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# RESEARCH ARTICLE

## PREVALENCE OF CAESAREAN SECTION IN WESTERN PROVINCIAL GENERAL HOSPITAL

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**ABSTRACT**

Caesarean section is a common surgical procedure worldwide that is performed on pregnant Women with an estimated prevalence rate of 33%. Owing to its variable indications the Prevalence rate of caesarean section ranges from 4% in Africa to 29% in Latin America and the Caribbean. The operation is only 100 years old. WHO recommends that caesarean section rate should not exceed 15%. The study was conduct to determine the prevalence of caesarean section and factors associated with it. The study adopted a retrospective Records review design by examining patients' files for those who had delivered in Western Provincial General Hospital, Kakamega county Kenya. The target population were all women who between months of January to December 2012. The study did a Survey of all records. Result indicates that prevalence Cesarean Section was at 19 per every hundred deliveries. Out of 3589 deliveries 2899(80.8%) were spontaneous vertex deliveries while 690(19.2%), obstructed labour 414(60%), foetal distress 138(20%), pre eclampsia 55(8%), Previous scar 27(4%), placenta previa 7(1%), placenta abruption 7(1%), cord prolapse 7(1%) and previous medical history as multiple births 21(3%), Diabetes 14(2%), no previous scar 683(96%), while those who had previous scar were 27(4%). Alive discharges are associated with CS as compared to deaths after Cesarean Section. And among the deaths associated to Cesarean Section more were after the deliveries. Cesarean Section is not associated patients HIV status of being HIV + (positive). Referrals were due to obstructed labour 81(50.3%), pre eclampsia 40(24.8%), previous scar 20(12.4%), twin pregnancy 5(3.1%), placenta praevia 15(9.3%). The study recommends a farther broader coverage study.

**List of Abbreviations and Acronyms**

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| BSCN | Bachelor of Science in Nursing |
| CDC | Centres for Disease Control and prevention |
| C/S | Caesarean section |
| HIV | Human Immunodeficiency Virus |
| MOH | Ministry Of Health |
| NHIF | National Hospital Insurance Fund |
| RCOG | Royal College of Obstetrician and Gynaecologists |
| SVD | Spontaneous Vaginal Delivery |
| WHO | World Health Organization |
| W.P.G.H | Western Provincial General Hospital |
| W.H.O | World Health Organization |



## INTRODUCTION

Caesarean section is a common surgical procedure worldwide that is performed on pregnant Women with an estimated prevalence rate of 33%. Owing to its variable indications the Prevalence rate of caesarean section ranges from 4% in Africa to 29% in Latin America and the Caribbean.

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The operation is only 100 years old yet it has evolved from a dangerous procedure performed to save a mother's life when the foetus was dead, to relatively safe one that is utilised to ensure both foetal and maternal well-being. Globally, the caesarean section rate is rising despite national goals to decrease their occurrence to 15%. WHO recommends that caesarean section rate should not exceed 15%.The best recommended outcomes for both mother and baby are at the rates of 5% to 10% (Althabe and Belizan,2009).The United States recorded a prevalence rate of 32.8% of all the deliveries

conducted in 2011(Hamilton *et al*,2012).So about one mother in three gives birth by caesarean section. The caesarean section rate in the United Kingdom and Canada was both 20% (Marcia *et al*,2009).In Vietnam, the c/s rates remain high at 36% which is attributed to the genetic predisposition of small bodied hence small pelvis which lead to cephalopelvic disproportion by fetus(Leamtuan, 2009). Regionally CS rate is at 3.5% in Africa associated to incorrect reporting of cases.

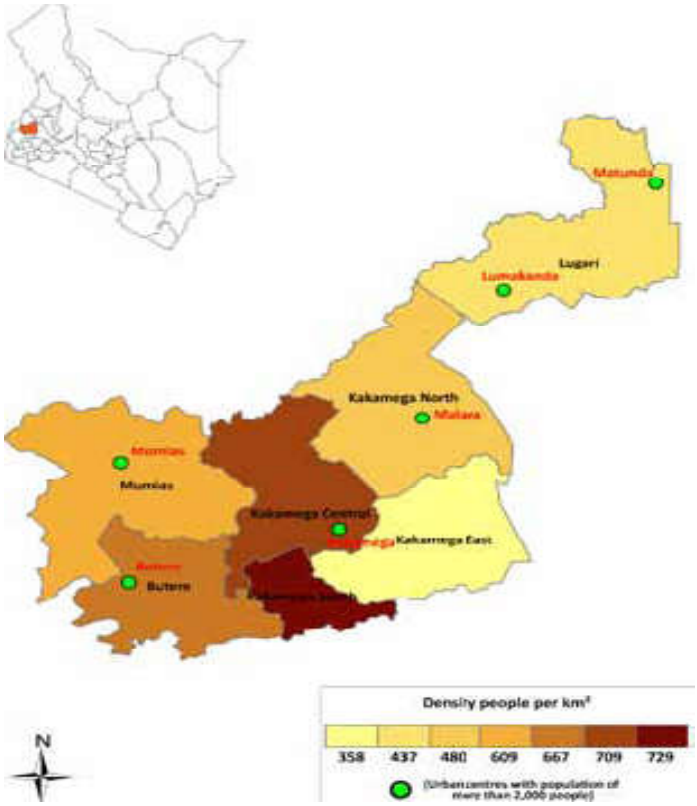


**Figure 1. Map of Kakamega county**

In sub-Saharan Africa the caesarean section rate was estimated at 1-2% as the access to safe caesarean section in resource limited settings is much lower. Maternal and early neonatal mortality in Congo, Burundi and Sierra leone are the contributing factors to low caesarean section rate in 2011(Ford *et al*,2012).In 2008,the WHO estimated that 99% of women died in complication. In West Africa the caesarean rate was 23% in 2008.In Kenya, the prevalence rate of caesarean section is 26% with the most affected group being 15 to 40 years(KDHS, 2009).In Pumwani maternity hospital, being the largest maternity hospital in sub-Saharan Africa, the prevalence rate was 25% according to quarterly report(June,2012).

In Kenyatta National Hospital the caesarean section rate was 6.3% , while in Moi Teaching and Referral Hospital the rate was at 4.6% both according to the quarterly reports(June,2012). The Nyanza provincial Hospital which is currently the Jaramogi Oginga Odinga Teaching and Referral Hospital was 21%, quarterly report (June,2012). Locally in WPGH health records report 2012 indicated 24% of the births were delivered by caesarean section between the months of January to December 2012. No study has been done in WPGH hence there was need of justification to conduct the study to determine the prevalence of caesarean section and factors associated with it.

**Specific Objectives**

- To determine the prevalence rate of caesarean section among women who attend WPGH**.**
- To determine the factors contributing to cesarean section.
- To identify the health conditions associated with caesarean section in WPGH
- To analyse trends of CS deliveries among pregnant women with in WPGH.

## MATERIALS AND METHODS

**Study Design:** The study adopted a retrospective Records review design by examining patients' files for those who had delivered in Western Provincial General Hospital, Kakamega county Kenya and cross section by qualitative interviews of health care providers which included doctors, nurses and anaesthetists.

**Study Locale:** The study was carried out in Western Provincial General Hospital, Kakamega County, Kenya. It also served populations from neighbouring counties of Bungoma, Vihiga, Kisumu and Uasin Gisu.

**Target population:** The target population were all women who delivered in Western Provincial General Hospital in the months of January to December 2012.

**Inclusion criteria**: All records of women who delivered in Western Provincial General Hospital and were aged between 15 to 49 years in the months of January to December 2012.

**Exclusion Criteria:** Women whose age was out of study brackets (below 15 years and above 50 years).

**Sampling procedure and sample size:** The study did a Survey of all records of all deliveries during the months of January to December 2012.

**Study variables**

**Dependent Variables:** Deliveries through cesarean section both elective and emergency cesarean section.

**Independent Variables:** *social demographic* characteristics of women who had given birth through caesarean section. These included age, parity, education level, marriage and economic well-being. The socio-demographic factors were evaluated to check their influence on choice of delivery method.

***Medical advice:*** Included mothers who gave birth through cesarean section as a result of medical complications. These medical complications included diabetes, cephalopelvic disproportion, pre-eclampsia, multiple pregnancy, foetal distress, placenta abruption, placenta previa, uterine rupture, repeated cesarean section and cord prolapse.

***Service delivery factors:*** Included hospital policy in relation to delivery method.

**Limitations of the study:** The study depended on the recorded data from medical records as the key source and staff interviews.

**Data analysis:** Data cleaned, coded and analysis done using SPSS version 18 package.

**Ethical considerations:** Study sought approval from the Research Committee Board of Masinde Muliro University. The permission was sought from the ministry of health through the medical superintendent at the WPGH to access Medical records and interview employees. Individual staff gave consent to participate in the study.

## RESULTS

**Socio-demographic characteristics of women with cesarean section deliveries**

The study reviewed 690 records of cesarean section cases. The records indicate that the patients' mean age was 26.5 years. Marital status showed 414(70%) married, 138(20%) single, 82(12%) widows and 55(8%) divorced. On parity majority were first pregnancies 400(58%), Second pregnancies 221(32%), third pregnancies 48(7%) and multiparous of fourth pregnancy and above 21(3%). Education level indicates primary level 150(21.7%), secondary level 360(52.6%), college level 100(14.5%) and tertiary 80(11.6%). Among all the cesarean section deliveries 220(31%) were not employed, 270(39%) self-employed while 200 (30%) were employed by the civil service.

**Caesarean section Prevalence**

The study sought to determine the prevalence rate of cesarean section among women who attend WPGH**.** The result is indicated in Figure 2 below.

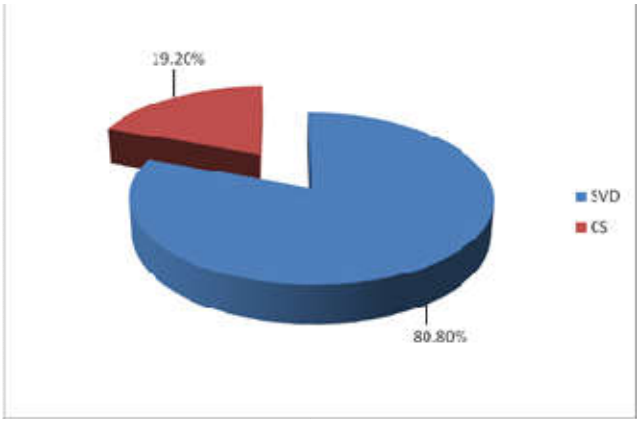


**Figure 2. Showing prevalence of cesarean section**

Study result indicates that out of 3589 deliveries 2899(80.8%) were spontaneous vertex deliveries while 690(19.2%) were cesarean section. Therefore estimating prevalence CS at 19 per every hundred deliveries conducted at the Western Provincial Hospital.

**Factors contributing to caesarean section**

The study sought to determine the factors contributing to cesarean section. Analysis done are indicated in table 1 and Figures 3, 4,5,6,7 and 8.

**Medical history and conditions as a factor of cesarean delivery**

**Table 2. Medical conditions and their occurrence**

| Condition | Number (%) |
|---|---|
| Obstructed labour | 414(60) |
| Fetal distress | 138(20) |
| Pre eclampsia | 55(8) |
| Previous scar | 27(4) |
| Placenta previa | 7(1) |
| Placenta abruption | 7(1) |
| Cord prolapse | 7(1) |
| History | |
| Multiple births | 21(3) |
| Diabetes | 14(2) |

Study result indicates the association of various medical conditions presented as follows: obstructed labour 414(60%), foetal distress 138(20%), pre eclampsia 55(8%), Previous scar 27(4%), placenta previa 7(1%), placenta abruption 7(1%), cord prolapse 7(1%) and previous medical history as multiple births 21(3%), Diabetes 14(2%). Therefore indicating that CS was associated with obstructed labour in medical conditions and rarely associated with history of multiple births and diabetes.

**Surgical History**

Result indicates that most women who delivered by cesarean section had no previous scar 683(96%), while those who had previous scar were 27(4%). Therefore previous scar has no association with chances of delivering through CS.

**Medical cover**

Result indicates that 504(73%) women delivered by caesarean and had no insurance cover, while 186(27%) had the National Health Insurance fund cover. Therefore having an insurance cover is not associated with delivering through CS.

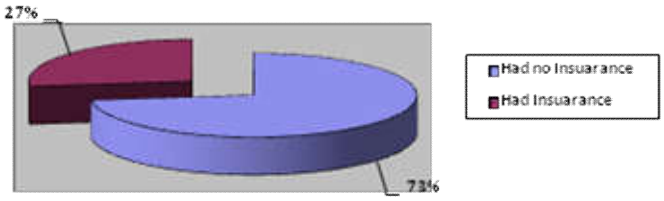


*Figure 3. Pie chart showingmedical cover of the clients*

## Health status

Among the caesarean section deliveries conducted 662(96%) women were in good condition while 28(4%) were of poor health status. Therefore poor health status was not associated with CS.

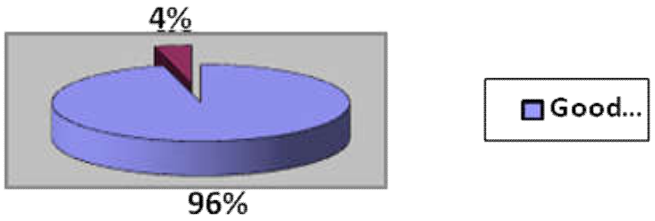


**Figure 4. A pie chart showing health status of women delivered by caesarean section**

## Mothers' discharge status after Caesarean section

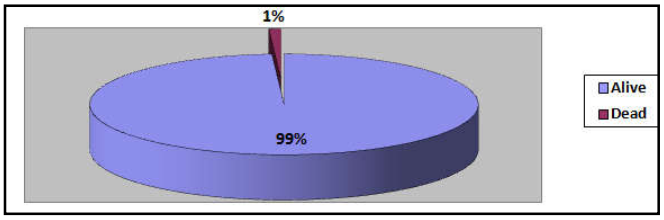


**Figure 5. A pie chart showing Mother's discharge status after CS**

Study result indicated that 686(99%) babies were discharged alive, while 4(1%) died. Therefore the CS outcome is associated with live babies.

## Babies' discharge status after birth through CS

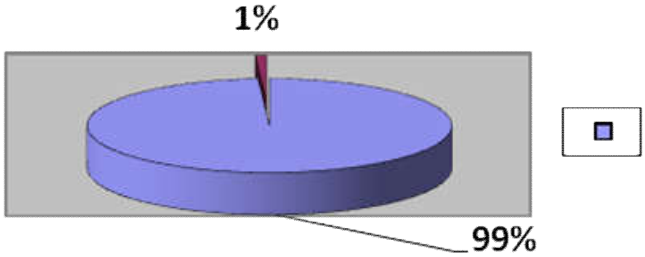


**Figure 6. A pie chart showing baby's condition after birth**

Study indicates that 662(96%) discharged alive while 28(4%) died. Giving a case specific mortality of 4 babies died per 100 cases of cesarean section done. Of the 28 deaths of caesarean section delivered babies 8(29%) were macerated still births, 4(14%) Fresh still births and 16(57%) died after delivery contributing to causes of mortality. Therefore alive discharges are associated with CS as compared to deaths after CS. And among the deaths associated to CS more were after the deliveries.

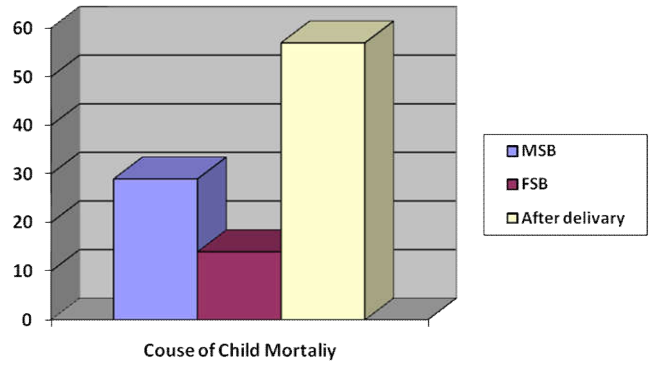


**Figure 7. A bar chart indicating various deaths associated with CS**

## HIV status of the mother

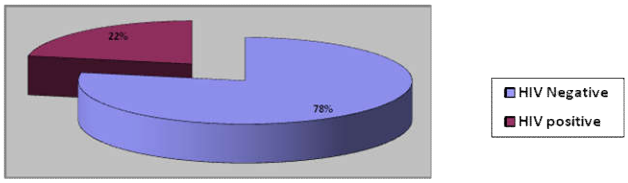


**Figure 8. HIV status of the mother**

Result indicates that among all the caesarean sections done 538(78%) were HIV negative while 152(22%) were HIV positive. Therefore indicating that CS is not associated patients HIV status of being HIV + (positive).

## Health conditions of referrals for caesarean section

The study sought to identify the health conditions associated with cesarean section as shown in Figure

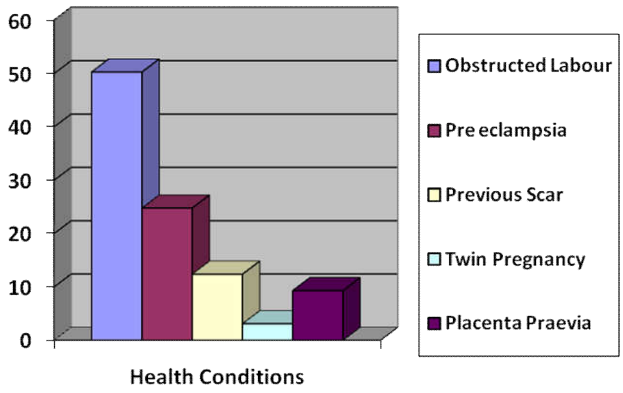


**Figure 9. A bar graph showing conditions for referrals**

From the records of caesarean section deliveries reviewed, 161 (23%) were referrals with the following health conditions: obstructed labour 81(50.3%), pre eclampsia 40(24.8%), previous scar 20(12.4%), twin pregnancy 5(3.1%), placenta praevia 15(9.3%)

## Trends of deliveries in Western Provincial General Hospital

From the records reviewed, it shows that cesarean section deliveries were on the increase as shown in the Table 3 below:

**Table 3. Monthly frequency of deliveries in western Provincial General Hospital, Kenya (January to December 2012)**

| Month | Number | (%) Frequency |
|---|---|---|
| January | 66 | 9.6 |
| February | 74 | 10.7 |
| March | 82 | 11.9 |
| April | 88 | 12.8 |
| May | 92 | 13.3 |
| June | 94 | 13.6 |
| July | 96 | 13.9 |
| August | 98 | 14.2 |
| September | Nurses Strike | 0 |
| October | " | 0 |
| November | " | 0 |
| December | " | 0 |

Result indicates no significant flow of CS from month to the other in the year.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

The study concludes that of all the deliveries done in WPH the Cesarean is estimated CS at 19 per every hundred deliveries conducted at the Western Provincial Hospital. This prevalence rate is higher than the recommended rates of 15% by the WHO. Among the factors contributing to caesarean section, obstructed labour was the leading 414 (60%) which was associated with poor follow up of pregnant women during prenatal and labour. Of all the mothers done cesarean section, 683(96%) had no previous surgical history, while 27(4%) had previous caesarean scars. This indicated that despite no previous scar many women were done caesarean section due to poor progress of labour. CS was associated with obstructed labour in medical conditions and rarely associated with history of multiple births and diabetes. The previous scar has no association with chances of delivering through CS. Poor health status was not associated with CS. CS outcome is associated with live babies and alive discharges are associated with CS as compared to deaths after CS. And among the deaths associated to CS more were after the deliveries. CS is not associated patients HIV status of being HIV + (positive). No significant flow of CS from month to the other in the year.

### Recommendations

The study recommends a farther broader coverage study to identify the necessary factors that warrant cesarean section. Since this study was limited to a one hospital.

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