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Abstract

This study aimed to understand the prevalence and factors associated with caesarean section among expectant women who had delivered from Muhima hospital. Caesarean section is on the rise globally as well as national average where it accounts 24% of all deliveries conducted in hospitals and this increase has exceeded 15% which is recommended by WHO. A cross-sectional survey was conducted using an interview administered questionnaire and data extracted from obstetric chart review between May and June 2022 at Muhima hospital. A sample of 350 pregnant women that gave birth at Muhima District hospital were chosen using a convenience sampling process, whereby every mother that delivered at latter hospital was given same chances of being enrolled into the study. Data was analysed by use of IBM® SPSS 21 version. Out of 350 pregnant women had delivered at Muhima district hospital, 132 women had been delivered by CS making the prevalence of cesarean section to be 37.7%. Factors associated with CS delivery that were found to be significant were maternal age above 30 years (AOR=2.5,95%CI, 1.1-5.6, P=0.03) being single marital status (AOR=2.5,95%CI, 1.2-5.2, P=0.013) and delivering a baby weighing above 4000 grams (AOR=2.5,95%CI, 0.8-7.2, P=0.103). In conclusion, four out of ten pregnant women had delivered by CS at Muhima district hospital. This was common among older maternal age, being single mother, and delivering of big babies. Thus, it is evident that the prevalence of caesarean section is a growing concern in Muhima District Hospital, with a significant number of women undergoing this procedure. Depending on these factors, the country needs further national level policy decisions to reduce the attributed barriers. There is a need to develop and implement targeted educational programs and counselling services for expectant women, particularly older, single, or expecting big babies. These programs emphasize the importance of prenatal care, the risks and benefits of caesarean sections, and possible alternatives to reduce the likelihood of unnecessary caesarean deliveries. Also, it is recommended to strengthen healthcare provider training and adherence to clinical guidelines for caesarean sections. Moreover, it is essential to establish a comprehensive monitoring and evaluation system to track the rate of caesarean sections in the hospital and identify trends in specific patient populations.

Keywords: *Cesarean section, Prevalence, Factors, Pregnant women.*

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1.0 Introduction

Cesarean section is a technique used while a mother is delivering a baby when vaginal procedure has not been used and this involves surgery of both the abdomen and the uterus (Tsega, *et al*.2015). Cesarean section is among the ultimate surgical operations done worldwide, where 1 in 5 surgeries done are due to Cesarean section (Mazimpaka, *et al*.2020). Globally, 18.5 million of cesarean sections are done which accounts for 21% of all childbirths and this increase may result to 29% in 2030 if no interventions done to reduce it (Rasool, *et al.*2021). Cesarean section is believed to be done in order to save maternal and infant lives and reduce maternal and infant mortality in case of delivery complications and related factors of the mother (Kibe, et al.2021) but it also has consequences that rise from it and affect the mother's life and increase maternal morbidity and mortality like postpartum hemorrhage, hypertensive problems, anesthesia-related deaths, infection from wound, surgical injury, embolism, Acute vascular collapse, and risks of more CS in future pregnancies (Goldenberg, *et al*.2016).

In recent years, there has been a significant increase in cesarean section (CS) rates in Rwanda. According to a study by Kibe et al. (2021), the rate of CS has risen from 2.2% in 2000 to 15.6% in 2019-20. In Kigali City, the capital of Rwanda, the increase has been even more pronounced, with CS rates growing from 8.8% in 2000 to 26.4% in 2019-20. This indicates that in Rwanda, CS now accounts for 60% of all surgeries performed. There are several factors that contribute to the rising CS rates in Rwanda. Kibe et al. (2021) identified medical factors such as obstructed and prolonged labor, fetal distress, babies' abnormal position, antepartum hemorrhage, placenta previa, intrapartum fetal distress, breech presentation, preeclampsia and eclampsia, pregnancies exceeding 42 weeks of gestational age, and contracted pelvis. In addition to these medical factors, socio-demographic factors also play a role in the increase of CS rates in Rwanda. Kibe et al. (2021) found that factors such as the mother's education, age, parity, contraceptive use, occupation, number of antenatal care (ANC) visits, marital status, and socio-economic factors can influence the decision to undergo a CS. The rise in CS rates in Rwanda mirrors a global trend, with many countries experiencing an increase in the number of cesarean sections performed. While CS can be a lifesaving procedure for both mother and child in some cases, it is important to consider the reasons behind this increase and ensure that CS is performed only when medically necessary. This formed the basis of the current study.

1.1 Statement of the problem

The increase of cesarean section is a public health concern as the deaths risk of woman delivered by CS is 3 times more than the woman that delivered by vaginal method. It can lead to several side effects such as postpartum hemorrhage, hypertensive problems, anesthesia-related deaths, wound sepsis, surgical injury, embolism, acute vascular collapse, and risks of more CS in future pregnancies (Goldenberg, *et al*.2016).According to WHO (1990-2014) recommends that CS should not go below 10% or exceed 15% in order to reduce maternal and child mortality, on the contrary if it continues to rise above the

recommended percentage it may result in the increase in long term and short term maternal morbidity as well as mortality. In Rwanda it has exceeded 15% where it increased from 2.2% in 2000 to 15.6% in 2019-20, for all provinces of Rwanda, among them the high rates of CS was in Kigali city where it increased from 8.8% in 2000 to 26.4% in 2019-20 (Kibe, *et al*.2021). In 2021, the cesarean section rates increased to 22% among all the deliveries in Rwanda where 71% of them were from Nyarugenge district as it is where Muhima District hospital is located as the area of the study (MCCH, 2020-2021). There are limited studies done about cesarean section and the factors linked to it and the research will focus on identifying the prevalence and factors associated with it in Muhima district hospital

1.2 Research objectives

The objective of the study was to assess the prevalence and factors associated with caesarean section among pregnant women delivering at Muhima district hospital.

2.0 Theoretical review

Cesarean sections (CS) are often performed to save the lives of both the mother and the child in cases of complications before and during delivery. The primary goal is to reduce maternal morbidity, maternal and child mortality, and to assist pregnant women in critical conditions (Amjad et al., 2018). While CS has played a significant role in reducing maternal and neonatal mortality, it also comes with various consequences. Globally, approximately 20 million cesarean sections are performed every year across low, middle, and high-income countries, leading to various effects on mothers (Ayalew et al., 2020). The increase in CS rates has been associated with several side effects, including uterine rupture, damage to the pelvic organs, severe hemorrhage during and after CS delivery, hypertensive problems, wound infections, surgical injuries, anesthesia-related deaths, pregnancy-related sepsis, acute vascular collapse, female postpartum sexual dysfunction, increased risk of thromboembolism, and a higher risk of cesarean sections in future pregnancies (Harrison & Goldenberg, 2016; Yaya et al., 2018). It is essential to recognize that although cesarean sections have saved many lives, they are not without risks. Healthcare providers and policymakers should carefully consider these potential consequences when making decisions about the frequency and necessity of CS procedures.

2.1 Empirical literature

There were several empirical studies conducted on the prevalence of cesarean section and few on factors associated to it where they shown an increase in cesarean section among different countries worldwide (Kibe, *et al*.2021) and it continues to rise as it was 21% in a study conducted in 2021 and being estimated that if no intervention done it will increase up to 29% and more by 2030 globally which result to increase in maternal morbidity and mortality (Rasool, *et al*.2021). In 2019, Cesarean section rate increased in middle to high income countries where its prevalence in China was 25.9%, in Australia/New Zeeland was 32.3%, in Brazil was 45.9% and among 659 deliveries performed in Nigeria 2.9% (95% CI 1.8 to 2.3) of them were cesarean section and for this country there was no increase and

this reflected a lack of access to comprehensive essential obstetric care services (Adewuyi, *et al*.2019)

According to RDHS in 2019-20, of all surgeries performed in Rwanda, 60% of them are for CS (Kibe, *et al*.2021). The prevalence of cesarean section in Rwanda is 22% among all the deliveries done and this varied differently among different districts of the country where the district that had a lowest prevalence was Nyabihu district with a rate of 9% and the district that had a highest prevalence was Gasabo district with a rate of 37% followed by Nyarugenge with a prevalence of 36% and it was shown that Nyarugenge based hospitals perfomed cesarean section on 71% patients and among those Nyarugenge based hospitals, Muhima hospital had a highest rate of 35%. The prevalence of cesarean section also varied between public and private health facilities where in private it was 60.6% in 2019-20 and in public health facilities was 15.4% in 2019-20 (Kibe, *et al*.2021) (MCCH, 2020-2021). There were factors associated with the increase of Cesarean Section like Socio-economic factors and socio-demographic factors which include (maternal age, education background, place of residence) (Nedberg, *et al*. 2020) (Verma, *et al*.2020), Antenatal factors and Obstetric factors like (antenatal care visits, contraceptive use, gestation age and parity) (Nedberg, *et al*. 2020) (Hailegebreal, *et al*.2021) and neonatal factors which included (babies' weight, sex and type of pregnancy if were twins, triplets) (Nedberg, *et al*. 2020). (Kibe, *et al*.2021)

3.0 Research Methodology

This study used a cross-sectional study and was done using a semi structured questionnaire and data which was extracted from obstetric chart review in order to confirm the obstetric and neonatal factors associated with cesarean section among pregnant women who delivered at Muhima district hospital within a period of study. The participants of the study were chosen based on the inclusion and exclusion criteria. The study focused on 350 mothers that delivered at Muhima district hospital and were selected by use of convenience sampling technique and were eligible and voluntarily wanted to participate in the study responded to the questionnaire which include three sections of which section A that was socio-demographic and socio-economic factors while section B was composed of obstetric factors, C was neonatal factors. The secondary data extracted from obstetric chart review was used in order to confirm the obstetric and neonatal factors indicated on the questionnaire, their responses were used to analyze the factors linked with cesarean section in a period of study at MDH. The data that was identified from the questionnaires and obstetric chart review and was entered and analyzed using IBM® SPSS 21 version.

4.0 Research findings and Discussion

The results presented in Figure 1 illustrate the distribution of different modes of delivery among the study population.

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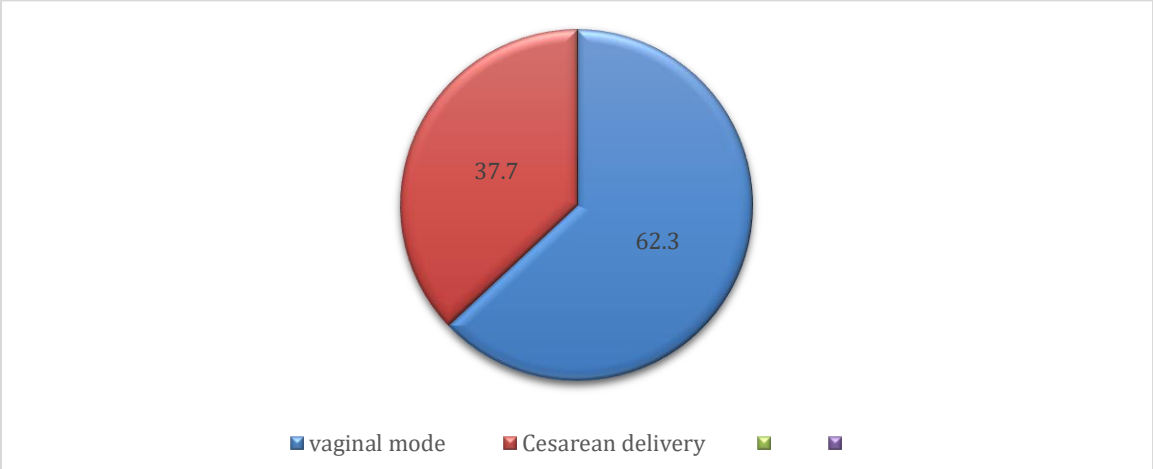

Figure 1: Mode of delivery

The study conducted at Muhima District Hospital involved 350 pregnant women who delivered during the study period. Among them, 218 (62.3%) delivered vaginally, while 132 underwent cesarean section. This resulted in a cesarean section prevalence of 37.7% at Muhima District Hospital, as illustrated in Figure 1. Table 1 displays the socio-demographic and socio-economic factors associated with cesarean section among pregnant women delivering at Muhima district hospital.

Table 1: Socio-demographic and socio-economic factors associated with cesarean section among pregnant women delivering at Muhima district hospital

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Independent variables	Mode of delivery		P-value
	Cesarean section n (%)	Vaginal mode n (%)	
Mother's age			**0.018**
16-22	26(39.4%)	40(60.6%)	
23-29	49(32.2%)	103(67.8%)	
30-36	45(50.6%)	44(49.4%)	
≥37	12(27.9%)	31(72.1%)	
Mother's education level			0.052
Primary	74(35.2%)	136(64.8%)	
Secondary	57(43.8%)	73(56.2%)	
Tertiary	1(10%)	9(90%)	
Partner's education level			0.095
Primary	63(32.6%)	130(57.4%)	
Secondary	58(43.9%)	74(56.1%)	
Tertiary	11(44%)	14(56%)	
Marital status			**0.021**
Single	24(53.3%)	21(46.7%)	
Married	108(35.4%)	197(64.6%)	
Mother's occupation background			0.923
Unemployed	75(37.3%)	126(62.7%)	
Employed	17(36.2%)	30(63.8%)	
Self-employed	40(39.2%)	62(60.8%)	
Contraceptive method			
Implants			**0.033**
IUD	26(39.4%)	40(60.6%)	
Lactation amenorrhea	40(50.6%)	39(49.4%)	
Condoms	64(32.7%)	132(67.3%)	
	2(22.2%)	7(77.8%)	
Social class category			0.219
Class one	13(27.7%)	34(72.3%)	
Class two	72(37.5%)	120(62.5%)	
Class three	47(42.3%)	64(57.7%)	

Table 1 presents the association between socio-demographic and socio-economic factors and the mode of delivery among pregnant women delivering at Muhima district hospital. The independent variables include mother's age, mother's education level, partner's education level, marital status, mother's occupation background, contraceptive method, and social class category. The mode of delivery is categorized into cesarean section and vaginal

mode. The results indicate that mother's age has a significant association with the mode of delivery (P-value = 0.018). Among women aged 16-22, 39.4% had a cesarean section, while 60.6% had a vaginal delivery. The cesarean section rate was highest (50.6%) among women aged 30-36 and lowest (27.9%) among those aged ≥37. Mother's education level showed a marginally significant association with the mode of delivery (P-value = 0.052). Women with tertiary education had the lowest cesarean section rate (10%), while those with secondary education had the highest rate (43.8%). Partner's education level was not significantly associated with the mode of delivery (P-value = 0.095), with cesarean section rates being fairly similar across all education levels. Marital status had a significant association with the mode of delivery (P-value = 0.021). Single women had a higher cesarean section rate (53.3%) compared to married women (35.4%). Mother's occupation background was not significantly associated with the mode of delivery (P-value = 0.923), with cesarean section rates ranging from 36.2% to 39.2% across different occupation backgrounds. The contraceptive method was significantly associated with the mode of delivery (P-value = 0.033). Women who used intrauterine devices (IUD) had the highest cesarean section rate (50.6%), while those who used condoms had the lowest rate (22.2%). Finally, social class category was not significantly associated with the mode of delivery (P-value = 0.219), with cesarean section rates ranging from 27.7% to 42.3% across different social classes. Table 2 presents the multivariable analysis of the socio-demographic and socio-economic factors associated with cesarean section among pregnant women delivering at Muhima district hospital.

Table 2: Multivariable analysis of socio-demographic and socio-economic factors associated with cesarean section among pregnant women delivering at Muhima district hospital.

Variables	Description	AOR	95% CI		P value
			Lower	Upper	
Maternal age	16-22	1.280	0.514	3.191	0.596
	23-29	1.191	0.553	2.566	0.656
	30-36	2.505	1.121	5.594	0.025
	>37	Ref			
Marital status	Single	2.508	1.210	5.198	**0.013**
	Married	Ref			
Contraceptive method	Implants	1.785	0.336	9.502	0.497
	IUD	2.683	0.512	14.048	0.243
	Lactation amenorrhea	1.269	0.249	6.460	0.774
	Condoms	Ref			

The variables that were found to be significantly associated with cesarean section in bivariate analysis they were taken to multivariate analysis. The results in table 2 showed that being a single mother was significantly associated with cesarean section where single mothers were 2.5 times more likely to deliver by cesarean section compared to married

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mothers (AOR=2.5, 95%CI, 1.2-5.1, P=0.013). Maternal age was significantly associated with cesarean section where mothers who were 30-36 years old were 2.5 times more likely to deliver by C-section than those who were >37 years old (AOR=2.5, 95%CI, 1.1-5.5, P=0.025). Table 3 showcases the obstetric and neonatal factors associated with cesarean section among pregnant women delivering at Muhima district hospital.

Table 3: The obstetric and neonatal factors associated with cesarean section among pregnant women delivering at Muhima district hospital

Independent variables	Mode of delivery		P-value
	Cesarean section n (%)	Vaginal mode n (%)	

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C-section in previous pregnancy			**<0.001**
Yes	29(96.7%)	1(3.3%)	
No	103(32.2%)	217(67.8%)	
Antenatal care attendance	5(33.3%)		
One visit	7(25%)	10(66.7%)	0.424
Two visits	67(37.4%)	21(75%)	
Three visits	53(41.4%)	112(62.6%)	
Four visits		75(58.6%)	
Parity			0.986
First pregnancy	32(37.2%)	54(62.8%)	
Second pregnancy	49(38.9%)	77(61.1%)	
Third pregnancy	33(37.5%)	55(62.5%)	
>Four pregnancy	18(36%)	32(64%)	
Failed induction of labor			<0.001
Yes	13(100%)	0	
No	119(35.3%)	218(64.7%)	
Antepartum hemorrhage			
Yes	5(83.3%)	1(16.7%)	**0.020**
No	127(36.9%)	217(63.1%)	
Abnormal placentation			<0.001
Yes	8(100%)	0	
No	124(36.3%)	218(63.7%)	
Prolonged or Obstructed labor			
Yes		1(7.1%)	**<0.001**
No	13(92.9%)	217(64.6%)	
	119(35.4%)		
Preeclampsia			0.263
Yes	5(55.6%)	4(44.4%)	
No	127(37.2%)	214(62.8%)	
Baby's weight			**0.047**
2500-3999 grams	112(36.2%)	197(63.8%)	
>4000 grams	16(59.3%)	11(40.7%)	
Preterm	4(28.6%)	10(71.4%)	
Baby's sex			0.598
Male	86(36.8%)	148(63.2%)	
Female	46(39.7%)	70(60.3%)	
Cephalopelvic disproportion			<**0.001**
Yes			
No	18(75%)	6(25%)	
	114(35%)	212(65%)	
Breech presentation			<0.001
Yes	13(100%)	0	
No	119(35.3%)	218(64.7%)	
Fetal distress	41(91.1%)	4(8.9%)	**<0.001**
Yes	91(29.8%)	214(70.2%)	
No			
Multiple babies			**<0.001**
Yes	12(85.7%)	2(14.3%)	
No	120(35.7%)	216(64.3%)	
Fetal gestation age			
33-39			0.897
40-46	39(38.2%)	63(61.8%)	
	93(37.5%)	155(62.5%)	

Table 3 presents the obstetric and neonatal factors associated with cesarean section among pregnant women delivering at Muhima district hospital. The results reveal that a history of cesarean section in a previous pregnancy is significantly associated with the likelihood of having a cesarean section in the current pregnancy (96.7% vs. 3.3%, $p < 0.001$). However, there is no significant association between antenatal care attendance and mode of delivery

(p = 0.424). Parity is also not significantly associated with cesarean section rates (p = 0.986). Failed induction of labor shows a strong association with the mode of delivery, with 100% of women with failed induction undergoing cesarean section (p < 0.001). Antepartum hemorrhage is significantly associated with cesarean section (83.3% vs. 16.7%, p = 0.020), as is abnormal placentation (100% vs. 0%, p < 0.001). Prolonged or obstructed labor is also significantly related to cesarean section (92.9% vs. 7.1%, p < 0.001), while preeclampsia shows no significant association (p = 0.263).

Baby's weight is significantly associated with the mode of delivery, with 59.3% of babies weighing more than 4000 grams being born via cesarean section (p = 0.047). Baby's sex, however, is not significantly associated with the mode of delivery (p = 0.598). Cephalopelvic disproportion shows a strong association with cesarean section (75% vs. 25%, p < 0.001), as does breech presentation (100% vs. 0%, p < 0.001). Fetal distress is significantly associated with cesarean section (91.1% vs. 8.9%, p < 0.001), and multiple pregnancies are also significantly related to cesarean section rates (85.7% vs. 14.3%, p < 0.001). Finally, there is no significant association between fetal gestation age and mode of delivery (p = 0.897). Table 4 presents the results of a multivariate analysis conducted to examine the relationship between various obstetric and neonatal factors and the likelihood of cesarean section in pregnant women delivering at Muhima District Hospital.

Table 4: Multivariate analysis of obstetric and neonatal factors associated with cesarean section among pregnant women delivering at Muhima district hospital.

Variables	Description	AOR	95%CI		P value
			Lower	Upper	
Previous CS	No	0.007	0.001	0.057	**<0.001**
	Yes	Ref			
APH	No	0.048	0.005	0.505	**0.011**
	Yes	Ref			
Prolonged and Obstructed labor	No	0.045	0.005	0.406	**0.006**
	Yes	Ref			
Babies' weight (grams)	2500-3999	Ref			
	>4000 g	2.451	0.833	7.207	0.103
	Preterm	0.534	0.092	3.101	0.484
CPD	No	0.197	0.061	0.638	**0.007**
	Yes	Ref			
Fetal distress	No	0.022	0.007	0.067	**<0.001**
	Yes	Ref			
Multiple babies	No	0.040	0.008	0.197	**<0.001**
	Yes	Ref			

The obstetric and neonatal variables that were significantly associated with cesarean section in the bivariate analysis were taken to multivariate analysis to analyze the relationship and comparison between them where the results presented in table 4 indicated that mothers who didn't have cesarean section in previous pregnancy were 0.007 times less likely to deliver by C-section compared to those who had cesarean section in previous

pregnancy (AOR=0.007, 95%CI, 0.001-0.057, P<0.001) mothers who didn't experience antepartum hemorrhage were 0.048 times less likely to deliver by C-section compared to mothers who had antepartum hemorrhage (AOR=0.048, 95%CI, 0.005-0.5, P=0.011), the respondents who didn't have prolonged or obstructed labor were 0.045 times less likely to deliver via C-section compared to those who had it (AOR=0.045, 95%CI, 0.005-0.4, P=0.006).

Babies who did not have fetal distress were 0.022 times less likely to be born by cesarean section mode compared to those who had fetal distress (AOR=0.022, 95%CI, 0.007-0.067, P<0.001) and Regarding the babies weight, those who were born with >4000 grams were 2.451 times more likely to be born by cesarean section compared to those who were born with 2500-3999 grams (AOR=2.451, 95%CI, 0.8-7.2, P=0.103). This research was done in order to determine the prevalence of cesarean section and factors associated with cesarean section and to establish the obstetrics and neonatal factors associated with cesarean section in Muhima district hospital.

A total number of 350 women participated in the study as the study's respondents and 37.7% of them delivered by cesarean section mode while other 62.3% delivered by vaginal mode and this rate of CS has exceeded the WHO recommended prevalence of cesarean section which is 10-15% (Manyeh, *et al*.2018) and nationally it has also exceeded where it was 15.6% in 2019-20 and increased to 24% this increase may be due to the fact that the national prevalence was conducted from the average of different hospitals where some hospitals had low prevalence which made the national prevalence to be small compared to that of Muhima district hospital and the increase in prevalence of cesarean section may be due to the fact that Muhima district hospital is the center of maternal and child health care, all these rise were may be due to the interventions done to save the mother-child lives hence decrease maternal and child mortality rate and there if possible should be more studies to be conducted from different hospitals in order to identify other reason behind this rise of cesarean section hence measures be taken to reduce and prevent it regarding this problem by strengthening the building capacity in emergency triage in order to ensure timely care and interventions are done in order to reduce the maternal morbidities and mortalities.

Regarding to the factors contributing to the increase of cesarean section, marital status was associated with cesarean section where the single mothers were 2.5 times more likely to deliver by cesarean section than the married mothers may be this is due to the lack of the courage from their partners, that caused single mothers to be a larger number of those who deliver by CS than married mothers, there should be emphasis made to reduce the unwanted pregnancies from single girls as well as single mothers in order to reduce the problem of cesarean section by the use of contraceptive methods which can be applied not only to married couples but also to single ladies as well as mothers.

The other factor that was more likely to be associated with cesarean section was delivering a big baby where by a mother who delivered a baby that weighed above 4000 grams was 2.5 times was more likely to deliver by cesarean section mode and this was not only seen in this current study but also in other studies like that conducted in USA by Nedberg, *et al.*

2020 where delivering a baby weighing >4000grams was 2.3 times significantly associated with cesarean section.

5.0. Conclusion

The multivariate analysis of obstetric and neonatal variables revealed significant associations with cesarean section (CS). Mothers without a previous CS were less likely to have a CS, as were those without antepartum hemorrhage or prolonged/obstructed labor. Babies without fetal distress were less likely to be born via CS, while those with a weight >4000 grams were more likely. The study, conducted at Muhima District Hospital, had a 37.7% CS rate, exceeding the WHO's recommended rate and Rwanda's national average. Muhima's higher rate may be due to its status as a maternal and child healthcare center. Further research in other hospitals could help identify reasons for the increase and potential preventive measures. Factors contributing to the CS increase include marital status, with single mothers more likely to have a CS, and delivering larger babies. Emphasis on reducing unwanted pregnancies and promoting contraceptive use in both single and married individuals could help mitigate the issue.

6.0. Recommendations

Based on the study's findings the study recommends the ministry of health to put measures at the health facilities regarding on how to reduce the prevalence of cesarean section delivery where possible as it has side effects, to conduct different researches in different hospitals not only Muhima district hospital so that there be known the root of the cesarean section rise problem. The study also recommends Muhima district hospital to encourage mothers who come to deliver at the hospital to prevent pregnancies in older ages like above 35 hence in order to prevent CS as it is associated with maternal age. The study further recommends the midwives that they should educate the mothers that come to deliver at Muhima district hospital about the effects of cesarean section and on how to prevent themselves the factors that contribute to it like delivering while in older age and getting pregnant when a single mother. The recommendation regarding the community is to educate single mothers to be and single girls about the side effects of cesarean section and put efforts in preventing it where possible and encourage them to go for vaginal mode delivery and to put more emphasis on not giving birth in older ages above 35 years that it may give more chances of delivering by cesarean section mode as well as educating them on how to prevent unwanted pregnancies in single mothers. To other researchers, the study recommend them to do more researches in order to identify other factors rather than those this study analyzed so that there can be a clear picture of which factors that are contributing to the increase in prevalence of cesarean section and if identified there can be a way of reducing and preventing the preventable factors associated with cesarean section.

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