size) Taking into consideration a 30 % non- respondents and errors, a sample of 364 mothers participated in the study. Therefore, 364questionnaires were distributed.

Sampling procedure

A probability sampling technique by simple random sampling method using a lottery method with replacement was used to select the study participants. The researcher chose randomly study units each day and those who did not consent or those who did not fill questionnaire completely were replaced by others to achieve the sample size. Participants had the same probability to participate in the study.

Data Analysis

Data from the questionnaire was analyzed using SPSS 20.0 software and the results were presented in frequency tables and descriptive analyses. The descriptive statistics were used to ascertain information about the factors influencing increased caesarian deliveries among mothers at Kampala International University Teaching Hospital. Test of association and correlation between explanatory variables and the outcomes of interest was done using Chi square tests.

Ethical considerations

Ethical clearance was obtained from faculty of clinical medicine and dentistry, research committee of KIU. The letter obtained from Faculty of clinical medicine and dentistry was used to introduce the researcher to the in-charge of maternity

ward KIUTH seeking permission to carry out the study. Confidentiality was maintained at all times during the research [9].

The significance of the study was explained to the respondents and only those willing toparticipate were enrolled to take part in the study.

RESULTS

Table 1: The social demographic characteristics of the study participants

Parameter		Frequency (n=70)	Percentage (%)
Maternal age	18-24	25	35.7
	25-31	27	38.6
	32-38	11	15.7
	39-45	**3**	**4.3**
	45 and above	4	5.7
Occupation	Civil Servant	19	27.1
	Self employed	27	38.6
	Housewife	24	34.3
Education level	Primary	13	18.6
	Secondary	31	44.3
	Collage	11	15.7
	University	15	21.4
Socioeconomic status	<100000	18	25.7
	100000-500000	43	61.4
	>500000	9	12.9
Area of residence	Urban	44	62.9
	Rural	26	37.1

The sample population (70 participants) as intended was obtained (100% response rate). Majority 27 (38.6%) of these mothers were 25-31 years age, 25(35.7%) between 18-24 years,
11(15.7%) were 32-38 years, 4(5.7%) were 45 years and above and 3(4.3%) were between 39-45 years of age. Residing in urban areas 44(62.9%) and 26(37.1%) from rural.
In addition, Majority 31(44.3%) of the participants had acquired education up to secondary school, followed by 15 (21.4%) reached University, 13(18.6%) primary school level, and only 11(15.7%) reached college.
However, 27(38.6%) were self-employed, followed Civil servants 19(27.1%) and the rest were house wives 24(34.3%). 18(25.7%) were earning<100,000, 43(61.4) were earning between 100,000-500,000 and 9(12.9%) were earning >500,000 Uganda shillings every month.

Table 2: Maternal Request for C/S (Preference)

Parameter	Frequency (n=70)	Percentage (%)
Yes	11	15.7
No	59	84.3

Of the 70 mothers studied, 11(15.7%) admitted to have ever requested a C/S whereas themajority 59(84.3%) denied to have ever done such.

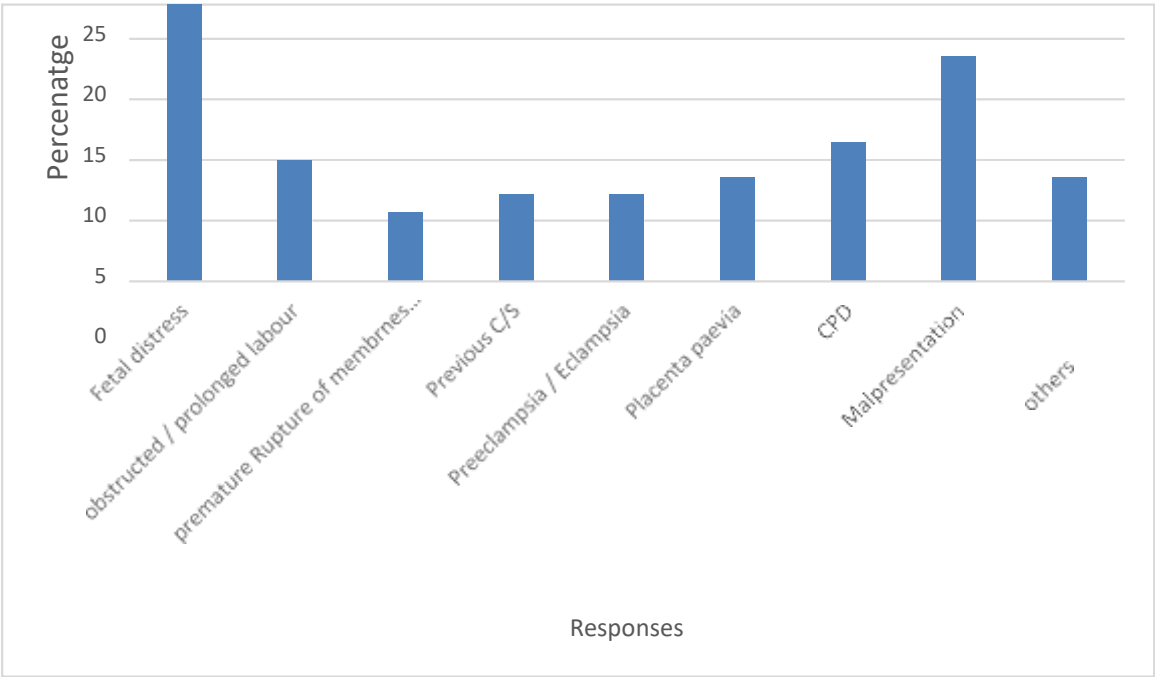

Figure 1: Reasons for C/S

Table 3: Reasons for delivery by C/S

	Parameter	Frequency (n=70)	Percentage (%)
Reasons for CS	Fetal Distress	16	22.9
	Obstructed labor/Prolonged labor	7	10.0
	PROM	**4**	**5.7**
	Previous CS	5	7.1
	Pre-eclampsia	5	7.1
	Placenta praevia	6	8.6
	Cephalo-pelvic disproportion	8	11.4
	Malpresentation	13	18.6
	Others	6	8.6

According to this study findings; reasons for C/S among mothers who did not ask and/or prefer it was as; - Fetal Distress 16(22.9%), followed by Malpresentation 13(18.6%), Cephalo-pelvic disproportion 8(11.8%), Obstructed labor/Prolonged labor 7(10%), Placenta praevia 6(8.6%), Previous CS and Pre-eclampsia with 5(7.1%) each, and lastly premature rupture of membranes (PROM) 4(5.7%). As well as Others 6(8.6%) which included macrosomia, cord prolapse, ectopic pregnancy and maternal exhaustion but not specified in the area/objectives studied in the current research project.

Table 4: ANC attendance

Parameter		'requency(n=70)	rcentage(%)
ANC attendance	Yes	53	75.7
	No	17	24.3
	1-3	61	87.1
Number of times for ANC attendance	4 or more times	9	12.9

Majority, 53(75.7%) had ever attended to ANC in their previous pregnancy.

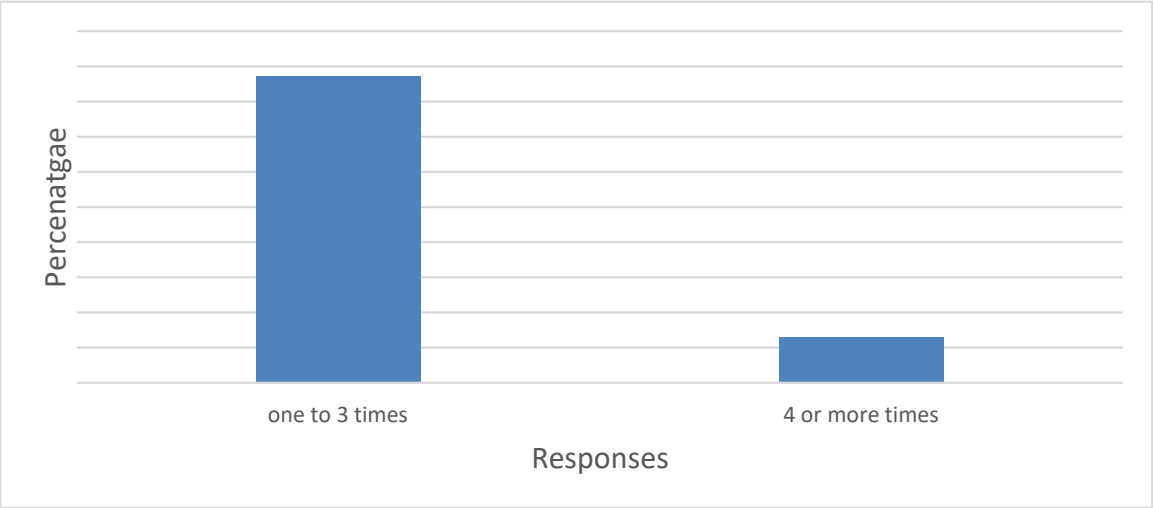

Figure 2: Number of times of ANC attendance

Among those who had attended ANC; 87.14% and 12.86% for 1-3 and 4 or more times respectively.

Table 5: The health facility related factors that may contribute to Caesarean Sections delivery

Parameter		P-value	Odds Ratios 95% Confidence Interval for Exp	Lower Bound	Upper Bound
Whose idea was it	**Health worker**	**<0.001**	**6.086E+10**	**6.086E+10**	**6.086E+10**
	Husband	0.995	1.973E+17	0.000	
	Relative	Ref	1	1	1

*** Statistically Significant (P<0.05)**

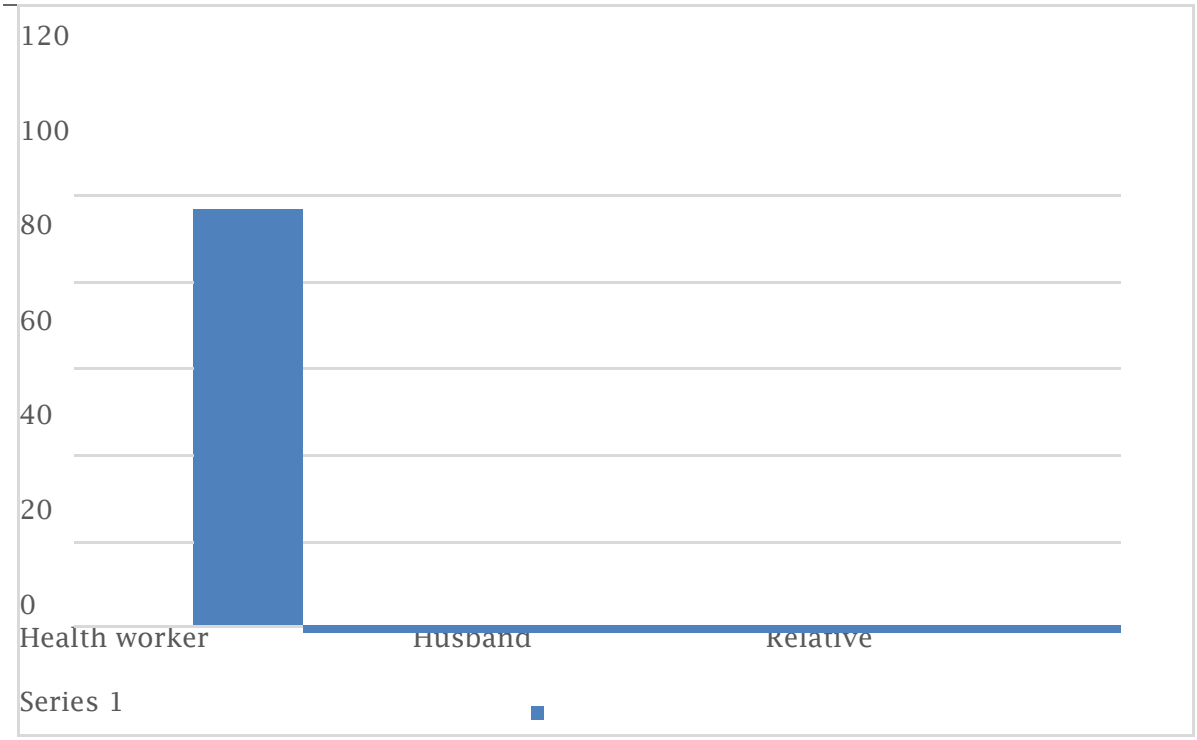

Figure 3: Source of idea for C/S (basing on mother and baby's condition)

96.88% reported that the idea to C/S (due to the mother and baby's condition) was from the health worker, (1.56%) husband and (1.56%) from the relative.

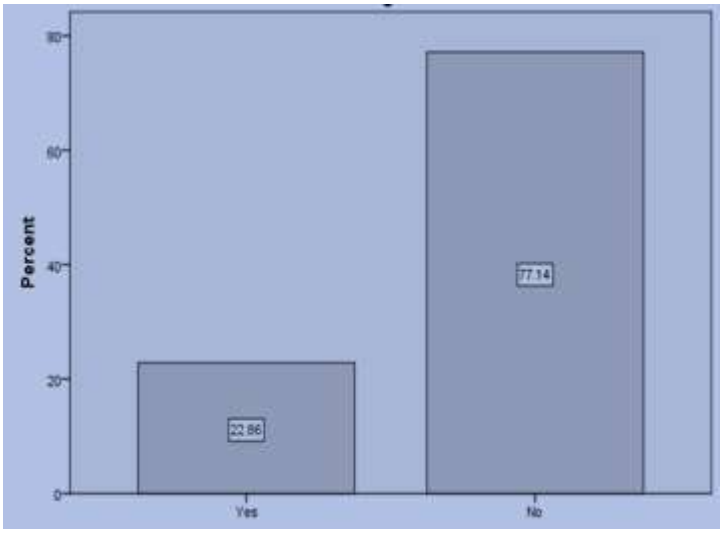

Figure 4: Health workers do C/S for studentpractice

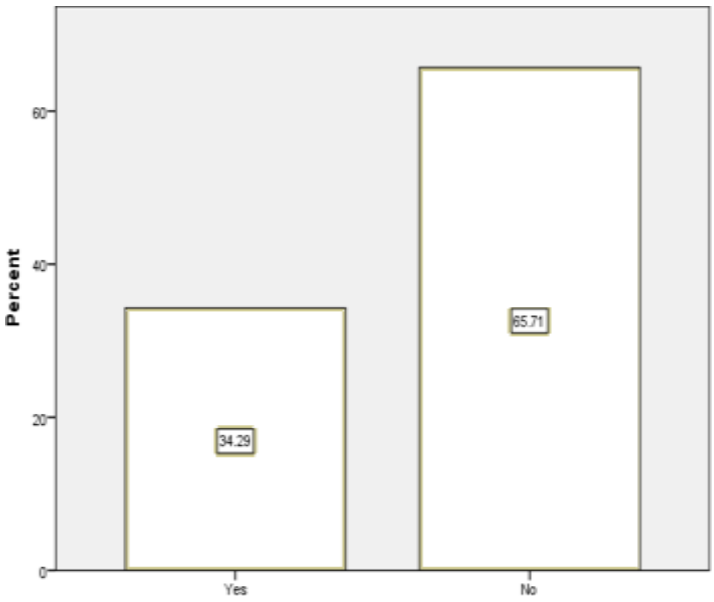

Figure 5: Health workers do C/S for profitmaking

Majority 54(77.1%) of the participants disagreed to the allegation that the hospital or service provider in this hospital does C/S for profit making. However, 16(22.9%) insist that they do for profit making. A considerable number 24(34.3%) think the health service providers do C/S for student practice.

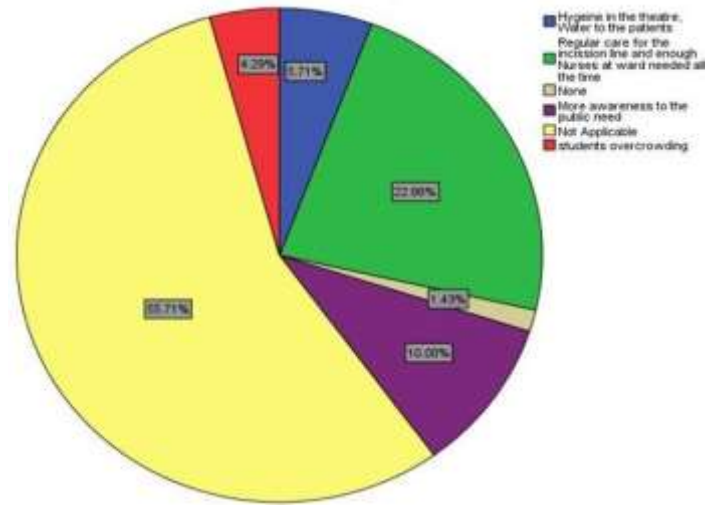

Figure 6: comments put forward by participants

From the current study findings, Majority, 39(55.7%) of the participants did not have any comment on the services as well. However, for those who had issues or comments to put across; the bigger portion 16(22.9%) claimed that there was a need to address the level of regular carefor the incision line and more nurses needed at the ward all times, followed by an increased need for more and/or thorough awareness sessions to the public as far as C/S is concerned 7(10%), 4(5.7%)raised the issue of hygiene in the theatre and need for enough water supply to the patients and 3(4.3%) reported that there is a lot of students' crowding at the ward and 1(1.4%) answered none.

DISCUSSION

According to this study findings, Age 39-45 was significant, p value less than 0.001 just like the findings of [10] where mothers of age <20, 20-34, and 35-49 years had a CS rate of 7.0%, 6.1% and 5.2% respectively, implying a decreasing trend as the age increased unlike in the US, a study in Ontario by [11] where women aged 20-34, 35-40, and over 40years, the rates were 26.2%(27180CS in 103663), 35.9%(8818/24585) and 43.1%(2519/5840) respectively. Therefore, presents positive effect with a decreasing of CS by 0.355 (OR 0.645) probably due to the fact that most of the women around this age are multi-parous mothers. The rest of the age groups were found insignificant but majority of them were, between 25-31 and 18-21 years. Secondly, my study findings regarding occupation; was significant especially self-employed (p value 0.038) and had to negatively affect CS increasing its risk by 46.659 times. However, being ahouse wife (unemployment) had no significant effect on C/S. This is in congruence with a related study in Jordan where; CS rate was significantly higher in employed women (39.6%), compared to the rate of CS in housewives (29.1%) [12].

This was found insignificant however; the odds ratio shows a probable increasing risk with increasing socio-economic status. This was in agreement with a study in Uganda where; cesareansection deliveries increased with the increasing levels of socio-economic status showing that mothers in the lowest, second, middle, fourth, and highest socio-economic status had cesarean section rates of 2.7%, 3.4%, 5.3%, 6.1%, and 14.2% respectively [10]

Lastly, this study went ahead to assess an additional socio-demographic factor (area of residence); and it was found that being from urban area showed an increased risk of 7 times likelihood of undergoing C/S. This was probably due to varying levels of unawareness as reported that a varying level of education exits among the mothers. Thus, maternal education levels were all insignificant but odds ratios for the entire group showed a decreased risk especially for those who reached college and above in congruence with [13];a study in Bangladesh; suggesting that with more education, probably appropriate decisions for Pregnancy, ANC attendance and Delivery plans could be made.

The Obstetrical Related Factors

Out of the 70 mothers studied, 11(15.7%) admitted to have ever requested a C/S whereas the majority 59(84.3%) denied to have ever done such. This is a high proportion compared to [14], a study at Felegehitwot hospital in Ethiopia, where only 1.1% requested forC/S.

According to this study findings; reasons for C/S among mothers who did not ask and/or prefer it was as; Fetal Distress 16(22.9%), followed by Malpresentation 13(18.6%), Cephalo-pelvic disproportion 8(11.8%), Obstructed labor/Prolonged labor 7(10%), Placenta praevia 6(8.6%), Previous CS and Pre-eclampsia with 5(7.1%) each, and lastly premature rupture of membranes (PROM) 4(5.7%). As well as Others 6(8.6%) which included macrosomia, cord prolapse, ectopic pregnancy and maternal exhaustion but not specified in the area/objectives studied in the current research project.

This study complements various related studies including but not limited to [12, 15]; where fetal distress was found to be the leading cause of C/S, However, in this

one; PROM was found to significantly and constantly be associated with C/S delivery. Implying whether requested, or whatsoever; C/S is always the solution according to my findings. Furthermore, other studies report other factors to also influence C/S delivery including Malpresentation [12], Obstructed labor [14]; Pre- eclampsia/eclampsia [11], Previous C/S and placenta Praevia [11]; as well as Cephalopelvic disproportion as reported by [16]. Regarding ANC attendance, majority 53 (75.7%) had attended. However, of these; only 12.86% for 4 or more times, as recommended by WHO guidelines. This could probably have had an impact on the delivery plan of these mothers as well as an effect on the observed C/S levels.

Furthermore, 96.88% reported that idea to deliver by C/S (basing on both mother and baby's condition) was from the health worker whereas, (1.56%) husband and (1.56%) from the relative. Majority 54(77.1%) of the participants disagreed to the allegation that the hospital or service provider at KIUTH does C/S for profit making. Unlike studies elsewhere, where this influenced and significantly increased the rate of C/S [17, 18] as well as it being among the for- profit service providers.

In line with [19], a study in Bangladesh where a substantial proportion of surgeries including C/S were not medically necessary, but conducted so that students particularly those doing post-graduate studies in gynecology and obstetrics may learn to perform caesarean sections. A considerable number 24(34.3%) think the health service providers do C/S for student practice but Majority, (55.7%) were satisfied with these services.

Nonetheless, for those who had issues or comments to put across included; the bigger portion 16(22.9%) which claimed that there was a need to address the level of regular care for the incision line and more nurses needed at the ward all times, followed by an increased need for more and/or thorough awareness sessions to the public as far as C/S is concerned 7(10%),4 (5.7%) raised the issue of hygiene in the theatre and need for enough water supply to the patients and 3(4.3%) reported that there is a lot of students crowding at the ward.

CONCLUSION

In summary, C/S delivery at KIUTH is not requested but highly and significantly due to age (39- 45), occupation (Self-employed) or prolonged rupture of membranes. Other obstetrics factors like fetal distress, malpresentation, pre-eclampsia/eclampsia; as well as socio-demographics and health facility related factors like education level, and socioeconomic factors; and the need for students' practice presented has a probable insignificant risk for C/S delivery at the facility.

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