

**FACTORS INFLUENCING PUERPERAL SEPSIS AMONG MOTHERS ATTENDING
PALLISA HOSPITAL MATERNITY WARD**

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DECLARATION

I hereby declare that the work presented in this research report was my own and has not been wholly or partially submitted to any other institution before. All sources used or quoted have been fully acknowledged by means of complete references.

Signature of the researcher..... **Date**.....

KIPALA JOSHUA

APPROVAL

This is to certify that this research report has been produced under my supervision and has to the best of my knowledge and is ready to be submitted with my own approval.

Signature **Date**

MR: MBURUGU MARTIN

DEDICATION

This research report is dedicated to the Almighty GOD for having given me knowledge and skills during the course of my study.

To my family members, my classmates and friends who have togetherness played a great role in my success.

ACKNOWLEDGEMENT

I would like to acknowledge the contributions of the following individuals whom without them, my study would have not been easy.

First and foremost, I would like to acknowledge my father ARIONGET JOHN and Mother NULU MUTALE, for their continued support and perseverance toward paying my school fees.

And my supervisor ,MR. MBURUGU MARTIN for the guidance and patience he has offered to me during the course of making this report, my class tutors who taught me the basic knowledge of research and finally to my colleagues in class for their moral support.

May the Almighty father in heaven bless all of you.

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LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal care
CDC	Centre for Disease Control and Prevention
CS	Caesarean Section
<i>et al</i>	and others
HIV	Human Immunodeficiency Virus
i.e.	that is
LMICs	Low and Middle Income Countries
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MOH	Ministry of Health
PS	Puerperal Sepsis
SSA	Sub-Saharan Africa
STIs	Sexual Transmitted Infections
UNICEF	United Nation International Children's Fund
WHO	World Health Organization

DEFINITIONS OF KEY TERMS

Epidemic; is the rapid spread of infectious disease to a large number of people in a given population within a short period of time, usually two weeks or less.

Obstructed labor: is defined as the failure of labor to progress despite having good uterine contractions. It is attributed to mechanical obstruction resulting from abnormality in the passage (pelvis) or the passenger (fetus).

Operative delivery; operative delivery denotes any obstetric procedure in which active measures are taken to accomplish delivery. The success of such a procedure depends on the skill and /or experience of the Operator. The timing of such an intervention must be in the interest of both the mother and the baby.

Prevalence; is the number of cases of a disease existing in a given population at a specific period of time (period prevalence) or at a particular moment in time (point prevalence).

Puerperal sepsis; is defined as infection of the genital tract at any time between abortion, labor, or delivery of the baby, to the forty second day. It is characterized by fever after 24 hours after delivery and offensive vaginal discharge.

ABSTRACT

Puerperal sepsis is serious form of septicemia contracted by women during or soon after child birth or miscarriage. Globally it's documented that the first recorded epidemic of puerperal fever occurred at the Hotel-Dieude Paris in 1646. Hospitals throughout Europe and America consistently reported death rates of 20% to 25%. During 18th and 19th centuries, it was the single most common cause of maternal mortality, accounting for about half of all deaths related to child birth. However, things have remained the same in developing countries of Africa for last 160 years.

The purpose of this study was to compile a report regarding the factors influencing puerperal sepsis in Pallisa Hospital maternity ward.

A hospital-based descriptive-correlation study design was used. This study was conducted in Pallisa hospital located in Pallisa district. The study population focused on women of reproductive age (15-49) who delivered and within six weeks after delivery, they are being treated in the Hospital for puerperal sepsis.

Hospital based factors illustrated a significant contribution to puerperal sepsis. These of all the rest included; vaginal examination more than six times (27.1%), unassisted vaginal deliveries(73%), prolonged time to deliver after rapture of membranes (54%), prolonged labor was the most affected with (48%).

Sensitization on life style including; hygiene after delivery is very paramount. This should be based from the community level as part of PHC in relation to health. This should be the work of the local council communities, church leaders, and family members

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter introduced the background of the study. Information defining the topic of the study has been captured from the global to regional background. The chapter also presents problem statement, purpose of the study, study objectives, scope of the study and justification.

1.1 Background of study

Puerperal sepsis is serious form of septicemia contracted by women during or soon after child birth or miscarriage. Organisms commonly producing this infection are; group B streptococcus, *Streptococcus pyogenes*; staphylococci, the anaerobic streptococci, *Escherichia coli* and *Clostridium welchii* (inhabitants of the lower bowel); and *Clostridium tetani*. WHO defines puerperal sepsis as infection of the genital tract occurring at any time between the onset of the rupture of membranes or labor and the 42nd day postpartum in which fever and one or more of the following are present: pelvic pain, abnormal vaginal discharge, abnormal odor of discharge, and delay in the rate of reduction of size of the uterus (WHO, 2008).

Globally it's documented that the first recorded epidemic of puerperal fever occurred at the Hotel-Dieude Paris in 1646 (Neuhauser, 2014). Hospitals throughout Europe and America consistently reported death rates of 20% to 25%. During 18th and 19th centuries, it was the single most common cause of maternal mortality, accounting for about half of all deaths related to child birth. Introduction of antiseptic technique of hand washing, introduction of carbolic acid invention of germ theory in 18 century reduced maternal mortality from 18% to 3% (Neuhauser, 2014).

However, things have remained the same in developing countries of Africa for last 160 years. The WHO 2008 stated that puerperal sepsis is the second leading cause of maternal mortality in developing countries (WHO, 2008). Number of studies had been published from same institute in last two decades showing high frequency of puerperal sepsis and maternal mortality due to puerperal sepsis (WHO, 2008).

Uganda has several initiatives focusing on mothers; however, there is still limited access to maternal health information and services on puerperal sepsis. Social, economic and cultural factors still play a significant role in influencing the behavior practices of mothers in seeking health care. According to the WHO, about 40% of pregnant women in Uganda will experience delivery complications, while about 5% need obstetric care to manage complications including Puerperal sepsis which are potentially life threatening to the mother and the infant. In an environment of poor access to quality maternal care in rural settings, many mothers have continued to be exposed to a high risk of death from puerperal sepsis (WHO, 2008).

Similarly in Eastern Uganda, Mbale Obstetric department has demonstrated that patients who present with puerperal sepsis represent 6.28% of 3658 admissions. Among this group All patients were anemic, in 228 (99%) patients no aseptic measures were taken, 209 (90.86%) patients were un booked, 129 (56.08%) patients had frequent vaginal examination, 126 (54.78%) patients had home delivery, 111 (48.26%) patients had prolonged rupture of membrane, 107 (46.52) patients had prolong labor and 30 (9.13%) patients had unsafe miscarriage. This demonstration indicates that much as the problem is significant, in Eastern Uganda where Pallisa is inclusive, it's actually facing a burden as a result of preventable risk factors (Wakabi, 2011).

1.2 Problem Statement

Puerperal infection is a general term used to describe any infection of the genital tract after delivery and is one of the gynecological conditions especially in Africa. Even with the introduction of antibiotics puerperal sepsis has not fully been eradicated in developing countries Uganda inclusive. There are other nosocomial infections oriented to the mothers, particularly for operative deliveries, there is increasing antibiotics resistance regularly noted (Abouzahr, 2008).

Puerperal sepsis is still prevalent in developing countries and continues to present a significant risk of obstetric morbidity and mortality to women in these regions (Abouzahr, 2008). Another problem may be that most postpartum infections take place after hospital discharge, which is usually 24 hours after delivery. Therefore, in the absence of postnatal follow-up, as is the case in many developing countries, many cases of puerperal infections can go undiagnosed and unreported.

The major consequences of puerperal infections are chronic or acute pelvic inflammatory disease, bilateral tubal occlusion and infertility (WHO, 2013). This has played a role in resource allocation and yet in Uganda, Puerperal sepsis has been observed to be contributed to as a result of poor hygienic conditions right at the community level to the hospital care level from Cesarean section procedures all of which are preventable risks (MOH, 2010).

Despite all these observations, in Eastern Uganda and particularly Pallisa and Kibuku districts, still stands with no undertaken studies to assess the factors contributing to puerperal sepsis. This area therefore calls for an independent study to this effect.

1.3 Study objectives

1.3.1 Broad objective

To assess the factors influencing puerperal sepsis among mothers attending Pallisa Hospital Maternity Ward.

1.3.2 Specific objectives

- i. To determine the hospital based factors influencing puerperal sepsis among mothers attending Pallisa hospital Maternity Ward.
- ii. To establish the community based factors influencing puerperal sepsis among mothers attending Pallisa Hospital Maternity Ward.
- iii. To assess the maternal based factors influencing puerperal sepsis among mothers attending Pallisa Hospital Maternity Ward.

1.4 Research questions

- i. What are the hospitals based factors influencing puerperal sepsis among mothers attending Pallisa Hospital Maternity Ward?
- iv. What are the community based factors influencing puerperal sepsis among mothers attending Pallisa Hospital Maternity Ward?
- v. What are the maternal based factors influencing puerperal sepsis among mothers attending Pallisa Hospital Maternity Ward?

1.5 Justification of the study

Puerperal sepsis is found to be the main cause of death in one third of cases. Those who survive may develop serious complications' as a result of puerperal sepsis such as infertility and chronic pelvic pain (MOH, 2013). In complimenting on health science education, community based approach is desirable hence the cause to take this study.

The Millennium Development Goal 5 (MDG5) of reducing the maternal mortality ratio by 75% between 1990 and 2015 is literally unlikely to have been achieved in Uganda, because there is little progress that has been made to achieved as seen in maternal mortality rate is estimated at 438 deaths/ 100 000 live births which is far from the 5th MDG target of 150 deaths/100 000 live births (MOH, 2013). There is need to carry out a research to investigate the factors influencing puerperal sepsis in Pallisa hospital. This study will contribute to the field of clinical research in the event of promoting maternal health.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This section reviewed the available literature on factors influencing puerperal sepsis prevalence. It's reviewed according the specific objectives. Citations have been made according to the owners of the publication on the similar topics from text books, journals, official reports.

2.1 Hospital based factors contributing to puerperal sepsis

Some other factors have been considered also to predispose to puerperal infections: anemia, prolonged labor particularly occurring in young prime gravid are the most frequently cited (Abouzahr, 2008; WHO, 2013). In a study done at the Ife State Hospital in Nigeria the predisposing factors associated with sepsis were: anemia in 69.2% of cases, prolonged labor (labor lasting more than 12h) in 65.7%, frequent vaginal examinations in labor (more than five) in 50.7%, and premature ruptured membranes in 31.5% (Dare, 2012).

During the last few years, a growing body of evidence suggests that the single most important risk factor for postpartum infection is caesarean section (CS) (Yokoe, 2011; Smaill, 2012; WHO, 2008). A Cochrane systematic review conducted by Smaill and Hofmeyer, identified 66 randomized controlled trials comparing antibiotic prophylaxis or no treatment for both elective and non-elective CS (Smaill, 2012). They found an average rate of endometritis in the control groups in those women undergoing elective CS of 9.2% (0-24%), and for the women undergoing non-elective CS the average incidence of endometritis in the control groups was 28.6% (3-61%) (Smaill, 2012). The use of antibiotic prophylaxis reduced by two thirds to three quarters the incidence of endometritis, for all studies combined.

Yokoe et al study in USA, using comprehensive post discharge surveillance methods to identify all cases of puerperal infections that occurred in women who delivered at Brigham and Women's Hospital, Boston from January 2011 to June 2015, found a rate of puerperal infections following CS of 7.4%, compared to 5.5% in women who had vaginal delivery (Yokoe et al, 2016).

Considering the increasing trend of rates of caesarean section all over the world, it is likely that puerperal infection incidence will see a similar trend in future years. The rising incidence of nosocomial infections and of antibiotic resistance may also contribute to this.

2.2 Community based factors contributing to puerperal sepsis

It is generally considered that pelvic infections are more common among women of poor socioeconomic status compared with middle- or upper-class patients, but the precise reason for that is unclear. Community factors which increase the women's risk of developing puerperal infections, such as delivery by an untrained birth attendant, lack of transportation and long distance to the health facility, cultural factors which may delay care-seeking behavior, community low economic status which contributes to their poor health in general, community lack of knowledge of symptoms and signs of puerperal sepsis, and availability of postnatal care (Abouzahr, 2008).

A study from Zaria, Nigeria reported a rate of post-partum genital sepsis of 14.8% among women who delivered at home compared to 7.9% in those who delivered in facility (Brentlinger, 2006). A study from Senegal demonstrated an incidence of sepsis of 8.7% for home deliveries compared to 1.9% for deliveries in health facilities (Sebire, 2009).

The prevalence of puerperal sepsis in Uganda is mostly due to community health service committee reluctance following delivery as estimated from a study by (Wakabiet *al.*, 2011). In their study, the authors screened automated ambulatory medical records of 2,826 members of a health maintenance organization in various communities in the country among women who gave birth in a 30 months period. Because puerperal sepsis often develop after discharge and women are reluctant to go to the hospital. (Wakabiet *al.*, 2011; UNICEF, 2011).

2.3 Maternal based factors contributing to puerperal sepsis

A study done in Sudan shows that, the highest incidence of puerperal sepsis was observed among young females, aged 21-25 years (35.5 %.), followed by 26-30 years 25% (Khan, 2014). Previous studies have demonstrated similar findings. It's reasonable to expect such finding occurred in old women due to increase in several pregnancy complications including maternal sepsis (Khan, 2014). Most estimates of puerperal sepsis in sub-Saharan Africa come from

retrospective studies of maternal deaths and a 2006 WHO systematic review of the risks of puerperal sepsis worldwide estimated that 9.7% (95% CI 6.3–12.6) of were in women of less than 18 years of age. Six maternal deaths were attributed to sepsis due to early marriages with inadequate knowledge of maternal health accounting for 10.9% of all maternal deaths or 33.9 (12.4–73.8) deaths per 100 000 live births (WHO, 2009).

Around the etiology and epidemiology of sepsis vary enormously as a result of local conditions in particular with regard to adherence to the prescribed antibiotics after discharge (Carla, 2013). The global prevalence of adherence ranges from 1% to as high as 17% (Glanzer, 2011). In USA mothers of puerperal sepsis reported as failures to adhere to post-delivery medication ranges between 1-8% of all deliveries and about 3 die from puerperal sepsis (Carter, 2015).

The prevalence reported for Pakistan is 10–15% and 90.2% of this is attributed to poor hygiene particularly poor hand washing practices (Faiza, 2007). Over the period of three years from 1st January 2005 to 31st December 2007. There were 92 patients admitted with puerperal sepsis during the study period and the origin being community based. The frequency of puerperal sepsis was 1.74%. Out of 302 patients with puerperal problems there were 92 patients had poor nutrition which makes 30.4% of puerperal problems (Faiza, 2007).

Since WHO systematic review, a South African confidential enquiry into maternal deaths (representative of the population it described) reported puerperal sepsis as the cause of 8.3% (274) of deaths (2012–14). Most women reported they practiced vaginal douching as their norm to enhance uniform vaginal healing after delivery (Menéndez, 2014).

Another study comes from a tertiary facility in Mozambique. Although not population-based (referral Centre), women who had puerperal sepsis reported that they had unprotected sexual intercourse within the first two weeks after delivery, this does suggest that there might be substantial introduction of infections into the genital tract before healing process is complete (Ordi, 2009).

2.4 Emerging issues from the literature reviewed

A few studies have been carried out on prevalence of puerperal sepsis as a single gynecological condition. Much of the literature has discussed puerperal sepsis under factors contributing to maternal mortality particularly in an African setting. In addition studies have similarly been retrospective but reviewing the records of mothers who died as a result of maternal causes. The information regarding puerperal sepsis therefore has been provided as one of the factors to maternal mortality and this limited the scope of existing condition in a broad aspect as required by this study.

One of the main issue on the literature in estimated the global burden of puerperal sepsis, is that epidemiological studies are currently using different definitions of the condition e.g. puerperal sepsis, maternal sepsis, puerperal infection, postpartum sepsis. This rendering those studies difficult to compare. More efforts are needed to develop standard definitions, that researchers can refer to, and that may allow comparability of their work.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter described the study design, study area, study population, sample size and sampling procedure, inclusion and exclusion criteria, definition of variables, research instruments, data collection procedures, data management and quality control, data processing and analysis , ethical considerations limitations and dissemination of findings.

3.1 Study design

A hospital-based descriptive cross-sectional study design was used involving quantitative methods of data collection. This study involved describing the characteristics of a particular situation, event or case in relation to variables such as person, place, and time. i.e., it answers questions who? Where? And When? (Bikman and Rog, 1998). It is from the questions this study generated that this kind of a design seeks to answer.

3.2 Study area

This study was conducted in Pallisa hospital located in Pallisa District. Which is bordered by Kumi district to the north, Mbale district to the East, Namutumba District to the south and Kaliro district to the west. The district is approximately 52km by road from Mbale the biggest town of the region and approximately 150 km from Kampala the capital city of the country. The district is composed of mainly Itesots and some Bagwere. The main socio-economic activity is farming and main crop grown is cassava. Pallisa Hospital is a government health facility serving a district population of 241,500 people and as well as the surrounding districts. This area is purposely chosen because of the high population density of 282 people per square kilometer and high fertility rate in the region.

3.3 Study population

The study population focused on women of reproductive age (15-49) who delivered and within six weeks after delivery, they are being treated in the Hospital for puerperal sepsis.

3.4 Sample size estimation

A sample size of respondents was calculated using the Kish and Leslie (1965), formula which

stated. $n = \left(\frac{Z^2 p q}{d^2} \right)$

Equation 1: Kish and Leslie Formula; $n = \left(\frac{Z^2 p q}{d^2} \right)$

Where; n = desired sample size,

Z = Standard deviation degree of accuracy taken at 1.96 at confidence level of 95%.

p = Proportion of post natal mothers attending post natal care (Considered to be 50% of the targeted population). Implying that, $p = 0.5$

q = Standardize, $1.0 - p = 0.5$

d = Acceptable limit of error which is at 5%, or 0.05

In this case, 95% confidence level and 5% acceptable limit of error.

$$n = \left(\frac{1.96^2 \times 0.3 \times 0.8}{0.05^2} \right)$$

$$n = 369$$

Since the sample population of post natal mothers were less than 10,000

Therefore, N = Total number of post natal mothers at that time of survey = 60

Considering;

Equation 2: Target population, $nf < 10,000$

$$nf = \left(\frac{n}{1 + \frac{n}{N}} \right); \quad nf = \left(\frac{369}{1 + \frac{369}{60}} \right); \quad nf = 52 \text{ respondents}$$

Where nf is sample size for N , population of post natal mothers less than ($<$) 10,000

Where n is sample size for N , population less than 10,000

The sample size was therefore being 52 respondents who freely consented and therefore participated in the study.

3.5 Sampling procedure

Convenience sampling methods was employed to determine the main respondents due to few patient turn up for the required diagnosis of sample population (N=60). The study shall cluster the 52 main respondents and enroll them into the requirement of consent. This was done throughout the period of data collection until the sample size is met.

3.6 Inclusion and exclusion criteria

3.6.1 Inclusion criteria

Those treated for puerperal sepsis, available at the time of data collection were included if they consented.

3.6.2 Exclusion criteria

Women who are being treated of a different diagnosis for example Pelvic Inflammatory Disease (PID), Urinary Tract Infection (UTI) or any infection that is not related to the definition of Puerperal sepsis were excluded. Those who were critically ill or unconscious, those who are mentally disturbed and patients who failed to give consent were excluded.

3.7 Study variables

3.7.1 Dependent variables

Factors influencing Puerperal Sepsis among Mothers

Hygiene, nutrition, health seeking habits, number of parities, method of giving birth, place of delivery, medical support.

3.7.2 Independent variables

Hospital based factors influencing puerperal sepsis among mothers

The community based factors influencing puerperal sepsis among mothers

The maternal based factors influencing puerperal sepsis among mothers

3.7.3 Confounding variables

These were socio demographic including culture particularly on birth control and places of delivery, education, Age of the mother.

3.8 Research instrument

A questioner was developed following the available literature. It was used in capturing information as required by the specific objectives.

3.8.1 Pretesting of the research instrument

The questioner was pre-tested at Kampala International Teaching Hospital three days before data collection to assess clarity, understandability, flow and consistency.

3.9 Data collection procedures

I introduced myself to the Hospital Medical superintendent with the introduction letter from Kampala International University-Western Campus. Thereafter, consent was provided, the similar request was forwarded to the focus person maternity wards for consent. Interviews were administered directly to each different respondents following the questionier printed in English and translated in the language most understandable.

3.9.1 Data management and quality control

One day training was conducted to research assistants about the objectives and procedures of the data collection by the investigators

Data completeness and consistency was checked by the investigators. Data cleaning and editing took place, missed values were statistically handled at the time of data collection to help address concerns caused by incomplete data.

3.10 Data analysis and presentation

Data entry, coding and analysis were performed using SPSS version 20 software package. To explain the study population in relation to relevant variables, frequencies, percentages and summery statistics were used.

Associations between dependent and independent variables were assessed and presented using tables, graphs, and pie charts.

3.11 Ethical considerations

Institutional consent was obtained from the University. The researcher was provided with the letter of introduction to Pallisa Hospital and acquires consent of the Hospital administration before any information is collected.

In confidentiality was maintained to the best of the researcher's ability. The researcher assured the head of records that no names attached to findings for confidentiality and that the information will be used strictly for academic purposes.

The health facility was informed of likely risks which are nonexistent in this particular study and benefits of the study. Autonomy for the hospital was respected by giving full information and allowing them to make a decision.

3.13 Dissemination of the results

The approved copies of this research report were sent to;

- i. The school of allied health sciences Kampala International University - Western Campus
- ii. The library of Kampala International University - Western Campus

CHAPTER FOUR:

RESULTS AND FINDINGS OF THE STUDY

4.1 Introduction

This chapter presents the study findings which have been analyzed and presented following the objectives of the study.

A total of 52 respondents were interviewed. Through the selection criteria, a total of more than 100 women were recruited and excluded until the sample size was achieved. The age ranged from 15 to 49 years with a mean age of 33 years.

4.2 Socio-demographic information

Table 1: Showing socio-demographic information

More mothers who suffered from puerperal sepsis were aged between 25-29 (38%), most were peasants 35 (67%) and ended in primary 23 (44.2%) and lived 4-5km from the hospital 17 (32.7%) and 1-2 number of pregnancies (57.7%).

AGE	FREQUENCY	PERCENTAGE (%)
<18	9	17
18-24	17	33
25-29	20	38
>30	6	12
OCCUPATION		
Peasant	35	67
Businesswoman	5	10
Civil servant	3	6
Others	9	17
LEVEL OF EDUCATION		
Primary	23	44.2
Secondary	12	23.1
Tertiary	7	13.5
None	10	19.2
DISTANCE FROM HOSPITAL		
<2km	10	19.2
2-3km	11	21.2
4-5km	17	32.7
>6km	14	26.9

NUMBER OF PREGNANCIES		
1-2	30	57.7
3-4	5	9.6
5-6	7	13.5
>6	10	19.5

4.3 Hospital based factors

Table 2: Show distribution of respondents according to number of vaginal examination performed

Variable	Frequency (n)	Percentage
1-2 times	11	21.2%
3-4 times	13	25.0%
5-6 times	14	26.9%
More than 6 times	14	26.9%
Total	52	100.0%

Most mothers who suffered sepsis were examined more than 6 times and over 5-6 times with 14 (26.9%), followed by mother examined 3-4 times 13 (25.0%) and few 1-2 times 11 (21.2%).

Figure 1: A pie chart showing the distribution of the mother's mode of delivery

n=52

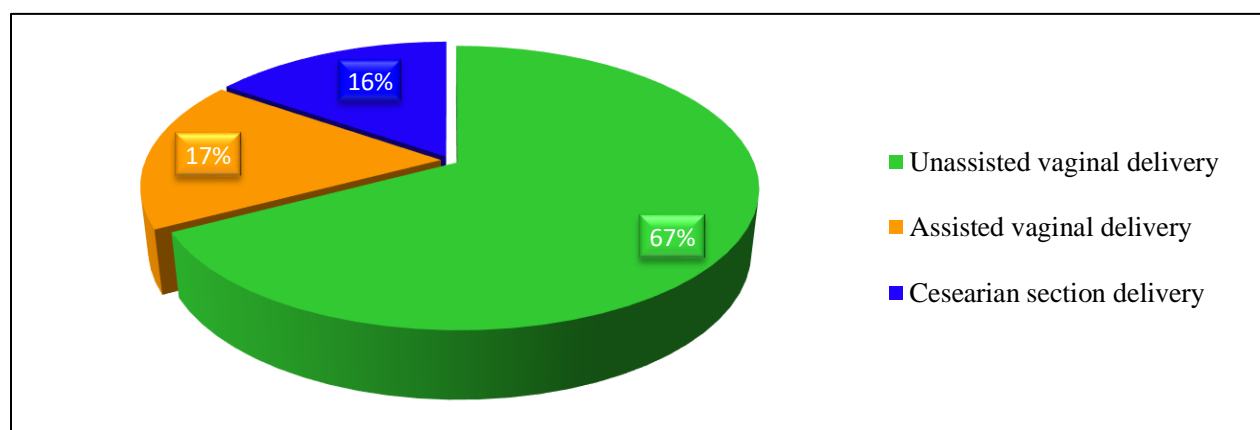


Figure 1 shows those who delivered by un assisted delivery (67%) had more incidence of sepsis while assisted vaginal delivery had (17%) as compared to those who has cesarean section delivery with only 16%.

Table 3: Show the distribution according to the period taken to deliver after membrane rapture

Variable	Frequency (n)	Percentage
Less than 30 minutes	2	3.9%
30 minutes -1 hour	4	7.7%
1 up to 2 hours	18	34.6%
Greater than 2 hours	28	53.8%
Total	52	100%

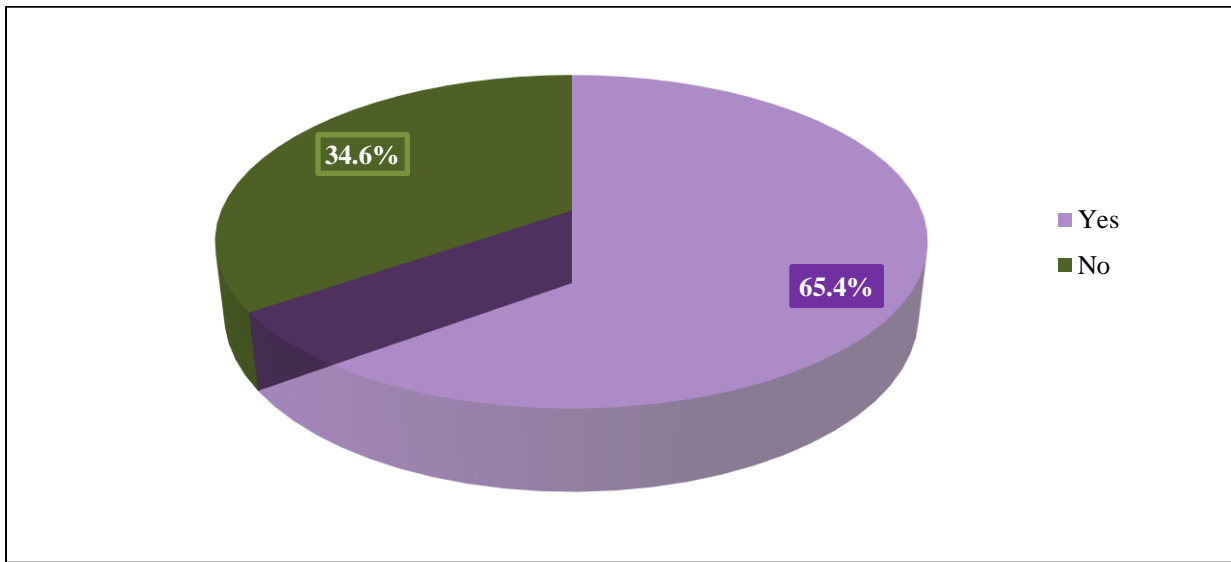
Majority of mother who had sepsis also had prolonged time greater than 2 hours to deliver after rupture of membranes (53.8%), 1 up to 2 hours had (34.6%), followed by 30 minutes-1 hour (7.7%) and less than 30 minutes had 3.9%.

Table 4: Show the distribution of respondent according to the period of labor

Variable	Number of responses	Percentage
Up to 8 hours	13	25.0%
8-12 hours	14	26.9%
>12 hours	25	48.1%
Total	52	100%

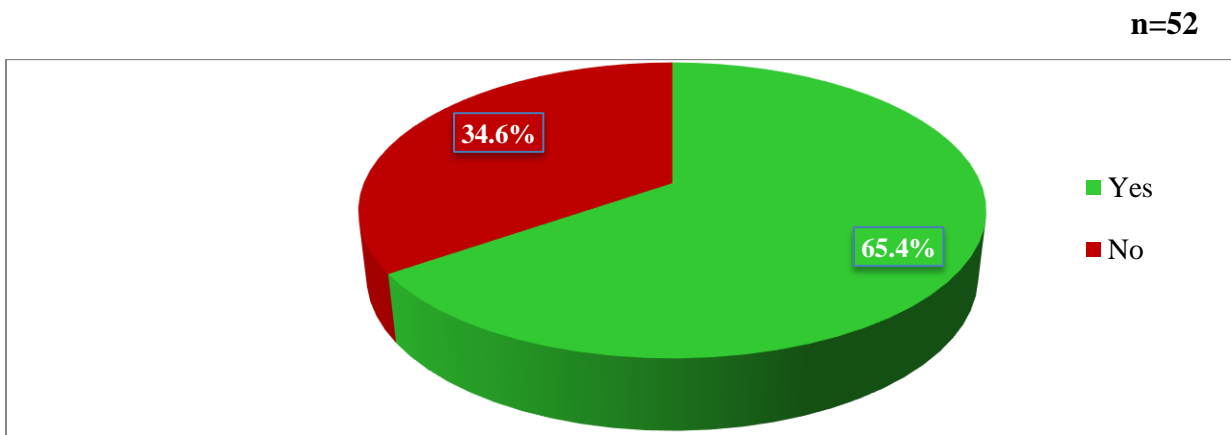
Table 4 above shows that mothers who had prolonged labor were the most affected greater than 12 hours with (48.1%), 8-12 hours had (26.9%) and up to 8 hours was 25%. The correlate indicates that the longer the labor, the more the mothers affected.

Figure 2: A pie chart showing unmanaged conditions after delivery



Mothers admitted “Yes” that they had unmanaged conditions after delivery with (64.4%) and “No” with (34.6%). These included; malaria, urinary tract infections and other systemic conditions like diabetes, hypertension.

Figure 3: A pie chart showing distribution of antibodies after delivery



Antibiotic routine are given as a prophylaxis to infection. Majority admitted to have received (65.4%) “Yes” while those who did not receive constituted only (34.6%) “No”.

4.4 Community based factors

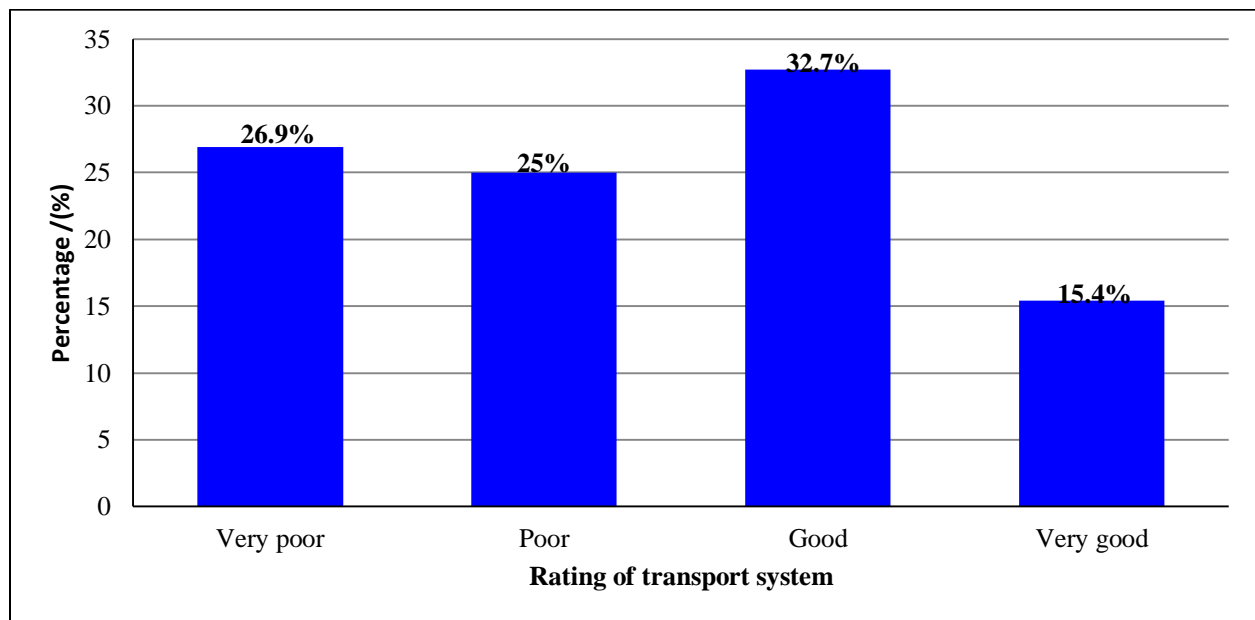
Table 5: Show the distribution of respondents according to their place of delivery

Place of delivery	Frequency (n)	Percentage
Home	32	61.5%
Health facility	17	32.7%
Road side	3	5.8%
Total	52	100%

Most mothers delivered at their homes 32 (61.5%). This was followed by health facility seen in 17 (32.7%) mothers. Some mothers delivered by the road side constituting 3 (5.8%) of the mothers

Figure 4: A bar graph showing the respondents rating of transport system

n=52



Mothers who rated their transport system as good were (32.7%) while very poor were (26.9%), poor were (25%) and very good (15.4%).

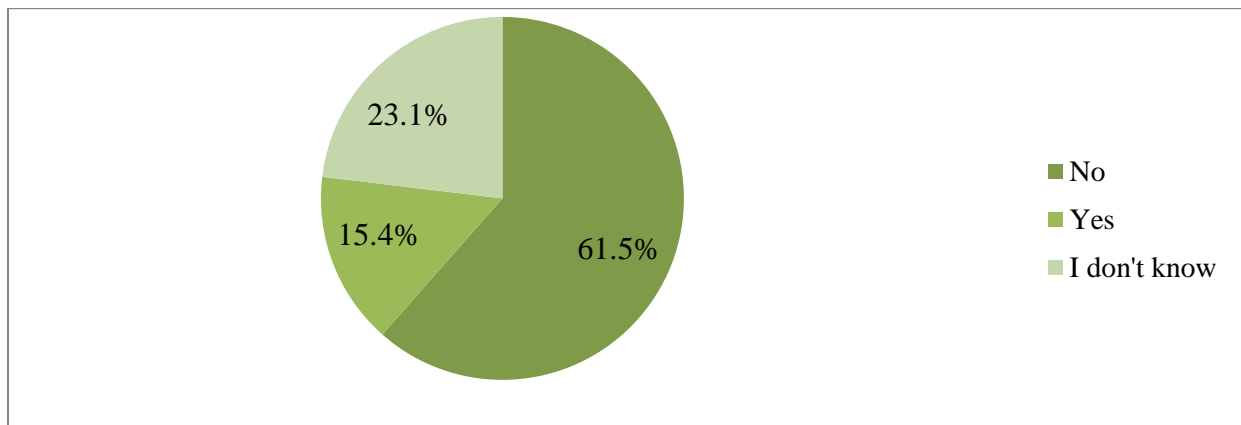
Table 6: Show the person who assisted in delivery

Variable	Frequency (n)	Percentage
Relative	20	38.5%
Traditional birth attendant	8	15.4%
Nurse/midwife	15	28.8%
Doctor	9	17.3%
Total	52	100%

The results show that most mothers were delivered by their relatives 20(38.5%), followed by those who delivered under a trained nurse/midwife were 15 (28.8%), 9 (17.3%) were delivered by doctor followed by those delivered by traditional birth attendants 8 (15.4%).

Figure 5: A pie chart showing the respondent's culture promoting home deliveries

n=52



More than a half of the respondents (61.5%) “No” admitted that their culture does not promote home deliveries. Some though (23.1%) said they did not know if their cultures actually promote home delivery meanwhile very few (15.4%) “Yes” promotes home delivery.

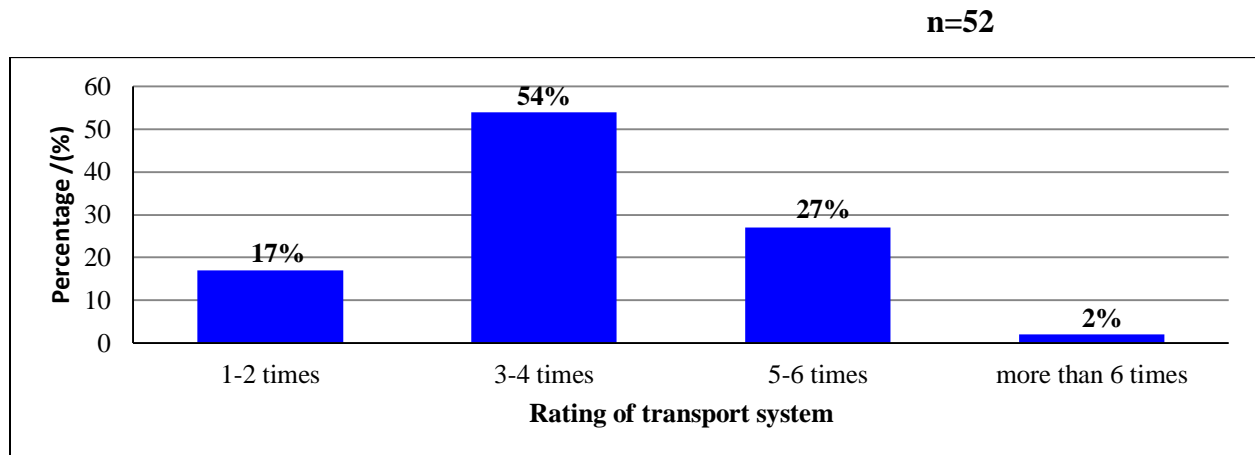
Table 7: Show the distribution of community awareness about infections after delivery

Variable description	Frequency (n)	Percentage
Yes	6	11.6%
No	32	61.5%
I don't know	14	26.9%
Total	52	100.0%

Mothers were asked if they know of their community awareness of infection after a mother has delivered. Most of them said no 32 (61.5%) and 14 (26.9%) did not have knowledge about their community awareness and few said yes 6 (11.6%)

4.5 Maternal based factors

Figure 6: A bar graph showing distribution according to daily hand washing practice



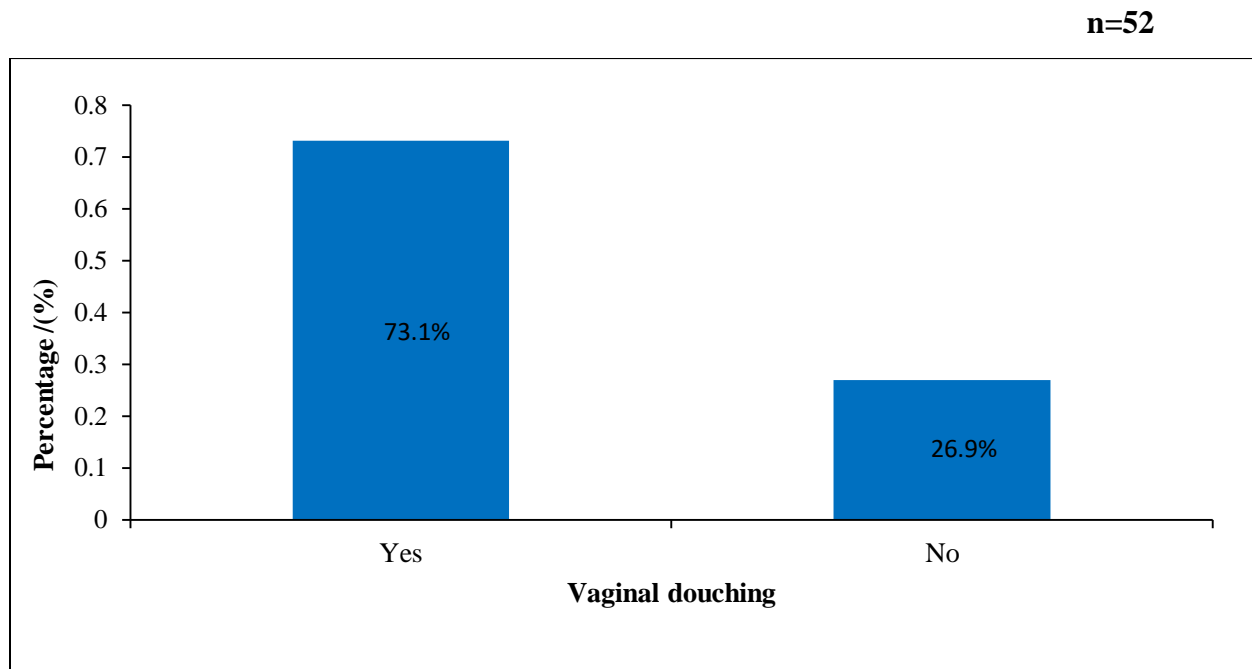
Most mothers wash their hands 3-4 times a day (54%) as a means of preventing infections, 27% washes 5-6 times, 17% washes 1-2 times and only 2% washes more than 6 times. This form of washing is different from regular washing which isn't directed to prevention of infection for example when nursing episiotomy wound.

Table 8: Show the respondent's compliance to medication

Variable	Frequency (n)	Percentage
Yes	24	46.2%
No	28	53.8%
Total	52	100.0%

Some mothers are given drugs and do not comply with medication after being discharged. Table 8 shows 28 (53.8%) “No” of the mothers do not comply with medication in addition those who comply are 24(46.2%) “Yes”.

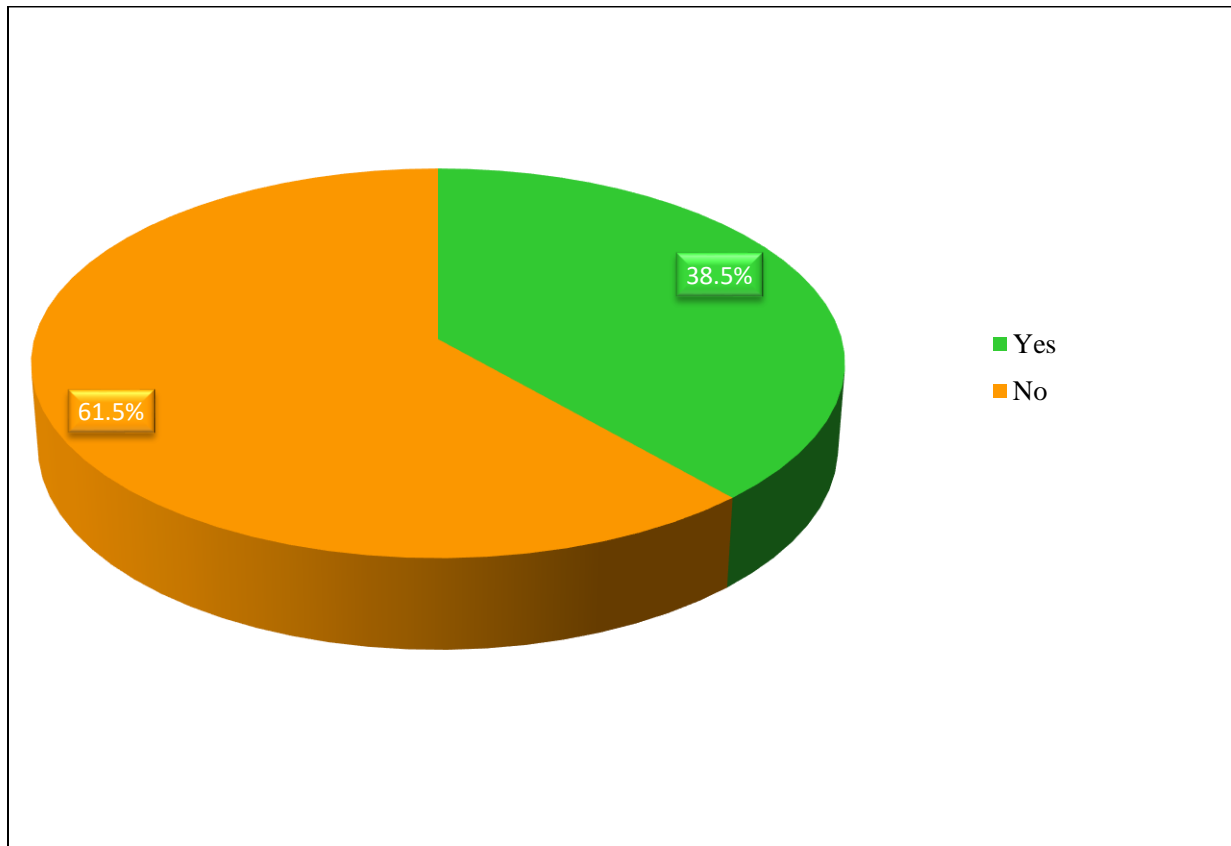
Figure7: Show the distribution of respondents according to their vaginal douching



Vaginal douching was practiced (73.1%) Yes, of the entire mothers who were interviewed, only (26.9%) No, of mother interviewed did not practice douching.

Figure 7: A pie chart showing distribution of unprotected sex after delivery

n=52



The results from the findings revealed that (61.5%) of the respondents did not practice unprotected sex (No) while those who practiced it (Yes) after delivery were (38.5%).

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents a discussion, conclusions and recommendations of the study findings. The discussions are arranged in specific objectives

5.2 Discussion

5.2.1 Hospital based factors

Vaginal examination was in correlation with puerperal sepsis. The more the mother had vaginal examination, the more they presented with puerperal sepsis. Most mothers who suffered sepsis were examined more than six times (26.9%). The incidence is less as compared to (Dare, 2012) which indicates (50.7%). It also agrees with a study done by Abouzahr (2008) reported that a repeated vaginal examination is one of the most common cause of sepsis after delivery. The study also agreed that among all modes of delivery, unassisted vaginal delivery section is the most common cause of puerperal sepsis. This study showed that 67% of women who delivered by unassisted vaginal delivery had more incidence of sepsis. This is more than a half all incidences noted. This finding is in contradiction with that of WHO (2012), indicating that increasing cases of unassisted vaginal delivery have increased the incidences of puerperal sepsis. Overall the incidences in this study was higher than that by Yokoe (2011), and Smaill(2012), who indicated (9.2%) and (28.6%) respectively.

The study showed that sepsis increased with increasing duration to deliver after rupture of membranes. Among the most affected, had greater than 2 hours after rapture of membranes (53.8%). This is in agreement with the study done by Dare (2012) .It however with high incidence as compared to Dare's study which showed incidence of 31.5% of the puerperal sepsis cases. Similarly, the duration of labor had a significant relationship with puerperal sepsis. Those whose labor took more than 12 hours were the most affected with 48% of the mothers. This is less than that by Dare's (2012) study which indicated (65.7%).

The study noted reports of unmanaged conditions after delivery (65.4%). These to them includes; malaria, urinary tract infections and other systemic conditions like diabetes, hypertension. This is

in agreement with WHO (2013) findings. It however contradicts with the same publication on non use of antibiotics after delivery as this study indicated only (67%) did not use antibiotics. The antibiotics the mothers used included; amoxicillin and ciprofloxacin which are the recommended antibiotics by the WHO(2014) and recommended up to date.

5.2.2Community based factors

Majority of the mothers had reached primary level of education with (44.2%). Literally in these communities, low level of education is associated with resorting to farming which is also seen 67% of the respondents. This is linked to low socioeconomic status. Poor socio-economic status is one of the predisposing factors to puerperal infections, an agreement with Abouzahr (2008) report, Despite noted poor socio-economic status, majority of the mothers came within the perimeter of 4-5km (32.7%) which is a requirement by the Uganda ministry of health (MOH, 2012) to enhance the communities seek health care services whenever needed.

Most mothers delivered at their homes (61.5%). Home delivery is associated with poor hygienic condition as the deliveries assisted don't know the sterile technique and have no capacity of or to use sterile techniques. A study from Zaria, Nigeria reported a rate of post-partum genital sepsis of 14.8% among women who delivered at home (Brentlinger, 2006). This was less as compared to that illustrated in my study because of it being a prevalence less which involved all mothers irrespective of the puerperal status. Similarly, it agrees with study by Sebire (2009), who demonstrated an incidence of sepsis of 8.7% for home deliveries compared to 1.9% for deliveries in health facilities in Senegal. Mothers who were delivered by their relatives were (38.5%) hence attributing to poor hygienic conditions. More than a half of the respondents (61.5%) admitted that their culture promotes home deliveries. There is therefore an attachment with the community believes. Worse enough, (61.5%) of the mother admitted about lack of awareness in their communities about infections after delivery. This contradicts with Mozah(2014), study findings in Zambia that most of the Zambian communities are well sensitized with puerperal infection hence a good turn up for hospital deliveries as this poor awareness in Pallisa is a contributing factor to home deliveries.

5.2.3 Maternal based factors

Most of the mothers affected were aged 25-29 years (38%). It disagrees with a worldwide estimation by WHO, (2009) that 9.7% (95% CI 6.3–12.6) were in women of less than 18 years of age. However this is the highest reproductive age in attaining the family size. Mothers had mostly 1-2 pregnancies (57.7%). These factors did not show a significant relation with the incidences of puerperal sepsis. Most mothers wash their hands 3-4 times a day (54%) as a means of preventing infections. This is much less than that of 90.2% demonstrated by Faiza(2007), study in Pakistan. Hand washing helps in prevention of infection for example when nursing episiotomy wound.

Vaginal douching was practiced among by (73.1%) of the entire mothers who were interviewed. This agree with Menéndez (2014), study findings that a South African confidential enquiry most women reported they practiced vaginal douching as their norm to enhance uniform vaginal healing after delivery. In this study only (26.9%) of mother interviewed did not practice douching. Nearly the responses were equal although slightly fewer mothers (38.5%) did not practice unprotected sex, hence disagreeing with Ordi(2009), findings that an important recent study in Mozambique mothers reported that they had unprotected sexual intercourse within the first two weeks after delivery. This does suggest that there might be substantial introduction of infections into the genital tract before healing process is complete.

5.3 Conclusion

- i. Hospital based factors illustrated a significant contribution to puerperal sepsis. These of all the rest included; vaginal examination more than six times (26.9%), unassisted vaginal deliveries(67%), prolonged time to deliver after rupture of membranes (53.8%), prolonged labor were the most affected with (48.1%), and unmanaged conditions after delivery (65.4%). Unassisted vaginal deliveries were the highest contributing factor to puerperal sepsis.
- ii. Community based factors included; home deliveries (61.5%) with relatives assisting (38.5%), and poor awareness of infections with (61.5%).
- iii. Maternal based factors included; poor hand washing practices, poor compliance to antibiotics (53.8%), vaginal douching (73.1%), unprotected sex after delivery (61.5%).

5.4 Limitation of the study

The numbers of cases diagnosed were few and this limited the study in some degree. However the predictors identified are generalized in all tertiary hospitals but are not substantial enough to make a policy reform in prevention of puerperal sepsis.

5.5 Recommendations

5.5.1 To the Hospital

- i. Management goes together with health education. Once a problem is identified, a person of concern needs to be informed. Strategies should be laid for the hospital to provide information regarding Puerperal sepsis. Often patients are asked to live in a certain way without proper information on the significance of such information. Nurses, Clinicians, Doctors and Hospital management should all play this role to convey information to the patients on discharge. The information required here includes; Risk factors, Preventive measure and the outcome of treatment with its costs.
- ii. Prophylaxis against bacterial infection is very significant. All mothers to deliver should be given prophylactic antibiotics as a measure of prevention and advised critically on the outcomes if not taken

5.5.2 To the Community

- i. Sensitization on life style including; hygiene after deliver is very important. This should be based from the community level as part of PHC in relation to health. This should be the work of the local council communities, church leaders, family majors.

5.5.3 To the Government

- i. Pallisa Hospital is a government aided hospital and the government fully facilitates it. More workers need to be recruited in the system to foster the education of people especially on maternal health and similarly as seen in labor support programs (LSP) in South Africa where mothers go through a series of training from the time of first antenatal visit.
- ii. However the government plays a good role in providing drugs which are adequate but needs to uphold the services of such hospitals in boosting the work of other health units in the way of reducing numbers

5.5.4 To future researchers

This study has been descriptive in nature and has showed how a number of aspects have been relating with the study outcome. To have findings in each aspect plays a major role. Researchers should use this information in identifying why for example puerperal sepsis information is still inadequate among women of reproductive age. This is through carrying out entirely a qualitative study on various aspects.

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APPENDICES

Appendix I: Consent Form

PART A: RESEARCHER

Introduction: I am **KIPALA JOSHUA**, a clinical student of Kampala International University Western Campus. I am conducting a study to assess factors influencing puerperal sepsis among mothers attending Pallisa Hospital. This study will involve interviewing of patients treated of puerperal sepsis. The information generated will be primarily used for academic purpose.

Benefits and Risks: This information will benefit both the student (researcher) and the hospital in devising preventive measures to puerperal sepsis but will take time to achieve the purpose.

Termination of participation: Allowing this study to proceed is absolutely at no cost but very vital and desirable, you can opt to stop the researcher following any inconvenience any time if you so wish without being disadvantaged in any way.

PART B: THE RESPONDENT

I have read the information presented in the cover letter attached on this consent form and I have been verbally briefed and understood the study being conducted by **KIPALA JOSHUA** on the factors influencing puerperal sepsis in this hospital. I have had the opportunity to ask questions related to the study, and received satisfactory answers, and any additional details I wanted.

I am also aware that I have a right to decline following any professional inconvenience that the researcher may introduce in the process. I do not give permission for my identity to be revealed in research reports.

With full knowledge of all foregoing, I agree to participate in this study.

SIGNATURE:DATE/...../.....

(THE FOCUS PERSON RECORDS PALLISA HOSPITAL)

Appendix II: Questionnaire

Instruction; Tick the correct option in the box provided

A. Socio-demographics information

- i. Which age bracket do you belong?
<18 years [] 18-24[] 25-29[] 30 and above []
- ii. What is your level of education
Primary [] Secondary [] Tertiary [] None []
- iii. What do you do for a living
Farmer [] Business [] Teaching [] Others specify.....
- iv. What is the distance from home to the hospital
Less than 2km [] 2-3km [] 4-5km [] >5km []
- v. How many pregnancies have you had
1-2[] 3-4[] 5-6[] >6[]

B. Hospital based factors

- vi. How many times were you examined vaginally
1-2 times [] 3-4 times [] 5-6 times [] >6times []
- vii. Which method of delivery did you have
Unassisted Vaginal delivery [] Assisted vaginal delivery [] Caesarian section []
- viii. If you had vaginal delivery, how long did you take to deliver after rapture of membranes
<30 minutes [] 30 minutes- 1hour [] Up to 2 hours [] >2hours []
- ix. How many hours did you spend in labour
Upton 8 hours [] 8-12 hours [] >12 hours []
- x. Was there any unmanaged condition you were discharged with
Yes [] No []
- xi. If yes specify.....
- xii. Did you receive antibiotics when being discharged
Yes [] No []
- xiii. If yes specify.....

C. Community based factors

- xiv. Where did you deliver from
Home [] Health facility [] By road [] Others specify.....

- xv. Who delivered you
 Mother [] Traditional birth attendants [] Nurse [] Doctor []
- xvi. Rate the transport system you have in your community to the health facility
 Very poor [] Poor [] Good [] Very good []
- xvii. Does your culture promote home deliveries
 Yes [] No [] I don't know []
- xviii. Is your community aware of infections after delivery
 Yes [] No [] I don't know []

D. Maternal based factors

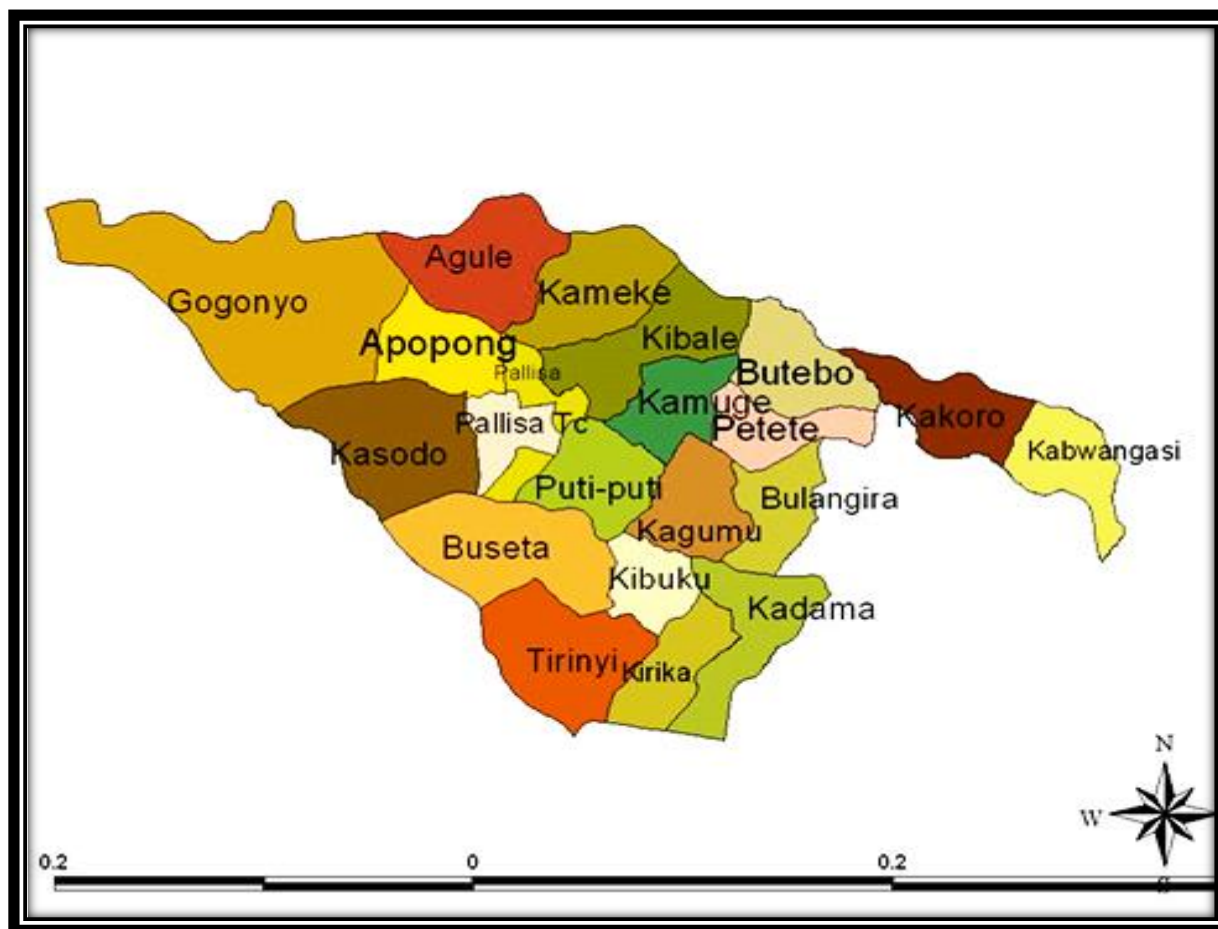
- xix. How often did you hand wash after delivery
 1-2 times a day [] 3-4 times a day [] 5-6 times a day [] >6 times a day []
- xx. Did you take all the medicines given to you after delivery
 Yes [] No [] Sometimes []
- xxi. Did you do vaginal douching after delivery
 Yes [] No []
- xxii. Did you have unprotected sexual intercourse after delivery
 Yes [] No []
- xxiii. According to you, what do you think has caused this infection?

THANK YOU

Appendix III: Research work plan (March-July 2017)

S/NO	ACTIVITIES	Mar	April	May	June	July	Person Responsible
1	Topic formulation and approval						Researcher and supervisor
2	Synopsis and proposal development						Researcher
3	Approval of proposal						Supervisor & Researcher
4	Data collection						Researcher
5	Data analysis						Researcher
6	Correction of report drafts						Supervisor & Researcher
7	Approval and submission of the report						Supervisor & Researcher

Appendix V: Map of Pallisa District



OFFICE OF THE ADMINISTRATOR –SAHS

28th April 2017

The Hospital Superintendent Pallisa Hospital
PALLISA DISTRICT

Dear Sir/ Madam,

SUBJECT: DATA COLLECTION

Academic research project is an Academic requirement of every student pursuing a 3 year Diploma in Clinical Medicine & Community Health (DCM) of Kampala International University- Western Campus (KIU-WC). DCM program is housed in the School of Allied Health Sciences (SAHS).

The students have so far obtained skills in Proposal writing especially chapter one, Three & Questionnaire design. The student's topic has been approved by SAHS Research Unit and is therefore permitted to go for data collection alongside full proposal & dissertation writing. As you may discover the student is in the process of full proposal development. We as academic staff of Allied Health Sciences are extremely grateful for your support in training the young generation of Health Professionals. I therefore humbly request you to receive and allow the student **KIPALA JOSHUA** Reg. No. **DCM/0100/143/DU** in your hospital to carry out his research.

His topic is hereby attached. Again we are very grateful for your matchless support and cooperation.

Topic: **FACTORS INFLUENCING PUERPERAL SEPSIS AMONG MOTHERS ATTENDING PALLISA HOSPITAL MATERNITY WARD.**

Sincerely yours,


Christine Kyobuhaire, Administrator- SAHS

CC: Dean SAHS

CC: Associate Dean SAHS

CC: Coordinator, Research Unit- SAHS

CC: H.O.D Dept. Public Health

CC: H.O.D Laboratory Sciences

CC: Coordinators; TLC & DEC

Permission Granted



15/05/2017

