FACTORS ASSOCIATED WITHCOMPLIANCE TO PREVENTIVE PRACTICES OF PUERPERAL SEPSIS AMONG POST-PARTUM WOMEN ATTENDING MBARARA REGIONAL REFERRAL HOSPITAL POST-NATAL CLINIC AND WARD

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MASTERS OF PUBLIC HEALTH

SEPTEMBER, 2019

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A thesis Submitted to School of Graduate Studies Bugema University in Partial Fulfilment of the Requirement for the Award of Masters of Public Health

SEPTEMBER, 2019

ACCEPTANCE SHEET

This thesis is entitled "**FACTORS ASSOCIATED WITH INJECTION DRUG USE AMONG YOUTH IN KISENYI III, CENTRAL DIVISION, KAMPALA CITY UGANDA"** prepared and submitted by **BAGUMA CHRISTOPHER,** in partial fulfillment of the requirements for the award of degree of **MASTER OF PUBLIC HEALTH** is hereby accepted.

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DECLARATION

I Namuwonge Lilian Byekwaso, declare that this thesis entitled "**Factors determining compliance to preventive practices of puerperal sepsis among post-partum women attending Mbarara regional referral hospital post-natal clinic and ward"** is my original work and has never been submitted to Bugema University or any other institution of higher learning for any ward.

Sign --

Name---

Date: ---

DEDICATION

This thesis is dedicated to my husband Dr. Mayito Jonathan, dad in law Mr. Kosea Kitandwe and my children for the encouragement and the financial support rendered to me. May God may bless him abundantly.

BIOGRAPHICAL SKETCH

Namuwonge Lilian Byekwaso was born on 11/11/1989 to Mr Byekwaso Paulo Matovu and Mrs Kihumulo Deborah in Mpigi District. She went to Cardinal Nsubunga primary school-Ndeeba for Primary leaving Examinations (2001), Midland High School for Ordinary level from 2002-2005. In 2006-2007, she joined Merryland High school for 'A 'level. In 2008 she joined Makerere University where she obtained a Degree in Environmental science in 2012. In 2017, she obtained a post graduate certificate in project monitoring and evaluation from Makerere University and a comprehensive training in HIV/AIDS care counseling and management from Mildmay (2018). In 2017 she joined Bugema University School of Graduate studies for a Master's Degree in Public Health. The author has worked with IOM, AHF Uganda cares and Mildmay Uganda. The author is currently the coordinator for the RECPE project at Midland High School, being implemented by Makerere University College of Health Sciences Ph.D. fellows, focusing on communicating research science to secondary school students.

ACKNOWLEDGEMENT

I thank the Almighty father for the gift of life and for bringing me to this level. I would like to appreciate the efforts and contributions rendered to me by Bugema University teaching staff most especially Prof. Ndugutse David, Dr Christopher Damulira,Dr Stephen S. Kizza, Dr Kiyingi Pio and Dr. Ndoboli Fred for being dedicated supervisors right from proposal to the submission of the thesis. I wish to acknowledge Dr. Kabuye Rosette and Mrs Okoth Ritah for the guidance and support that enabled me to accomplish this thesis report.

Special thanks go to TASO Research and Ethics committee for approving my topic. I also thank the administrators of Mbarara RRH for allowing me and supporting me while conducting my research. I also extend my sincere thanks to my two research assistants Miss Sanyu Rebecca and Mr.Moses Kule for their effort during data collection.

In addition to the above, I thank my classmates for their social, moral and material support rendered to me in order to complete this course.

TABLE OF CONTENTS

LIST OF ACRONYMS

ANC: Antenatal Care

HBM: Health Believe Model

KI: Key Informants

MOH: Ministry of Health

PS: Puerperal Sepsis

RRH: Regional Referral Hospital

SDA: Seventh Day Adventist

SEM :   Socio Ecological Model

SPSS: Statistical Package for Social Sciences

WHO :   World Health Organization

ABSTRACT

NAMUWONGE LILIAN BYEKWASO, School of Graduate Studies, Bugema University, Kampala, Uganda, July 2019. Thesis title; **FACTORS DETERMING COMPLIANCE TO PREVENTIVE PRACTICES OF PUERPERAL SEPSIS AMONG POST-PARTUM WOMEN ATTENDING MBARARA REGIONAL REFERRAL HOSPITAL POST-NATAL CLINIC AND WARD.**

ADVISOR: Prof. Ndugutse David.

The study was carried out in Mbarara RRH post-natal clinic and ward because PS was reported as a leading cause of maternal death with 30.9percent maternal deaths in 2017.The research objectives were, to describe the individual and health system related factors of the post-partum women, to determine the level of compliance to preventive practices of peurperal sepsis among post-partum women and to establish the individual and health system related factors associated with compliance to preventive practices of PS among post-partum women attending Mbarara RRH post-natal clinic and ward.

The study employed a cross sectional design involving both qualitative and quantitative approaches. Quantitative data was collected from 371 post-natal women using the researcher administered questionnaires, these were randomly selected and qualitative data was collected from 06 key informants using the key informants interview guide, these were purposively selected. Quantitative data was analyzed using the Statistical Package for social Sciences at both descriptive and inferential analysis levels. On the other hand, qualitative data was analyzed using content/quotation analysis to supplement the findings in the main instruments.

Education {tertiary level with adjusted odds ratio (AOR=7.204, 95% CI=1.820-28.517]), high School level with (AOR=4.777, 95% CI=1.290-17.687), primary level with (AOR=7.287, 95% CI=2.062 -25.753)}, income of less than Ushs. 100,000 per month (AOR = 5.406, 95% CI=1.100-26.580), antenatal visits of 4 or more (AOR = 2.889, 95% CI=1.397-5.974), having knowledge (AOR = 5.601 95% CI=3.177-9.877), Rude/arrogant attitude of the health workers (AOR = 0.391 955 CI=0.163-0.939), and health education (AOR = 1.569 [0.880-2.796), were significantly associated with compliance to preventive practices of PS. In conclusion, the level of compliance to preventive practices of PS among the post-partum women attending Mbarara RRH post-natal clinic and ward was relatively high. The government of Uganda through the Ministry of Health together with other stake holders should increase awareness of the preventive practices of PS among the post-partum women so as to reach the required compliance of 100 percent. The hospital can reach the women through health education via mass media like TVs, radios, music dance and drama. The management of the Mbarara RRH should sensitize health workers on the impact of being rude and arrogant towards patients and take punitive action on those unwilling to drop this vice

CHAPTER ONE

INTRODUCTION

Background of the Study

Compliance to prevention practices of Puerperal Sepsis (PS) is crucial to avert infections that result in long term disabilities such as chronic pelvic pain, fallopian tube blockage, secondary infertility, as well as maternal deaths (WHO, 2015). Therefore, post-partum women who exhibit poor compliance to PS preventive practices have a high risk of becoming sick and dying.

Non-compliance to PS prevention practices is an important barrier to PS prevention across the globe. It may result in prolonged disease infectiousness and eventual death (Momoh et al., 2010). Therefore, understanding the factors influencing the compliance behavior is essential in predicting those at risk of non-compliance so as to develop appropriate interventions for its control.

Puerperal sepsis has been a common pregnancy-related condition since the eighteenth century (WHO, 2003). In 1843, Oliver Holmes in Boston, USA, established that puerperal fever was contagious and was carried by unwashed hands of physicians. In 1847, Semmelweis in Vienna, Austria also concluded that examiners transmitted infection from live or dead patients, and ordered students to scrub with chlorine solution before every physical examination. This led to a striking decrease in mortality from 11% in 1846 to 3% in 1847. He concluded that PS was contagious and was preventable by adequate hand hygiene (Adriaanse et al., 2000). Therefore, the measures to prevent PS can be through simple and cheap interventions such as hand washing to prevent transfer of infectious organisms from one person to another.

Puerperal sepsis is defined as any genital tract infection occurring within the rupture of membranes or on-set of labor to the 42nd day post-partum (WHO, 2015). It is characterized by two or more of the following symptoms; pelvic pain, fever, abnormal vaginal discharge and delay in reduction of the uterus size (Chepchirchir et al., 2017). The individual predisposing factors for PS include; lack of resources to take the woman to a referral facility, long distance to the health facility, low social economic status, low level of education, cultural beliefs, lack of knowledge and lack of health education. The health system predisposing factors include; inaccessible health facilities, inadequate toilet and washing facilities, poor standards of cleanliness, delays in providing care, lack of necessary resources, poor basic training and inadequate continuing education, inadequate standards of care in labor and early post-natal period, delayed bacteriological investigations and shortage of safe blood for transfusion (WHO, 2008). The pregnant and post-partum women are also particularly vulnerable to PS due to reduced immunity (Acosta et al., 2013). Therefore, proper hygiene, a functioning system for preventing infections and proper nutrition are necessary in preventing PS.

Despite being preventable, PS continues to be a major global health problem and is the third direct cause of maternal deaths worldwide. It causes 35,000 maternal deaths annually (WHO, 2017). WHO recommends that no woman in the health facility should acquire PS as a way to reduce maternal deaths and achieve the Sustainable Development Goals (WHO, 2018). This requires 100 percent compliance to PS prevention practices.

However, this has not been the case as there is generally low compliance to these practices. For instance, in a study in South Eastern Turkey, only 57.9% of post-partum

women avoided sex for 40 days after giving birth (Geckil et al., 2009) and another study by Latitha et al showed a 66.8 percent practice score for prevention of PS among post-natal mothers (Latitha et al., 2016). Furthermore, in a Bangladeshi study, only 43.3% of women attending a private hospital adhered to PS prevention practices (Sultana et al., 2018). This might explain the relatively high maternal mortality incidence due to PS even in developed countries, which contributes0.1-0.6 maternal deaths per 1000 deliveries (van Dillen et al., 2010). On the other hand, there is scarcity of data on compliance to PS prevention practices in the African region. Despite it being the third leading cause of maternal mortality, it has been a neglected cause with focus being on hemorrhage and hypertension (WHO, 2017)

The African continent is the most affected with most countries reporting high PS case fatality, for example, it was 33.3 percent in West Africa (Prual et al., 2000) and, 56 percent in Sub-Saharan Africa (UNFP, 2012). On the same vein, PS was the leading cause of maternal deaths in South Africa and the second leading cause in Nigeria at17 percent (Buchmann et al., 2012). In 2015, PS was the fourth leading cause of maternal mortality in Zimbabwe, accounting for 7.8 percent of maternal deaths (UNDPA, 2015) while in 2017, it accounted for 15percent of all maternal deaths in Kenya (Chepchirchir et al., 2017). These statistics affirm that PS is a silent and unattended factor contributing to the high maternal mortality.

In Uganda, sepsis was responsible for 8.9 percent of maternal deaths in 2018 (MOH, 2018).The maternal deaths remained high in Fort Portal and Hoima RRHs at 53 and 52 deaths, respectively while Moroto, Gulu and Kabale RRHs had the lowest maternal deaths. Masaka RRH was the only facility that had a decrease in maternal

deaths from 45 to 27 (MOH, 2018).Particularly in Mbarara Regional Referral Hospital (RRH), PS accounted for 30.9 percent of maternal deaths as was reported by Ngonzi et al., 2016, and the hospitalalso realized the most significant increase in maternal deaths among RRHs, from 27 to 41, in the same year(MOH, 2018). This raise suggests that PS was a contributing factor to the high maternal mortality in Mbarara RRH.

Statement of the Problem

Despite the desire for 100 percent compliance to Peurperal Sepsis prevention practices so as no mother dies from Peurperal Sepsis (WHO, 2018), there generally seems to be low compliance to the prevention practices of PS as reflected by the high mortality due to Peurperal Sepsis. This was evidenced by the 30.9 percent maternal deaths due to Peurperal Sepsis in Mbarara RRH (Ngonzi et al., 2016), which, was 3 times higher than the national maternal deaths due to sepsis, at 8.9 percent (MOH, 2018). Among all RRHs, Mbarara RRH also had the highest increase in maternal deaths from 27 to 41, in 2018, and PS was the leading cause of the maternal deaths in the hospital (Ngonzi et al., 2016).

Whereas several interventions have been carried out to prevent Peurperal Sepsis, there is lack of sufficient information on level and factors associated to compliance to preventive practices of Peurperal Sepsis. Therefore, this study investigated the level of, and the individual and health system related factors associated to compliance to preventive practices of Peurperal Sepsis in Mbarara RRH.

Research Questions

1. What are the individual and health system related factors of the post-partum women attending the Mbarara RRH post-natal clinic and ward?

2. What is the level of compliance to preventive practices of puerperal sepsis among the post-partum women attending the Mbarara RRH post-natal clinic and ward?

3. What are the individual and health system factors associated with compliance to preventive practices of puerperal sepsis among the post-partum women attending the Mbarara RRH post-natal clinic and ward?

General Objective of the Study

To establish the level of, and factors associated, with compliance to preventive practices of puerperal sepsis among the post-partum women attending Mbarara Regional Referral Hospital post-natal clinic and ward.

Specific Objectives

1. To describe the individual and health system related factors of the post-partum women attending the Mbarara RRH post-natal clinic and ward.

2. To determine the level of compliance to preventive practices of puerperal sepsis among the post-partum women attending Mbarara RRH post-natal clinic.

3. To establish the individual and health system factors associated with compliance to puerperal sepsis prevention practices among the post-partum women attending Mbarara RRH post-natal clinic.

Hypothesis

The null hypothesis is that individual and health related factors have no significant association with compliance to preventive practices of PS among post-partum women attending Mbarara RRH post-natal clinic and ward.

Significance of the Study

The research generated information on the factors influencing compliance to PS prevention practices among post-partum women in Mbarara RRH post-natal clinic and ward. This study is likely to be beneficial to the stakeholders below;

Study subjects: The study findings will form the basis of designing health promotion messages for post-partum mothers on how to prevent puerperal sepsis and eventually reduced their morbidity and mortality.

Ministry of Health: The results will inform the design of interventions by the Ministry of Health to address the factors that are promoting non-compliance to the prevention practices of PS.

Mbarara RRH: The research findings will be important to the administration of Mbarara RRH since it will provide information that can be used to improve on the maternal health in the region.

Scholars: The study findings of this research will be used by the scholars as a baseline for further studies on compliance to prevention practices of PS.

Scope of the Study

The study was conducted in Mbarara RRH in South Western, Uganda and it focused on establishing the level of, and factors associated with compliance to prevention practices of PS at individual and health system levels. The independent variables of this study were individual related factors such as age, parity, marital status, religion, education level, household income, cultural beliefs, spouse involvement and antenatal care attendance, along with the health system factors such as the health workers attitude, distance to the health center, transport difficulty, and the health education. The dependent

variable of this study was compliance to preventive practices of PS. The study was conducted in Mbarara RRH in South Western Uganda from August to September 2019.

Limitations of the Study

A cross sectional study design was adopted for this study which collects information about a problem at a specific point in time. This has the risk that the information collected in this time period may not be representative for the different time periods. This was mitigated through spreading the data collection over a period of about three weeks.

A simple random sampling technique was used instead of systematic sampling since the study was carried out over a short period of time which may have limited the generalizability of the information collected to other periods. This was mitigated through spreading the data collection to throughout the day and stretching it to about three weeks rather than a few days.

Theoretical Framework

The study was guided by two models: the Health Belief Model (HBM) and the Socio Ecological Model (SEM).

The HBM was developed by Rosen Stock and Becker in 1950 and it was later revised by Taylor et al., (2007). This is a psychological model that attempts to explain why people would or would not use available services to prevent anticipated future complications arising as a result of neglected services prior to the complication. For instance in the case of PS, if a mother perceive that non-compliance to PS prevention practices as not being a cause of any severe health consequences then her perceptions

would determine her overall perception of the health as a result of non-compliance to the practices. The same authors further note that the perceptions of benefits and barriers have a bearing on an individual's perception of effectiveness of undertaking specific health behavior. For example in case of a mother , the extent to which she feels that the PS prevention practices can make her health better, combined with the view on the constrains such as cost and distance to the health center will have an effect on whether to adhere to the preventive practices or not.

Although HBM is considered for this study of compliance to prevention practices, the model does not address certain individual related factors like spouse involvement among others and health system factors that are considered important to the study such as attitude of the health workers among others. Therefore, the SEM was also considered for use in this study. The SEM was developed by Urie Bronfenbrenner in 1970, it explains the influence of health system factors on the individual behavior especially compliance which is the focus of this study. In the SEM, different levels of factors influence individuals' behavior that is to say factors at individual level, micro (provider and social support), meso (health care organization), and macro (health policy) levels (Berben et al., 2012). Behavior is affected by interplay of multiple factors and individual behavior is shaped by the social environment.

Conceptual Framework

The conceptual frame work illustrates the hypothesized relationship between the independent variables (individual and health system related factors) and the dependent variable (level of compliance) which influences the compliance to the prevention practices of PS by post-partum mothers in Mbarara RRH post-natal clinic and ward. This

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was developed according to the cross-section study done previously by Sultana et al., 2018; WHO, 2008

Figure one below; illustrates this relationship between independent variables and the dependent variable.

Independent Variable   **Dependent Variable**

Factors associated with compliance to PS prevention practices

Individual Factors

Age
Parity
Marital status
Religion
Education level
Household income
Cultural beliefs
Spouse involvement
Antenatal care attendance
Knowledge on puerperal sepsis prevention practices

Health System Factors

Attitude of health workers
Distance to the health center
Transport to the health centre
Health education on PS prevention practices.
Knowledge of health

Compliance to Preventive Practices of PS by mothers
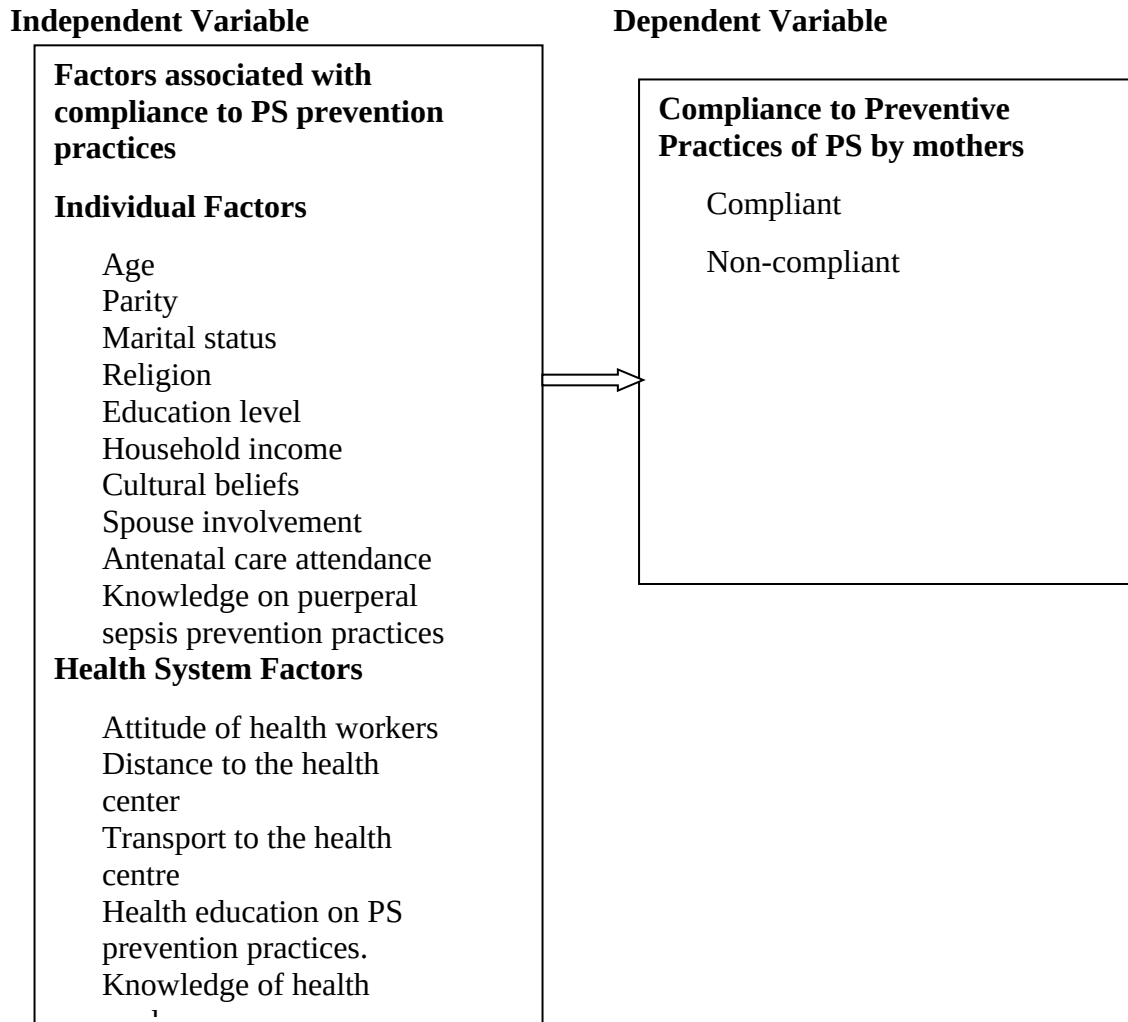
Compliant

Non-compliant

Figure 1: Conceptual framework of the study.

Operational Definition of Terms

Individual factors in this study were; age, education level, parity, marital status, religion, cultural beliefs, household income, knowledge on PS, spouse involvement and antenatal care attendance. The health system factors were; distance to the health facility, the attitude of the health workers, cost of transport to the health center and the health education on PS prevention practices.

Individual Factors

Age: In this study, age referred to the complete number of years since birth the respondents had at the time of study. It was numerically measured in completed years for example 19, 20…

Parity: In this study, parity referred to the number of pregnancies carried by the mother beyond 28 weeks of pregnancy at the time of the study. It was numerically measured as complete numbers for example 1, 2, 3…

Marital status: This referred to whether the post-partum woman was legally married to or living with a partner or the partner died OR not married and not living with a partner. It was nominally measured as; 1. Married/co-habiting, 2. Divorced/separated, 3. Widowed, 4. Single mother

Religion: In this study, religion referred to the respondent's religious affiliation. It was nominally measured as; 1.SDA,2. Catholic, 3. Protestant, 4. Moslem, 5. Pentecostal, 6. Others, specify

Education level: In this study, education level referred to the highest class of formal education attained by the respondent at the time of study. It was ordinary measured as; 1.

University/College (highest level), 2. Advanced & Ordinary secondary school levels (high level), 3. Primary School (lower level), and 4. None.

Household income: This referred to the average monthly household income of the respondents in Uganda shillings. It was numerically measured in complete figures as; 50,000/=, 100,000/=……

Cultural beliefs: This referred to cultural practices or perceptions of the different tribes living in South Western, Uganda, which influence the post-partum mothers' compliance to preventive practices of PS. It was measured as 1. Delay cleaning/washing the genital area 2. Delay cleaning/washing the whole body 3. Use herbs to clean/wash the genital area 4. Use herbs when cleaning/washing the whole body 5. Others, specify……….This was later grouped into those with beliefs and those without beliefs.

Spouse support: It referred to whether the post-partum woman is supported financially, emotionally and physically by her husband or not. This was measured as 1. Yes and 2. No.

Antenatal care attendance: It referred to number of times a post-partum woman attended antenatal care. It was measured as 1. None, 2. 1 time, 3. 2 times, 4. 3 times, 5. 4 times, 6. More than 4 times.

Knowledge on puerperal sepsis: It referred to possession of understanding by the post-partum women through training received from the health care providers about the preventive practices of PS. This was measured as an index score out of the 9 individual practices for preventing PS. A mother was considered knowledgeable if she scored 4.5 and above, and not knowledgeable if she scored less than 4.5.

Health System Factors

Attitude of the health workers: This was used to refer to the perception of the post-partum women towards the behavior of the health workers. That is the care and handling of these women receive when they come to facility. It was measured as 1. Supportive and friendly   2. Rude and arrogant   3. Don't care

Distance to the health centre: This referred to the average distance from home to the health centre where the patient gets preventive care and knowledge. It was measured as complete kilometers for example 1km, 2km, 3km….

Transport to the health centre: This referred to the existence of difficulties a post-partum woman encounters in terms of transport from home to the health centre. It was measured as 1.Yes and 2. No

Health education on PS prevention practices: It referred to whether the post-partum woman was given information regarding PS prevention practices, the possible side effects and the nature of the disease. It was measured as 1. Yes and 2. No.

Compliance to PS prevention practices: This was measured as an index score out of the 9 individual practices for preventing PS. A mother was considered compliant if she scored 4.5 and above, and not compliant if she scored less than 4.5.

CHAPTER TWO

LITERATURE REVIEW

In this chapter, the literature regarding factors that influence compliance to prevention practices of PS was reviewed using search engines such as PubMed, Medline, Google scholar and the Research gates. Grey literature was also used to supplement the literature obtained from academic journals. This included reports from the Ministry of health and the reports from the WHO related to PS prevention practices.

Individual related Factors that Influence Compliance to PS Prevention Practices among the Post-partum Women

Many studies have associated individual related factors such as age, education level, parity, culture, income level, knowledge on puerperal sepsis, spouse involvement, antenatal care attendance to determining compliance to health interventions. However different scholars may have different association or similar associations as below;

Age (years)

A study in Kenya, found that 57.2 percent of puerperal sepsis was mostly in mothers in the age of 20-29years (Chepchirchir et al., 2017. The occurrence of sepsis in this age group was attributed to poor compliance to preventive practices of PS resulting from low antenatal care (ANC) attendance and lack of knowledge on the benefits of health care services because they were inexperienced mothers (Chepchirchir et al., 2017). This age group overlapped with the age group 21-25 years that had the highest number (35.5 percent) of mothers with PS in a study done in a rural hospital in Sudan (Ahmed et al., 2013). However, Khaskheli et al reported PS to be higher in mothers aged 31 years

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and more (65.11%) and attributed this to poverty, illiteracy and malnutrition which affected their immune response to the infecting agents (Khaskheli et al., 2013 Jul-Aug). This was a prospective observation study carried out in Pakistan unlike the Kenyan study which was of a descriptive cross sectional design, which would be considered a weaker design. However, the Kenyan and Sudan studies may be more generalizable to the Uganda situation because they are both East African countries. The gap identified was that the studies concentrated on determining the proportion of women that had PS but did not determine their compliance to the preventive practices of PS which this study aims to address.

Education Level

Much as it is logical to believe that education would be associated with compliance to preventive practices for PS, there were mixed findings in the Nandi post-partum women with the least occurrence (9.8%) of sepsis being in the illiterate group and highest in those with primary education (50.2 percent), with the secondary and tertiary education falling in between (Chepchirchir et al., 2017). However, it must be noted that this was a descriptive study with no comparison group and therefore difficult to draw a causal relationship. Similarly a study done in India found that the higher the education, the lesser was the practice on the prevention of selected puerperal infections, and the relationship was statistically significant (Latitha, 2016). This dilemma was further compounded by lack of studies with stronger study designs that had assessed the relationship of education and compliance to PS prevention practices. In addition, the studies did not explicitly show the compliance to preventive practice of PS in relation to the education level, which this study seeks to address.

Parity

Studies that have evaluated the relationship between parity and compliance to puerperal sepsis have yielded contrasting results. A study evaluating risk factors and complications of PS among Nandi women found that there were more multiparous women (78.29%) with PS compared to other parties. They suggested that this resulted from the multiparous mother having many duties leaving them with little time to uphold proper hygiene practices (Khaskeli et al., 2013). On the other hand, however, Nandi post-partum mothers with low parity had higher rates (57.2 percent) of PS, which was attributed to lack of knowledge (or inexperience) towards the preventive practices of PS (Chepchirchir et al., 2017). It's not clear what was responsible for the difference in the findings but the two studies were done in different socio-cultural settings and the two studies employed different study designs, descriptive cross sectional and prospective observational designs, respectively. These studies did not show if the mothers had complied the preventive practices for PS nor the factors influencing their compliance. The study sought to address this gap.

Cultural Beliefs

Cultural beliefs have a great influence on practices of child birth and puerperium (Bhuvaneswari et al., 2015). For instance in the Chinese Fujian province, it was believed that a woman who had given birth should not bath or wash hair immediately and added wine or motherwort herb to the water because they believed that the skin was loose and hence water could enter through its pores (Raven et al., 2007). Similarly, despite hygiene after delivery being key in avoiding PS, Barasa et al found that 26 percent of the post-natal mothers held the opinion that women should stay for more than two weeks before

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they take personal hygiene. This belief causes delay in adhering to prevention practices of PS (Barasa et al., 2018). Furthermore, in Egypt, women in puerperium feared to go out of the house for fear of catching infections and most of the women added salt or herbals to the water they used to clean the perineum (Lamadah, 2013). From across all regions, there seems to be cultural beliefs and practices related to prevention of sepsis during puerperium, however, the studies did not highlight how the cultural beliefs affect the compliance to the preventive practices of PS. This study sought to elucidate this.

Household Income

The household income determines many aspects of ones' well-being including; nutrition, proper housing or living environment, access to health care and the general livelihood of an individual. This is associated with socio-economic status of an individual. A high proportion of mothers in the low socio-economic class get PS, as an observational study in Pakistan showed that 65.2% of mothers with PS were in the low socio-economic status (Taskin et al., 2016). Similar findings were reported by in another study in Pakistani (Abbassi et al., 2009), Kenya (Chepchirchir et al., 2017) and Alexandria, which showed that women in the low socio-economic class were 6.4 times more likely to get PS than women in higher socio-economic classes (El-Mahally et al., 2004). The predisposition to PS in this class was due to chronic ill health and malnutrition (Chatterjee M, 1990). The study designs in the above studies were all observational including descriptive cross sectional and case control designs, however, the case control study used in the Bangladeshi study is stronger at measuring a causal relationship. The studies only describe the proportions of mothers in the different socio-

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economic levels who get PS without showing if they complied with the preventive practices of PS. This study aimed to address this gap.

Spouse Involvement

Spouse involvement can have a strong impact on compliance to the practices to prevent PS because socially and culturally the man determines the sex terms and provides for the mother too. For example Salim et al.(2010), found that majority of women's motivation to resume sex was to satisfy their spouses' demands (Salim et al., 2010), and many women return to sexual activity due to pressure from their partners rather than it being their choice. Sex done in such circumstances when the women are not ready for it may result in injuries and infection especially if it is done before there is complete healing. Besides, if the spouse does not financially support the woman, she may resort to using cheap treatment or hide her infection from him, which action leads to further complications (Chepchirchir et al., 2017). This lack of financial support may also deprive the mother of proper nutrition, which is very much needed during this period for a good immune system to resist infection (Khaskheli et al., 2013 Jul-Aug). The studies evaluating spouse involvement are limited and are qualitative and narrative in nature, which was an appropriate assessment of a subject of this nature. However, other reason for resuming sex and financial support, the studies did not determine the influence of spouse involvement on the compliance to other preventive practices of PS, and this study sought to bridge this gap.

Antenatal Care Attendance

It's probable to assume that a woman who attends antenatal care (ANC) get less PS because infections are treated early and health education is offered to the mothers. However, in the Nandi post-partum women, ANC did not stop a mother from acquiring PS. The PS was principally a consequence of poor hygiene because even if a mother attended ANC but did not comply with the preventive practices of PS during delivery and or during post-partum period, she would encounter bacterial contamination and be infected (Chepchirchir et al., 2017). Conversely though, a study in Nigeria found that women who did not attend ANC were more at risk of PS compared to those that attended ANC because they don't get the knowledge of preventing PS (Momoh et al., 2010). For example, Dare et al found that among the deliveries where PS occurred, 71.2 % had never booked for ANC (Dare et al., 1998). The evidence presented here was from a mixture of descriptive cross sectional and retrospective cohort designs which were appropriate to the themes being studied. The studies highlighted above had contrasting findings on the contribution of ANC towards the compliance to the preventive practices of PS and this study aimed to clear this area.

Knowledge on Puerperal Sepsis prevention practices

Lack of knowledge on an intervention limits its utilization by the target group. The study done in Nandi Sub-county in Kenya found that women lacked knowledge in PS prevention practices, up to 56% had no knowledge on sepsis prevention. For instance they carried out abortions in unhygienic conditions and delivered outside the health facilities (Chepchirchir et al., 2017). Similarly a study on assessment of knowledge and practice of postnatal mothers on prevention of puerperal infections in a selected maternity

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hospital in India, found that 65% of the postnatal mothers had inadequate level of knowledge, 35% had moderate level of knowledge and none of the mothers had adequate knowledge on prevention of puerperal infections (Latitha, 2016). There seems to be an agreement between the researchers that there is an association between knowledge and compliance to prevention practices of PS. However, the observational designs in these studies limits us from concluding that a causal relationship exists between the two variables. The studies above clearly describe the level of knowledge in the post-partum mothers but draw no clear association with the compliance to the preventive practices of PS, which, this study sought to clarify.

Health System Factors that Influence Compliance to PS Prevention Practices among the Post-Partum Women

There are many factors associated with health services delivery. This study aimed specifically at factors associated with service delivery such as health workers attitude, the distance to the health center, transport to the health centre and the health education on PS prevention practices.

Healthcare Workers' Attitude

The attitude of health workers towards the utilizers of a service may deter or lead to its utilization (Mannava et al., 2015). Moreover, the healthcare workers' attitude affects the quality of post-natal care including the prevention of infections (Chimtembo et al., 2013). A Zambian study in a general hospital showed that a positive attitude was associated with a high utilization of infection control practices (Mukwato et al., 2007). There were limited number of studies that assessed healthcare workers' attitude in relation to PS and descriptive cross sectional designs were used, which was appropriate.

Distance from Health Center

Distance from the health center is a direct cause of maternal mortality (Scott et al., 2013 Oct). Unfavorable distance to the health facility is a barrier to delivery from a health facility (Webber et al., 2014) leading women to deliver at home or at traditional birth attendants which may be associated with sepsis. A study in rural Southern Tanzania, showed an increase in maternal mortality of four fold as distance increased from less than 5 kilometers to more than 35 kilometers from the health center. Puerperal sepsis was the third leading cause death in this population (Hanson et al., 2015). The two studies were cross sectional in nature and well suited to assess the effect of distance on compliance to sepsis prevention practices. The above studies stopped at associating distance with maternal mortality but did not link it to compliance to the preventive practices of PS, which, this study addressed.

Transport to the health facility

Access to the health facility for both evaluation and management of PS is influenced by cost and availability of transport means. Marwah et al., 2017 in a retrospective evaluation of postpartum women admitted with PS in a New Dhelhi hospital found that 27% and 9% of the women lacked transport from home to the health facility and transport in between health facilities, respectively. Similarly, Worku et al., 2013 found that 22.6 % of women with maternal complications including sepsis reported distance or transport problems as reason for not seeking medical assistance. This was a community based cross section study that evaluated mothers from the community. There seems to be few studies that have evaluated this problem and in this literature search, only two studies were identified.

Health education on PS

  Health education is key in helping patients understand their disease and adhere to the interventions towards alleviating the disease. However, on the contrary, the level of health education seems to be low and the extent of the health education services has not been fully evaluated as indicated by a paucity of studies on this subject. For instance I came across only one study on this subject evaluating the occurrence and management of PS in two hospitals in Nandi County in Kenya which showed that 81.9% of the women did not have knowledge of the disease they were being treated for (Chepchirchir et al., 2017). This was a descriptive cross sectional study that employed both quantitative and qualitative methods, however it was a dissertation posted online rather than a peer reviewed article. Other than, determining the level of knowledge, the study above did not assess the association of health education to compliance to the preventive practices of PS, which this study addressed.

Summary of Literature and Identified Gaps

  The evidence shows that there is a critical lack of knowledge on PS among the post-partum women which limited their adherence to prevention practices for PS. This was partly reflected in primitive cultural practices such as delay of institution of hygienic practices or adding herbs or wine to bathing water to prevent PS.

  In many of these studies assessing the factors determining the compliance to PS prevention practices, there were contrasting and at times paradoxical findings such as ANC attendance and higher education not being associated with good compliance to the PS prevention practices or mixed where studies reported different age groups to be associated with higher rates of PS.

It is also of great concern that the evidence shows that there is lack of infection control guide lines in maternal and child health facilities and where they exist the health workers did not consistently use them. This was further complicated by evidence of inadequate training of health workers in infection control and the materials used lacked critical information on infection control.

There was however agreement in all studies on some factors affecting compliance to practices to prevent PS such as socio-economic status, distance from health facilities and healthcare workers' attitudes being direct determinants to the occurrence of PS. Finally, the most critical gap is the lack of studies or data on the factors determining compliance to practices to prevent PS in Uganda yet there are indicators that sepsis is a huge problem at least in some health facilities in the country. This is worrying because in such a state, there is no evidence to point out what areas need to be addressed to tackle sepsis which is the third leading cause of maternal mortality. This study therefore attempted to address this critical gap.

CHAPTER THREE

METHODOLOGY

This chapter discusses the research methodology that was used in the study. It includes the research design, locale of the study, study population, sample size determination, Sampling procedures, data collection tools and instruments, validity and reliability testing, data collection procedures, proposal ethical issues and data analysis plan.

Research Design

Both quantitative and qualitative research approaches were used in this study. A quantitative approach was used to assess the individual related factors of the post-partum women that influence compliance to prevention practices of PS through a structured questionnaire. A qualitative approach was used to explore more on the individual and health system factors that influence compliance to prevention practices of PS through informant key interviews.

A cross-sectional study was conducted since data collection was at one point in time. Cross-sectional studies are carried out to investigate associations between factors and the outcome of interest (Levin, 2006). The cross sectional design was appropriate for this study because it is robust in determining level of, and factors associated with compliance.

Locale of the Study

This study was carried out in South Western, Uganda, in Mbarara Regional Referral hospital post-natal clinic and ward. Mbarara RRH serves a population of over

four million people in its catchment area comprising of the districts of Mbarara, Bushenyi, Ntungamo, Kiruhura, Ibanda, Sheema, Buhweju, Rubirizi, Mitooma and Isingiro. The hospital serves as the teaching hospital for the Mbarara University of Science and Technology. Mbarara RRH is approximately 265 kilometers, by road, Southwest of Kampala, the capital and largest city of Uganda. Mbarara Regional Referral Hospital was considered in this study because it registered the most significant increase in maternal deaths among RRHs from 27 to 41, in 2018 (MOH, 2018). The maternal deaths remained high in Fort Portal and Hoima RRHs at 53 and 52 deaths, respectively while Moroto, Gulu and Kabale RRHs had the lowest deaths. Masaka RRH was the only facility that had a decrease in maternal deaths from 45 to 27(MOH, 2018). PS is the leading cause of maternal deaths in Mbarara RRH (Ngonzi et al., 2016)

Study Population

The target population was comprised of all Post-partum women in South Western Uganda. The study population was comprised of 19,796 Post-partum women attending Mbarara RRH from the ten districts served by the hospital including; Mbarara, Bushenyi, Ntungamo, Kiruhura, Ibanda, Sheema, Buhweju, Rubirizi, Mitooma and Isingiro. The study also involved 6 key informants (purposively sampled) who dealt with administrative, delivery care and education issues which influence the compliance to prevention practices of PS in the health facility.

Selection criteria

The study population was selected according to the inclusion and exclusion criteria below;

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Inclusion criteria

1. Post-partum women within six weeks of delivery.

2. Aged 18 years or more and able to give informed consent or an emancipated minor aged 14years and less than 18 years who was able to give consent participated.

Exclusion criteria

1. Post-partum woman with any decreased level of consciousness, mental illness, severely sick or any other condition that prevents her from providing information needed for the study was excluded.

Sample Size

The sample size of the study was 371post-partum women, this was determined using the Daniel (1999) formula for the known population below;

$n = N*X / (X + N - 1)$,

Where;

n is the sample size

$X = Z_{\alpha/2}^{2}*p*(1-p) / MOE^{2}$
$Z_{\alpha/2}$ is the Standard normal deviate at 95% confidence interval corresponding to 1.96, MOE is the margin of error (0.05), p was the sample proportion (43.3 percent), and N (19,796) is the population size.

Substituting in the formula, the sample size for this study was 371 post-partum women which were obtained from the post-natal clinic and ward.

Sample size for the qualitative aspect of the study was set at 6 key informants, however, key informants were sought until the saturation point, that is, when no new information was being added. By the time, the sixth key informant interview was interviewed, not much new information was being added to the information that had already given been by the 5 five participants. Therefore the final sample size for the qualitative aspect of this study was 6 key informants.

Sampling Procedures

The study employed both purposive and simple random sampling.

Quantitative study

The post-partum women in the post-natal clinic and ward were subjected to the study inclusion criteria and then consecutively recruited into the study. The women that met the inclusion criteria, were consented and then interviewed. The sampling went on until the required sample of 371post-partum women was attained.

The study team of 3 aimed to recruit 10 participants each and 30 participants in total per day were attained and accrued the sample size in 13 days. This removed the bias of similarity among participants who attend on a certain day. Each morning the study team briefed the women in the waiting area about the study and then approached each individually for consenting and enrolment into the study using consecutive sampling. Where after selecting the first participant, the next participant was selected until the sample size was accrued.

Qualitative study

Purposive sampling was used to purposely sample out the hospital staff, the key informants that participated in the key informant interviews. This sampling technique was employed so as to identify those key informants who had the relevant information for this study.

Data Collection Methods and Instruments

The study used both structured interviews and key informant interviews.

Structured Interviews

A structured interview was carried out among the post-partum mothers in the post-natal clinic and ward using a researcher administered structured questionnaire.

Key Informant Interviews

This process involved face to face interviews with the selected key informants using an interview guide.

Questionnaire

The study used face to face administered structured questionnaire which was adopted from sultana et al (2018; WHO, 2008). The questionnaire involved various sections of which section A, captured individual related factors that influence compliance to prevention practices of PS and the level of knowledge of mothers on PS. Section B captured health system factors that influence compliance to PS prevention practices while section C assessed the level of compliance to PS prevention practices by the post-partum women attending the Mbarara RRH post-natal clinic and ward.

Key Informant Interview Guide

A key informant interview guide was administered to 6 selected hospital staff working in the post-natal clinic and ward. This enabled the collection of rich data since it gave the respondent freedom of airing out their views on the open ended questions relevant to the research objectives. The interview guide consists of open ended questions relevant to the research objectives and was used in the collection of health system related factors that determine compliance to PS prevention practices in Mbarara RRH post-natal clinic and ward.

Observation Checklist

The observation checklist was used to check for health education corners and practices, communication materials, hand washing equipment with soap, hand sanitizers, environmental hygiene and the infection control guideline.

Validity and Reliability

Before data collection, reliability and validity tests were taken to ensure that the data or the information generated from the research is reliable, complete, accurate, error free and above all reproducible using the same method.

Validity

In order for the research instrument to measure what is meant to measure, the researcher made consultations with the academic supervisors for checking the items consistence and relevance in the context of this research. The instrument was validated

and approved by the University supervisors. To establish the content validity index (CVI) the following formula was used.

CVI = K/N

Whereby K is the total number of items in the questionnaire to be declared valid by the experts (30) and N is the total number of items in the questionnaire (33). The CVI of the study was calculated and found to be 0.9, a CVI of above 0.7 is considered acceptable (Amin, 2005)

Reliability

The questionnaire was pilot tested with the group of 5 respondents which brainstormed the potential answers to the problem and based on the feedback, vague questions were removed. Further still, research assistances were trained on data collection procedure. The respondents involved in the pilot test were not included in the main study.

Data Collection Procedure

Before commencing data collection, the researcher obtained an approval letter from the Dean, School of Graduate Studies and proceeded to Institution Review Board (IRB) for ethical clearance. An approval letter from the IRB was presented to the Dean Bugema University School of Graduate Studies who gave the principleinvestigator an introductory letter which was presented to the Hospital Director Mbarara RRH., who reviewed the protocol, granted administrative clearance, and communicated to the incharge of the post-natal clinic and ward.

Two research assistants were trained on research protocol and the data collection tools before assisting the investigator in data collection. All participants were requested

to give a written informed consent either by signature or thumb print prior to participating in the study. All women in the post-natal waiting area were briefed about the study and then approached individually to allow them make a choice to participate or not. All consented women were screened for eligibility using the study selection criteria. All those that met the selection criteria were enrolled into the study.

A structured questionnaire was administered to only those women who consented by the investigator or a research assistant to assess the level of compliance to the sepsis prevention practices and the factors influencing the compliance to these practices. After taking the questionnaire, the women exited from the study. Qualitative data collection was by in-depth interviews to health workers including two in-charges, a resident medical doctor, two obstetrics and gynecology nurses and the assistant manager in charge of maternity ward and these interviews were recorded using key informants interview guide.

The study questionnaire involved some questions that sought to elicit information that could be considered as private such as reason and time of resuming sex or information that would cause this harmony between the mother and the spouse such as whether the mother was forced to resume sex by the husband. These were mitigated by informing the mother that she was free to choose not to answer some questions.

Data Analysis

Quantitative data collected was entered in Epi data entry software, edited, cleaned and combined into broader categories in terms of key variables. It was analyzed using SPSS software version 20.0.The results were presented in form of tables. Uni-variate

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analysis was done for objective one and two were descriptive statistics which included frequencies, percentages for categorical variables and means and standard deviations(SD) for continuous variables were produced. For objective 3; inferential statistics, where the Pearson chi-square of independence was used to determine the association between the independent variables against the dependent variables, the variables that were significant were subjected to binary logistic regression analysis to obtain crude odds ratio. The variables that were significant at binary logistic regression analysis were further subjected to multivariate logistic regression analysis to generate adjusted odds ratio. A 95% confidence interval was set and variables that had a p-value of < 0.05 were considered significant to compliance to preventive practices of PS.

For qualitative data, content analysis approach was used where codes that describe content in the text were generated. Emerging ideas were assessed, as the researcher brought out the main ideas after listening to all transcripts. Coded content were developed, interpreted and analyzed.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents and discusses the study finding on individual related factors and health systems realted factors and their influence on compliance to preventive practices of peurperal sepsis among post-patartum women attedning healthcare at Mbarara RRH post-natal clinic and ward. The finding are presented acoording to the study objectives. The discussion of the study results was done while comparing the current research finding of this study to those of the previous related studies.

The results were generated from a total of 371 post-partum women who were attending the post-natal clinic and ward of Mbarara RRH who met the eligibility criteria. Six health workers as key informants were also interviewed. The results are presented in terms of frequencies, percentages and meaures of association of the independnet and dependent variables to establishe whether individuals related and health system related factors influenc compliance to preventive practices of PS among post-partum women attending Mbarara RRH post-natal clinic and ward.

Factors of the Respondents in the Study

Objective 1 of the study was to describe the individual and health system related factors of the respondents in the study. Data obtained were analysed using descriptive statistics to generate frequency, precentage, mean and standard deviation as presented in Table 1.

Table 1: Factors of the Respondents in the Study

Variable	Categories	Freq.	%	Other Statistics
Age-group	15-19	47	12.67	Mean - 25.89
	20-24	123	33.15	sd - 5.70
	25-29	112	30.19	Min – 16
	30-34	60	16.17	Max – 43
	35+	29	7.82	
Parity	1-2	249	61.12	Mean – 2
	3-4	91	24.53	sd – 2
	5+	31	8.36	Min - 1, Max -9
Marital Status	Staying together	346	93.26	
	Divorce/Separated	13	3.50	
	Widowed	1	0.27	
	Single	11	2.96	
Religion	SDA	10	2.70	
	Catholic	104	28.03	
	Protestant	148	39.89	
	Moslem	58	15.63	
	Pentecostal	33	8.89	
	Other	18	4.85	
Education Level	Tertiary	81	21.83	
	High School	102	27.49	
	Primary	172	46.36	
	None	16	4.31	
Income	None	13	3.50	Mean - 367,035
	Less-than 100 Thousands	63	16.98	sd - 476,186
	100-499 Thousands	207	55.80	Min - 0
	500-999 Thousands	57	15.36	Max - 3,000,000
	One Million and More	31	8.36	
Beliefs	With cultural beliefs	244	65.77	
	Without cultural beliefs	127	34.23	
Partner Support	No	62	16.71	
	Yes	309	83.29	
Partner compels to resume sex before being ready	No	298	81.20	
	Yes	69	18.80	
Knowledge on	Not Knowledgeable	122	32.88	
	Knowledgeable	249	67.12	
Antenatal times	<4 times	50	13.48	
	4 & more times	321	86.52	
Attitude of HCWs	Supportive/Friendly	335	90.3	
	Rude/Arrogant	31	8.36	
	Don't Care	5	1.35	
Distance from the Health Centre	Less than 5 km	264	71.16	Mean -6km, Sd. - 10.6km
	5 and More km	107	28.84	Min - 1 km , Max - 60km
Difficulty in terms of transport	No	289	77.9	
	Yes	82	22.1	
Health Education on Puerperal Sepsis	No	141	38.01	
	Yes	230	61.99	

Source: Primary data, 2019

Age(years) of the Respondents

The majority of the respondents were between 20 to 29 years 235 (63.34%) with the average age being 25.9 years (SD = 5.7). The respondents in adolescent years were 47(12.7 %) while those with advanced age (≥30 years) were 89(24%). These results are in line with the findings of Latitha et al were the majority of the post-natal mothers were in the age group of 20 to 25 years (Latitha et al, 2016). Relatedly, a study evaluating PS in Kenyan post-partum women found that the majority who got PS were in the age group 20-29 years (Chepchirchir et al. 2017). Similar findings were reported by (Ahmed et al., 2013) and (Khaskheli et al., 2013). The reasons advanced by these authors for this trend include; poor compliance to preventive practices of PS, poverty, illiteracy and malnurtition which lower the immunity of the women.The finding that majority of the respondents were between 20 to 29 years can expalined from the fact that these are the reproductive years where most women would wish to have all their children before they become old.

Education Level

The findings in Table 1 majority of the post-partum women 172(46.4%) had attained primary education while 81(21.8%) and 102(27.5%) had attained tertiary and high school education respectively. The results mirror what was reported by Latitha , 2016 in assessing knowledge and practices of preventing peurperal sepsis among post-partum women, majority of the women had attained primary and secondary education. This trend that majority of the women had attained primary education could be epxlained by fact the community served by Mbarara RRH is rural where educational aspirations are limited as women are socialized to get married early and start their families early rather than spent a lot of time in school.

Parity of the Respondents

The results in Table 1 shows that 249(61%) of the respondents had low parity (1 or 2) while only 31(8.3%) had 5 or more pregnancies carried to term. The finding that majority of the rspndents had low parity might be explained by the fact that the study covered mostly respondnets beteween the age of 20 to 29 years. This finding is in a greement with Latitha, 2016 who while assessing knowledge and practices of preventing peurperal sepsis of post-natal women found that majority were paraprimi. A study a mong Nandi post-partum women found that majority of the women with PS had low parity (Chepchirchir et al., 2017). Conversely though, a Pakistan study found that more multiparous women got PS compared to those with low parity, attributing his findings to multiparous women having many duties leaving them with no time to ensure proper hygiene (Khaskeli et al., 2013). The predominant parity being 1 or 2 was appropriate because the predominat age group in which majority of the mothers were was young and therefore with good spacing of pregnancies there would be only a few children born to the majority of the mothers.

Marital Status

In this study majority of the respondents were living with their partners 346(93.3%). However later assessment shows that fewer (83.3%) were supportive to the women during child birth. The results were similar to the findings of Latitha, 2016were the majority of the post-natal mothers belonged to joint families. These findings that the majority of the women were living with their spouses and the majority of the spouses were supportive is explained by the culture norms of the communities served by the

hospital where bearing children is expected to occur in a family setting and the man is supposed to take care of his wife and children.

Religion

The protestant religion was dorminant among the the respondents of this study as 148(39.8%) of them subscribed to the protestant faith. However, we could not identify any study that had assessed religion in relation to PS to compare these findings with. The distributing of religion was fairly shared between protestants and catholics, which, are the dominant religions in Uganda.

Household Income

The results in Table 1 shows that majority (79.6 %) of the respondents were living above the national monetary poverty line, earning between Ushs 100, 000 to 499,000, however, which is not enough to cater for the healthcare needs of the mother. This finding was collaborated by one of the key informants and reported below;

> *A significant number of the women deivering in our hospital are poor and are not supported by their spouses and therefore cannot afford a balanced diet or take care of their needs. (KI2: In-charge post-natal clinic, 2019).*

The study findings are comparable to the post-partum women who participated in Latitha's study on knowledge and practiceson prevention of PS in India of whom majority earned 10000 (~ Ushs 500, 000) rupees per month. These results seem not in line with the findings of Taskin et al in Pakistan, Abbasi et al in Pakistan, Chepchirchir et al in Kenya and El-Mahally et al in Alexandria that showed majority of the post-partum women were in the the low socio-economic class.

The researcher agrees with this finding that majority of the women were having a low income because the community where they came from carries out mostly subsistance

farming which takes care of the home needs with little being sold to get money to buy items like sugar that cannot be produced in the homes.

Cultural Beliefs

The results in Table 1 show that 244(65.77%) of the respondents reported holding cultural beliefs related to prevention practices of PS with 127(34.23%) reporting no cultural beliefs. The results are in line with findings of other studies, for instance Raven et al. reported that Chines women delayed washing their hair or added wine or motherwort herb to the water to prevent water entering the body through loose skin following birth (Raven et al., 2007). Similarly, Barasa et al showed that post-partum women believed in delaying institution of personal hygiene for more than two weeks folowing child birth (Barasa et al., 2018). On the other hand Egyptian mothers feared going out of the house early following child birth for fear of catching infections (Lamadah et al., 2013). The results in this study and the prior studies are a true reflection of the fact that the African society is very cultural and traditional where the different cultures have their own way of dealing with health issues and child birth is not an exception.

Partner Involvement

The findings in Table 1 shows that majority 309(83.3%) of the prepondents reported partner support with majority (81.2%) also reporting that they were not forced by their partners to resume sex. This involvement of men in the child birth process exposes them to the health education from the health workers and therefore support their women to

comply with the preventive preactices of PS. One of the key informants highlighted the benefits of partner involvement as below;

We encourage our mothers to come with their spouses and those who come with them are given priority so as encourage other women to do so and also for me to spend as little time as possible so they return to their work. We have seen that where the spouses are involved the mothers comply better with what we teach them about child birth. And the men will know that any mistake the woman does can lead to death of the mother and child (KI 3: Registered mid wife, 2019)

These findings seem to differ from the findings of the few studies on this aspect that showed that the majority of women's resumption of sex was due to satisfy their spouses' demands (Salim et al., 2010).Studies from Kenya and Pakistan found that lack of financial support from the spouses led the women to resort to using cheap treatments or hiding the infection from the man (Chepchirchir et al., 2016) and depriving the women of proper nutrition (Khaskeli et al., 2013). The results in this study reflect the cultural norm of the community that the women were from cultures where the man is supposed to take care of his family including supporting the wome during child birth.

Knowledge on Peurperal Sepsis

Majority 249(67%) of the post-partum women in this study had adequate knowledge on the preventive practices of PS. The results from this study, are in contrast to the findings of Chepchirchir et al in Nandi Kenya, and Latitha in India, who found that majority of post-partum women, 56% and 65% respectively, had inadequate knowledge on sepsis prevention (Chepchirchir et al., 2017; Latitha et al., 2016) . The above average proportion of the women having adeqaute knowledge could be attributed to the hospital's concerted efforts to address PS, which had been identified to be a significant cause of maternal mortality in 2017.

Antenatal Care

The findings in this study show that majority of the post-partum women,321(86.5%) had attended 4 or more antenatal care visits similar to Latitha et al's findings that majority of the Indian post-partum women attended antenatal care (Latitha et al, 2016). The mothers attending antenatal care benefit through health education, early detection of infection and preventive treatment of some illnesses such as anemia as highlighted by one of the key informants (KI);

We educate the mothers who attend antenatal care on proper nutrition to keep them healthy, proper hygiene before and after child birth to avoid infection, and how to recognize early membrane rapture which can predispose them to infection. And we have seen these reduce the infections in the mothers. (KI 1: registered mid wife, 2019)

These findings were in disagreement with the findings of Dare et al who found that up to 71.2% of post-partum women with PS had never booked for antenatal care (Dare et al., 1998). The findings in this study show that the hospital carries out comprehensive and intensive health education which emphasises that the woman should deliver in hospital to ensure a safe delivery.

Health systems factors of the respondents in the study

The health systems factors studied included; attitude of health care workers, distance from the Health Centre, difficulty in terms of transport, and health education on PS.

Attitude of Health Care Workers

According to the study results in Table 1, majority 335(90.3%) repondents reported that health care workers were friendly and supportive, 31(8.4%) reported health workers to be arrogant and a marginal 5(1.35%) reported health workers not to care. The attitude of health workers towards the utilizers of a service may deter or lead to its utilization (Mannava et al., 2015). Similarly Chimtembo et al.,2013qualitative results showed that

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the healthcare workers' attitude affects the quality of post-natal care including the prevention of infections. A Zambian study done in a general hospital also showed that a positive attitude was associated with a high utilization of infection control practices (Mukwato et al., 2007). The finding here that majority of the women thought that the health workers were friendly and supportive could be a reflection of the hospitals commitment to providing patient friendly services but the researcher is also cognizant of the bias that could result from doing such an assessment from within the facility because mothers could have respondended positively in fear of any lash back actions that could result.

Distance from the Health Centre

The majority 264 (71.16%) of the respondents in this study lived within less than 5 km from the health centre compared to 107(28.84%) who lived more than 5 km from the health centre.The women that live far from the health facility are prone to suffer complications such as obstructed labor and uterine rupture. This was clearly highlighted by one of the key informants;

Some mothers live far from this hospital as well as other hospitals in their communities and thefore have difficulties getting to the health facility when they get a complication. By the time the ambulance goes to pick them, some times its too late when complications like rupture of the uterus or over bleeding has occurred. (KI4: In-charge post-natal ward, 2019)

Distance from the health center has been reported as a direct cause of marternal mortality (Scott et al., 2013) and a barrier to delivery in a health facility Webber et al., 2014). In Tanzania, mortality was shown to increase by four fold as distance increased from less

than 5 to more than 35 Km (Hanson et al., 2015). The finding that almost 30% of the mothers delivering at this hopsital were from more than 5 Km from the hospital could be due to the fact that the hospital is a regional referral hospital that receives complicated cases from all the South Western region of Uganda or the weakness of the health system in the neighbouring regions.

Difficulty in terms of transport

In this study Table 1 show majority 289 (77.9%) of the respondents faced no difficulty with transport to the health centre thus reporting that they were very few post-partum women with transport difficulties . These results closely mirror the findings by Marwah et al.,2017 in New Dhelhi, where 29% and 9% of the women reported transport difficulties from home to health facility and between health facilities, respectively. Similar findings were reported by Worku et al, 2013that 22.6% women with complications including sepsis had distance or transport difficulties. The finding are similar to the findngs on the distance from the hospital., the proportion that had transport difficulties was almost eqaul to the proportion that lived more than 5 Km from the hospital. The transport means outside the main town of Mbarara are limited and costly.

Health Education on Puerperal Sepsis

The study results in Table 1, show many 230 (62%) of the respondents received health education on PS from the health workers while 141 (38.0%) did not.One of the key informants had this ti say;

> *We give our mothers health education every morning when mothers come for antenatal and immunisation. We cover topics on nutrition, birth planning, hygiene and many more….(KI5:Resident medical officer Martenity ward, 2019).*

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We did not come across studies assessing the proportion of post-partum women receiving health education to compared with the findings in this study. The finding that a modest number of mothers received health education on PS, should be of concern to the hospital which only recently in 2016 had a high mortality due to sepsis. This modest proportion could be that being a regional referral hospital, the mothers come from else-where only to deliver in the hsopital or because they are refered due to complications in delivery.

Level of Compliance to Preventive Practices For PS

Objective 2 of the study was to determine the level of compliance to preventive practices of peurperal sepsis among post-partum women attending health care at Mbarara RRH post-natal clinic and ward. To determine the level of compliance, the average score of 4.5 was considered from the 9 preventive practices of PS where an average score was attained for each woman. The post-partum woman who attained an average score of 4.5 and above was considered compliant and the post-partum woman who scored less than 4.5 was non-compliant. The data obtained were analyzed using descriptive statistics to generate frequencies and percentages as summarized in table 2 below;

Table 2: Level of Compliance to preventive practices of puerperal sepsis

Practice score	Frequency (N=371)	Percentage (%)
Compliant (scored ≥4/9)	274	73.9
Non-compliant (scored <4/9)	97	26.1

Results in table 3 show that majority 274(73.9%) of the post-partum women in Mbarara RRH were compliant to the preventive practices of PS which was way above what Sultana et al, 2018 found among the same group in Bangladesh, 43.3%. The factors promoting the good compliance by the Mbarara RRH post-partum women as shown below in table 4. The good level of compliance to the preventive practices of puerperal sepsis could be a reflection of concerted efforts by the hospital to address one of their leading causes of maternal mortality as revealed in 2016 and again realized in 2018.

Factors Associated with Compliance to Preventive Practices of Peurperal Sepsis

Objective 3 of the study was to establish the individual and health system related factors associated with compliance to preventive practices of PS among post-partum women attending Mbarara RRH post-natal clinic and ward. Cross tabulation were generated for the Chi Square factors that were significant at Chi Sqaure analysis with P-value < 0.05 were forwarded to logistic linear regression to generate COR and AOR. Chi Square results are explined in Table 3, and logistic linear regression analysis results are explained in table 5.

Table 3: Factors Associated with Compliance to Preventive Practices of Peurperal Sepsis

Variables	Compliance to Prevention Practices		X2	Df	p-value
	Non-compliant N (%)	Compliant N (%)			
Age group					
15-19	13 (27.7)	34(72.3)			
20-24	31(25.2)	92(74.8)			
25-29	29 (25.9)	83 (74.1)	0.156	4	0.997
30-34	16(26.7)	44 (73.3)			
35+	8(27.6)	21(72.4)			
Parity					
1-2 Children	69 (27.7)	180(72.3)			
3-4 Children	19 (20.9)	72(79.1)	9.095	2	0.415
5+ Children	9(29.0)	22(71.0)			
Marital Status					
Staying together	93(26.9)	253(73.1)			
Divorce/Separated	2(15.4)	11(84.6)	1.591	3	0.661
Widowed	0 (0.0)	1(100.0)			
Single	2(18.2)	9(81.8)			
Religion					
SDA	0 (0.0)	10 (100.0)			
Catholic	22(21.2)	82(78.8)			
Protestant	47(31.8)	101(68.2)	8.923	5	0.112
Moslem	16(27.6)	42(72.4)			
Pentecostal	6(18.2)	27(81.8)			
Other	6(33.3)	12(66.7)			
Education					
Tertiary	17 (21.0)	64 (79.0)			
High School	30(29.4)	72(70.6)	13.375	3	0.004*
Primary	40(23.3)	132(76.7)			
None	10(62.5)	6(37.5)			
Income					
None	6(46.2)	7(53.8)			
Less-than 100 Thousands	8(12.7)	55(87.3)			
100-499 Thousands	58(28.0)	149(72.0)	10.047	4	0.040*
500-999 Thousands	18(31.6)	39(68.4)			
One Million and More	7(22.6)	24(77.4)			
Antenatal visits					
<4	24(48.0)	26(52.0)	14.294	1	0.000*
≥4	73(22.7)	248(77.3)			
Distance					
<5 km	75(28.4)	189(71.6)	2.429	1	0.119
>5 km	22(20.6)	85(79.4)			
Cultural Beliefs					

With cultural beliefs	62(25.4)	182(74.6%	5.53	4	0.237
With no cultural beliefs	35(27.6)	92(72.4)			
Spousal Involvement					
No	12 (19.4)	50(80.6)	1.778	1	0.182
Yes	85(27.5)	224(72.5)			
Partner compels to resume sex before being ready					
No	84(28.2)	214(71.8)	2.5175	1	0.113
Yes	13(13.3)	56(86.7)			
Knowledge on preventation of Puerperal Sepsis					
Not Knowledgeable	64(52.5)	58(47.5)	65.18	1	0.000*
Knowledgeable	33(13.3)	216(86.7)			
Health Workers Attitude					
Supportive/Friendly	79(23.6)	256(76.4)			
Rude/Arrogant	16(51.6)	15(48.4)	12.05	2	0.002*
Don't Care	2(40.0)	3(60.0)			
Distance to the Health Centre					
<5 km	75(28.4)	189(71.6)	2.43	1	0.119
>5 km	22(20.6)	85(79.4)			
Transport difficulties					
No	82(28.4)	207(71.6)	3.362	1	0.067
Yes	15(18.3)	67(81.7)			
Health Education on Puerperal Sepsis					
No	49(34.8)	92(65.2)	8.724	1	0.003*
Yes	48(20.9)	182(79.1)			

Table 3: findings show that factors like education, income, antenatal visits, knowledge, health workers' attitude and health education were significantly associated with on preventive practices of PS with p-value < 0.05. However, factors like; age, parity, marital status, religion, distance to health center, and spouse invovlement were not significantly associated with preventive practices of PS with p-value > 0.05. This means that strategies to address PS should aim to promote those factors that had a positive effect on compliance and discourage those that negatively affected compliance to the preventive practices of PS.

Table 4: Bivariate and Multivariate Logistic Regression of the Factors Associated with Compliance to Preventive Practices of Puerperal sepsis

| Variables | Compliance to Preventive Practices | | COR (CI95%) | AOR (CI95%) |
	Non-compliant N (%)	Compliant N (%)		
Education				
Tertiary	17 (21.0)	64 (79.0)	**6.901 [1.630-26.517]**	**7.204 [1.820-28.517]**
High School	30(29.4)	72(70.6)	**4.357 [1.120-15.644]**	**4.777 [1.290-17.687]**
Primary	40(23.3)	132(76.7)	**7.007 [1.962 -24.537]**	**7.287 [2.062 -25.753]**
None	10(62.5)	6(37.5)	1	1
Income				
None	6(46.2)	7(53.8)	1	1
<100 Thousands	8(12.7)	55(87.3)	**3.316 [1.300-22.812]**	**5.406 [1.100-26.580]**
100-499 Thousands	58(28.0)	149(72.0)	2.112 [0.921-9.122]	2.409 [0.589-9.855]
500-999 Thousands	18(31.6)	39(68.4)	1.938 [0.335-8.200]	2.083 [0.438-9.902]
1Million & more	7(22.6)	24(77.4)	4.377 [0.687-22.323]	4.377 [0.778-24.623]
Antenatal visits				
< 4 times	24(48.0)	26(52.0)	1	1
≥4 times	73(22.7)	248(77.3)	**2.454 [0.112-1.451]**	**2.889 [1.397-5.974]**
Knowledge on presentation of Puerperal Sepsis				
Not Knowledgeable	64(52.5)	58(47.5)	1	1
Knowledgeable	33(13.3)	216(86.7)	**4.401 [3.003-9.721]**	**5.601 [3.177-9.877]**
Health Workers Attitude				
Supportive/Friendly	79(23.6)	256(76.4)	1	1
Rude/Arrogant	16(51.6)	15(48.4)	**0.234 [0.092-0.923]**	**0.391 [0.163-0.939]**
Don't Care	2(40.0)	3(60.0)	0.402 [0.012-4.652]	0.509 [0.054-4.780]
Health Education on Puerperal Sepsis				
No	49(34.8)	92(65.2)	1	1
Yes	48(20.9)	182(79.1)	**1.221 [0.411-3.006]**	**1.569 [0.880-2.796]**

Table 4 Findings show that education, income of less than 100,000 Ushs per month, antenatal visits of 4 or more, having knowledge, Rude/arrogant attitude of the health worker's, and health education were significantly associated with compliance to preventive practices of peurperal sepsis on multivarite logistic linear regression as discussed below;

Education Level

According to results in Table 4, all education levels of post-partum women were found to be significantly associated with compliance to preventive practices of PS among respondents in the study, tertiary level with crude odds ratio (COR=6.901, 95% CI= 1.630-26.517), high School level with (COR=4.357, 95% CI =1.120-15.644), primary level with (COR=7.007, 95% CI=1.962 -24.537). This implies that post-partum women with tertiary, high school, and primary school education were about 7, 4, and 7 times respectively, more likely to comply with the preventive practices of PS than their counterparts who had no education at all. However, there is no logical explanation that post-partum women with primary education were as likely to comply as their counterparts with tertiary education, but, more likely than those with high school education.

Similarly when subjected to a multivariate analysis, all education levels were still significantly associated with compliance to preventive practices of PS, tertiary level with adjusted odds ratio (AOR=7.204, 95% CI=1.820-28.517]), high School level with (AOR=4.777, 95% CI=1.290-17.687), primary level with (AOR=7.287, 95% CI=2.062 - 25.753). This implies that when other factors in the model were controlled for,it was only the odds for post-partum women with high school educationthat increased from 4 to 5 times.

The findings in this study differ from the findings of the study in the Nandi community in Kenya, where, PS occurred highest (indicating poor compliance to preventive practices of PS) in post-partum women with primary education and least in the illiterate mothers (Chepchirchir et al., 2017). Similarly the findings are not in agreement

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with study findings by the study among Indian women that showed that compliance with prevention practices decreased with increase in education level (Latitha, 2016). It's the interpretation of the researcher that the findings imply that generally education improves ones reception, understanding, synthesis and application of health information provided by the health workers and therefore puts the mother at a better level to comply with the preventive practices of PS.

Income Level

According to results in Table 4, income level of less than Ushs. 100,000 was found to be significantly associated with compliance to the preventive practices of PS among respondents in the study, with the (COR= 3.316, 95% CI=1.300-22.812). This implies that post-partum women earning less than Ushs. 100,000were about 3 times more likely to comply with the preventive practices of PS compared to their counterparts who did not earn anything.

Similarly when subjected to a multivariate analysis, income level less than Ushs. 100,000 was still significantly associated with compliance with the preventive practices for PS (AOR = 5.406, 95% CI=1.100-26.580). This implies that when other factors in the model were controlled for the odds of complying to preventive practices of PS by post-partum women earning less than Ushs.100,000 per month also increased to about 5 timesmore than the odds of those who were earning nothing.

The available studies assessed socio-economic status and if taken to be equivalent to income, the results in this study contrast the findings of studies in; Pakistan, Kenya and in Alexandria that showed that PS occurred more in women from the low socio-economic

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class (Taskin et al., 2016; Abbasi et al., 2009; El-Mahally et al., 2014; and Chepchirchir et al, 2016). A study in Indian women attributed this trend to chronic ill health and malnutrition associated with low socio-economic class (Chatterjee M, 1990).

It is the researcher's view the population served by Mbarara RRH where this study was done is predominantly agricultural with access to enough food and animal products despite having low income. Those seemingly earning more are the ones living in townships were food and animal products are expensive to buy. In addition, the finding above could be because post-partum women earning less than Ushs. 100,000 are more vigilant about their health and embrace the preventive measures to avoid falling sick in which instance they would be required to spend a lot for treatment. Those earning nothing may not even afford the preventive practices of PS such as transport to the health center while those earning more may not care about prevention because they can afford treating the condition. Therefore, mothers earning less than UShs. 100,000 per month could be more embracive of preventive practices of PS in fear of the high cost associated with treating PS.

Antenatal Visit

According to results in Table 4, four or more antenatal visits were found to be significantly associated with compliance to preventive practices of PS among respondents in the study, with (COR = 2.454, 95% CI=0.112-1.451). This would imply that post-partum who attended 4 or more antenatal visit were 2 times more likely to comply with preventive practices of PS compared to their counterparts who did not attend any antenatal visit. This finding would defy both the logical and scientific benefit of antenatal care and could be the work of some confounders.

Similarly when subjected to a multivariate analysis, 4 or more antenatal visit were also significantly associated with compliance with preventive practices of PS, with (AOR = 2.889, 95% CI=1.397-5.974). This implies that when other factors in the model were controlled for the odds of complying with preventive practices of PS in women attending 4 or more antenatal visits also increased to about 3 times to those who did not attend antenatal care at all.

The findings in this study are in line with the findings by a study done in Nigeria that showed that women who did not attend antenatal care were more at risk for PS because they don't receive knowledge on preventing PS (Momoh et al, 2010). Similarly Dare et al found that 71.2% of deliveries where PS occurred never booked for antenatal care (Dare et al, 1998). However, the findings are at odds with the findings of Chepcirchir et al that suggest that antenatal attendance does not stop a woman from acquiring PS which could still result if hygiene is not ensured during delivery and puerperium despite the mother attending antenatal care Chepchirchir et al, 2017).

The researcher would like to point out that attending antenatal care is a proven phenomenon that benefits pregnant women because it allows for health education of the women and also early detection and treatment of PS before it is complicated.

Knowledge on Preventive Practices of PS

According to results in Table 4, being knowledgeable was found to be significantly associated with compliance with preventive practices of PS among respondents in the study, with the (COR =4.401 95% CI=3.003-9.721). This implies post-partum women who were knowledgeable on the preventive practices of PS were 4 times

more likely to comply with the preventive practices of PS compared to their counterparts without any knowledge on the preventive practices of PS.

Similarly when subjected to a multivariate analysis, being knowledgeable about the preventive practices of PS was also significantly associated with compliance with the preventive practices of PS (AOR = 5.601 95% CI=3.177-9.877). This implies that when other factors in the model were controlled the odds of complying with the preventive practices of PS also increased to 6 times than of those without any knowledge at all. This means that knowledge is vital to complying with the preventive practices of PS.

From our literature search, there were no studies found that assessed whether knowledge was associated with compliance with the preventive practices of PS. However, some studies assessed knowledge on puerperal sepsis among the post-partum women and their findings were all in agreement that a significant proportion of the women lacked or had inadequate knowledge on PS prevention (Chepchirchir et al. 2017; Latitha et al., 2016).

The researcher gets the impression that being knowledgeable on the preventive practices of PS one is well equipped with steps to take when faced with a risk that could lead to PS.

Health Worker's Attitude

According to results in Table 4, the rude/arrogant attitude of health worker was found to be significantly associated with compliance with preventive practices of PS among respondents in the study, with the (COR = 0.234 95% CI=0.092-0.923). This implies that post-partum women who experienced the rude/arrogant health worker

attitude were about 4 times less likely to comply with preventive practices of PS compared to their counterparts experienced supportive/friendly health workers' attitude.

Similarly when subjected to a multivariate analysis, the rude/arrogant heath workers' attitude was also significantly associated with compliance with preventive practices of PS(AOR = 0.391 955 CI=0.163-0.939). This implies that when other factors in the model were controlled for the odds of complying with the preventive practices of PS by post-partum women who experienced rude/arrogant health workers' attitude reduced to about 3times that of those who experienced supportive/friendly health workers' attitude. This implies that rude/arrogant health workers' attitude is a deterrent for post-partum women coming to health facilities for health services.

The findings in this study are in line with the few studies that have assessed health worker's attitude. Chimtembo et al. concluded that health workers' attitude affects the quality of post-natal care including preventing infections (Chimtembo et al., 2013) while Mukwato et al. showed that a positive attitude was associated with high utilization of infection control practices (Mukwato et al., 2007).

In the researcher's view, the rude/arrogant health workers' attitude makes post-partum mothers unwelcome to the health facilities and therefore seek alternative services like the traditional birth attendants.

Health Education on Puerperal Sepsis

According to results in Table 4, receiving health education on PS was found to be significantly associated with compliance with preventive practices of PS among respondents in the study, with the (COR = 1.221 95% CI=0.411-3.006). This implies that post-partum women who received health education on PS were no very much more likely

to comply with the preventive practices of PS compared to their counterparts who received no health education at all.

Similarly when subjected to a multivariate analysis, receiving health education on PS was also significantly associated with compliance with the preventive practices of PS AOR = 1.569 [0.880-2.796). This implies that when other factors in the model were controlled for the odds of complying with the preventive practices of PS also increased about 2 times that for those who received no health education. This suggests that health education helps the post-partum women to comply with the preventive practices of PS. Despite an extensive search, we didn't come across studies that evaluated the association of health education with compliance with the preventive practices of PS, however, Chepchirchir et al, 2017, showed that 81.9% of Nandi post-partum women didn't not know the disease they were being treated for (Chepchirchir et al., 2017).

The researcher would like to think that there being little advantage for the mothers that received health education implies that the quality of the health education in terms of presentation, content and context was lacking and therefore not very useful to the women.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of the study findings, conclusion, and recommendations in line to the study objectives.

Summary

The research title **"FACTORS ASSOCIATED WITH COMPLIANCE TO PREVENTIVE PRACTICES OF PUERPERAL SEPSIS AMONG POST-PARTUM WOMEN ATTENDING MBARARA REGIONAL REFERRAL HOSPITAL POST-NATAL CLINIC AND WARD"**. The research objectives were, to describe the individual and health system related factors of the post-partum women attending Mbarara RRH post-natal clinic and ward, to determine the level of compliance to preventive practices of peurperal sepsis among post-partum women attending health care at Mbarara RRH post-natal clinic and ward and to establish the individual and health system related factors associated with compliance to preventive practices of PS among post-partum women attending Mbarara RRH post-natal clinic and ward.

The study employed a cross sectional design, and it involved both qualitative and quantitative data collection approaches. The sample size was 371 post-partum women and 6 key informants from the study population of 19,796 post-partum women attending Mbarara RRH from the ten districts in south western Uganda. The study used simple random and purposive sampling techniques. The instruments for data collection in this study were; a structured questionnaire, a key informants interview guide and an observation checklist. The questionnaire was administered to 371 post-partum women

who were within six weeks of delivery, aged 18 years or more, and able to give informed consent or emancipated minors aged 14 years but less than 18 years who were able to give consent. The key informant interview guide was used to interview 6 health workers that included; two obstetrics and gynecology nurses, a resident medical doctor, two in-charges (one for post-natal clinic and another for post-natal ward) and the assistant manager in maternity ward. Quantitative raw data was obtained using questionnaires. It was then cleaned, sorted, coded and entered using Epi data 3.1 and analyzed using SPSS version 20.0. The qualitative data from the key informant interviews was captured as stated by the key informants. Both descriptive and inferential analyses were done.

The results generated were presented as frequencies and percentages or as mean and standard deviation for objective 1and 2 and then interpreted and discussed. For objective 3, inferential statistics using the chi-square (x^2) technique were employed and variables that were significant were subjected to binary logistic regression analysis to obtain crude odds ratio. For those variables that were significant at binary logistic regression analysis, multivariate analysis was done and adjusted odds ratio were obtained. A 95% confidence interval was set and variables that had a p-value of < 0.05 were considered significant for the study.

Key Findings

The study found that majority, 123 (33.15%) post-partum women were between 20 to 24 years, 249 (61.12%) had 1 to 2 pregnancies carried to term, 346(93.26%) were staying together with their spouses,148 (39.89%) were protestants, 172 (46.36%) had attained primary education, almost half 207 (55.8%) earned between Ushs. 100,000 to 499,000 per month, majority 244 (65.77%) held cultural beliefs, more than half 309

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(83.29%) had partner support, 298 (81.20%) their partners did not compels them to have sex when not ready, 249 (67.12%) were knowledgeable about the preventive practices of PS and lastly the majority 321 (86.52%) had attended four times or more antenatal visits.

The majority, 335 (90.3%) post-partum women reported that the health workers were friendly and supportive, 264 (71.16%) lived within less than 5km from the health centre, majority 289 (77.9%) had faced no difficulty with transport to the health centre and more than a half 230 (62%) post-partum women had received health education on PS.

The majority 274 (73.9%) of the post-partum women were compliant to the preventive practices of PS.

Education {tertiary level with adjusted odds ratio (AOR=7.204, 95% CI=1.820-28.517]), high School level with (AOR=4.777, 95% CI=1.290-17.687), primary level with (AOR=7.287, 95% CI=2.062 -25.753)}, income of less than Ushs. 100,000 per month (AOR = 5.406, 95% CI=1.100-26.580), antenatal visits of 4 or more (AOR = 2.889, 95% CI=1.397-5.974), having knowledge (AOR = 5.601 95% CI=3.177-9.877), Rude/arrogant attitude of the health workers (AOR = 0.391 955 CI=0.163-0.939), and health education (AOR = 1.569 [0.880-2.796), were significantly associated with compliance to preventive practices of PS.

Conclusion

The level of compliance to preventive practices of PS among the post-partum women attending Mbarara RRH post-natal clinic and ward was relatively high.

Basing on the study findings, education, household income, antenatal visits of 4 or more, having knowledge, rude/arrogant attitude of the health workers, and health education were significantly associated with compliance to preventive practices of PS. This implies that, these factors are very important and should not be neglected since they have a significant impact on compliance to preventive practices of PS.

Recommendations

Based on the main study findings as per the objectives of the study, the following are recommendations for policy, practice and future research

Policy Makers

- The government of Uganda through the Ministry of Health together with other stake holders should increase awareness of the preventive practices of PS among the post-partum women so as to reach the required compliance of 100 percent. They can reach the women through health education via mass media like TVs, radios, music dance and drama.

Practice

- Basing on the study findings, health workers should schedule health education programs so that they can provide information to post-partum women regarding the preventive practices of PS.
- The management of the Mbarara RRH should sensitize health workers on the impact of being rude and arrogant towards patients and take punitive action on those unwilling to drop this vice.

Further research

- The future studies should consider investigating more on how education influence compliance among these mothers since the results showed that compliance was more with the mothers who had attained primary education than those with high school education and equal to those with tertiary education.

- The further research needs to assess further the impact of socio-economic status on compliance to the preventive practices of PS as the finding that income of less than Ushs. 100,000 being associated with compliance rather than the higher classes of income could not easily be explained.

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APPENDICES

Appendix 1: Consent Information Sheet

Informed Consent form for Determinates of Adherence to PS Prevention Practices among Post-Partum Women in Mbarara RRH.

Hello, my name is Lilian Namuwonge, currently pursuing a Master in Public Health of Bugema University. This is to request you to participate in the study as a participant. The study is focusing on Factors influencing Adherence to PS Prevention Practices among pos-partum women in Mbarara RRH. The purpose of the study is to establish the factors determining adherence to PS prevention practices among post-partum women in Mbarara RRH and be able to design interventions to improve on adherence to PS prevention practices.

Procedures: If you agree to take part in this study, you will be asked questions relating to PS prevention practices. The interview will take approximately 30 minutes. You can answer the questions asked or fill in the questionnaire and return it to the researcher or the representative.

Risks or Discomforts: participating in this study has no risk. None of the questions you answer may affect you personally. But still, you can choose not to answer any question that you wish for any reason.

Benefits: By participating in this study you will help to build a pointer to the health sector in developing appropriate interventions for Adherence to PS prevention practices.

The study will further inform policy on PS prevention practice non-adherence to be mitigated.

Confidentiality: what you answer will be kept private, for confidentiality, you will be assigned a unique identifier such that your name will not appear anywhere in the research findings.

Cost or Payments: The only cost to you for being in the study is your time. There is no payments for being in the study.

Right to Refuse or Withdraw: You are free to join the study or not. If you decide to join the study, you are also free to change your mind and refuse to be in the study at any time for any reason.

Feedback on the findings: As a study participant you will get feedback on the results of the study from your health facility.

Persons to contact: If you have any questions for me, about the study or the consent document please ask before signing and I will do my best to answer them. You will receive a copy of this consent form after signing. If you have additional questions or if you need to discuss after this interview, you can call +256779397105/ +256759238392 (Lilian Namuwonge Byekwaso). If you have any questions in regards to your rights and welfare during the participation of this study please contact the chairperson of TASO IRB/REC: Dr. Bogere Daniel at +256772139126/ +25670581290

Statement of Participant Consent

I…………………………………………………….have been asked to participate in a research study named: Factors determining sdherence to PS prevention practices among post-partum women in Mbarara RRH, Uganda. The researcher or his representative has explained the study to me, the information was read to me and I have been given opportunity to ask questions. All questions were answered in the way that I understand. If I have other questions about this research, I can ask the principal investigator on +256779397105/ +256759238392 (Namuwonge Lilian Byekwaso). Or chairperson of TASO IRB/REC: Dr. Bogere Daniel at +256772139126/ +25670581290.

I understand that my agreement to participate is voluntary and that I can decline to participate. I am signing my name below to indicate my consent to participate in the study. I will be given a copy of the signed consent form.

Signature of participant/ thumb print

Date………………………

Signature of the investigator

Date………………………
Signature of witness

Date………………………

Appendix 1: Consent Information Sheet -Runyankole

Informed Consent form for Determinates of Adherence to PS Prevention Practices among Post-Partum Women in Mbarara RRH.

Eizina ryangye nibanyeta Lillian Namuwonge Byekwaso hati ninshoma Ebaruha yebyobukugu omubyamagara gabantu omwitendekyero rikuru omuri Bugema.

Ninkushaba kuba omwe ahabegi bomushomo ogu

Omushomo ogu gugyenderera kureba enshonga ezikurkwata abakazi baruga kuzara nanga baba nibarumwa kuzara kandi batikiriza kukora ebyakubasa kubakingira enshonga zokubaretera obutecuma omwrrwariro eri erya Mbarara

Ekigyendererwa kymushomo ogu nokwenda kuronda enshonga ezokureta abakazi batikwiriza enshonga ezakubasa kubakingira oburemezi obwo kandi tukaronda nemihanda eyitwakurabamu tukongyera omuntebekanisa abakazi bakiriza okwekingira omwirwariro eri erya Mbarara

Emitwarize: kunakwkirizibwa omumushomo ogu, noyiza kuzibwa ebibuzo ebikwatirine nemitarize eyakutebwaho kukingira abakazi okwecuma

Okuganira oku nikuza kumara edakika nkamakumi ashatu. Noyiza kugarukamu ebibuzo ebirakubuzibwe nanga oyijuze akatabo akarimu ebibuzo rero okahereze orakakuhe.

Ebizubu nangasi obutari butekana: Okwetaba omumushomo ogu tiharimu kabi kona. Bibuzo eyorikubuzibwa nebyokugarukamu tibyine nshonga yoona. Kwonka nobasa obutagarukamu kibuzo. Okugarukamu nokwikiriza kwawe otagyemirwe

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Ebirungi: Okwejumbira omumushomo ogu noyiza kuhwera ekitongore kyabyamagara kutaho entebekanisa yokuhwera abakazi kwikiriza ebyakubsa kubarinda. Omushomo niguza kuyamba kutaho okukingira nokwikiriza kwabakazi

Ebihama: Ebyoragarykyemu nibyiza kubikwa nkebihama. Noyiza kuhebwa enamba yekihama kand eizina ryawe tiheine hiraze.

Enshohoza nanga Okushashurwa: Enshoza yawe nobwire obwramare nobuzibwa. Tihariho kushasurwa waba ori omumushomo ogu.

Obugabe kwanga nanga kurugamu omukubuzibwa: Nobugabe bwawe kuza omumushomo kandi nobugabe bwawe kwanga.

Okuhebwa ebyaruga omumushomo: Nkowayejumbira omumushomo noyiza kuhebwa ebirarugye omumushomo ahirwariro ryawe.

Owokubuzibwa: Kuwakuba oyine ekibuzo kyona kibuze otakatireho mukono gwawe ahakipapura eki. Kuwakuba oyine ekyorikwenda kubuza omushomo gwaba gwahwire tera esiimu egi 0779397105/0759238392. Eizina Lillian Namuwonge Byekwaso

Okwikiriza Kwetaba omumushomo

Nyowe---------------------------------- Nikiriza kwejumbira omumushomo gwokuteganisa bakazi barugakuzara nokukingira oburwire bakazi omwirwariro eri erya Mbarara. Oyembire omushomo ogu yangambira byoona nabyetegyereza kandi nabuza yanyetegyereresa nikiriza.

Nabanyine ebindi byokubuza ninyiza kubuza aba: 0779397105/ 0759238392 (Namuwonge Lilian Byekwaso). Oba mukuru wa TASO IRB/REC: Dr. Bogere Daniel at 0772139126/ 070581290.

Ninkimanya okwataba omumushomo ogu ninyekundire.

Nikiriza kutaho eizina ryangye ahabwejumbira omumushomo ogu nyekundire.

Eizina/Ekinkumu--

Owahamya ebyabuzibwa---

Ebiro byokwezi---

Appendix II: Questionnaire for Participants in Mbarara RRH

Date: _____   Questionnaire No._____

Introduction

I am Namuwonge Lilian Byekwaso currently pursuing a Master in Public Health of Bugema University. I am requesting you to participate in this study which is focusing on Determinants of Adherence to PS Prevention Practices among post-partum women in Mbarara RRH, Uganda. The purpose of the study is to establish the factors influencing adherence to PS prevention practices among post-partum women in Mbarara RRH and be able to design interventions to improve on adherence to PS prevention practices. Any information you give will be used for scholarly purpose and your confidentiality will be protected.

SECTION A: Individual factors

Instructions: It's important that you answer the questions as truthfully as possible. All the information will remain strictly confidential. Your name will not be recorded and no one will penalize you for your opinions. There are a set of choices to choose from, select what you think is the best or most appropriate.

1. Age (years)   ☐

2. Parity (number of births)   ☐

3. Marital status   ☐
   1. Married/co-habiting 2. Divorced/separated 3. Widowed 4. Single mother

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4. Religion
    1. SDA 2. Catholic 3. Protestant 4. Moslem 5. Pentecostal 6. Others, specify
    _____

☐

5. Level of education attained
    1. University/college (highest level) 2. High School (Advanced &
    ordinary secondary school) (high level) 3. Primary school (lower level)
    4. None

☐

6. Average monthly household income……………………. (Ushs)

7. What cultural beliefs regarding puerperal sepsis do you hold?
    1. Delay cleaning/washing the genital area 2. Delay cleaning/washing the whole
    body 3. Use herbs to clean/wash the genital area 4. Use herbs when cleaning/
    washing the whole body 5. Others, specify…………………………

☐

8. Does your spouse/partner support you throughout pregnancy and after giving birth?
    1. Yes   2. No

☐

9. Does your partner compel you to resume sex activity before you are ready?
    1. Yes   2. No

☐

10. How many times did you attend ante-natal care?
    1. None 2. 1 time 3. 2 times 4. 3 times 5. 4 times

☐

Level of Knowledge on puerperal sepsis

11. Do you get immediate medical care for any wounds? 1. Yes   2. No

☐

12. Do you think ensuring a balance diet prevents puerperal sepsis? 1. Yes   2. No

☐

13. Do you think taking plenty of fluid prevent puerperal sepsis?   1. Yes   2. No

☐

14. Do you think avoiding sexual intercourse during the last 2 months of pregnancy prevent
    puerperal sepsis? 1. Yes   2. No

☐

15. Do you think avoiding sexual intercourse during the puerperal period prevent puerperal
    sepsis? 1. Yes   2. No

☐

16. Do you think eating well and treating all ailments, keep the body resistant to puerperal
    sepsis?

☐

1. Yes   2. No

17. Do you think maintaining proper hygiene especially around perineum prevent puerperal sepsis? 1. Yes   2. No

☐

18. Do you think keeping the environment dry, ventilated and clean prevent puerperal sepsis?
        1.   Yes   2. No

☐

19. Do you think during periods, using soft sanitary napkins and changing them frequently and maintaining hygiene prevents puerperal sepsis? 1. Yes   2. No

☐

Section B: Health system factors

20. What do you think of the health workers attitude?
        1. Supportive and friendly   2. Rude and arrogant   3. Don't care

☐

21. What is the distance from your home to the health center? ……………….(kms)

22. Do you find difficulty in terms of transport in getting from your home to the hospital?
        1. Yes   2. No

☐

23. If yes, kindly give reasons……………………………..

24. Did you get health education on puerperal sepsis during ante-natal care?
        1.   Yes   2. No

☐

Section C: Level of Compliance to puerperal sepsis prevention practices

25. I get immediate medical care for any wounds or even seasonal diseases prevent sepsis
    1. Yes   2. No

☐

26. I ensure a balance diet to prevent puerperal sepsis.
    1. Yes   2. No

☐

27. I take plenty of fluid to prevent puerperal sepsis
    1. Yes   2. No

☐

28. I avoid sexual intercourse during the last 2 months of pregnancy to prevent puerperal sepsis?   1. Yes   2. No

☐

29. I avoid sexual intercourse during the puerperal period to prevent puerperal sepsis
    1. Yes   2. No   ☐

30. I eat well and treat all ailments to keep the body resistant to puerperal sepsis
    1. Yes   2. No   ☐

31. I maintain proper hygiene especially around perineum to prevent puerperal sepsis
    1. Yes   2. No   ☐

32. I keep my environment dry, ventilated and clean to prevent puerperal sepsis
    1. Yes   2. No   ☐

33. During periods, I use soft sanitary napkins and change them frequently and maintain hygiene to prevent puerperal sepsis 1. Yes   2. No   ☐

Thank you very much for your participation

Appendix III: Key Informant's Guide for health workers

Introduction

I am Namuwonge Lilian Byekwaso currently pursuing a Master in Public Health of Bugema University. I am requesting you to participate in this study which is focusing on Determinants of Adherence to PS Prevention Practices among post-partum women in Mbarara RRH, Uganda. The purpose of the study is to establish the factors influencing adherence to PS prevention practices among post-partum women in Mbarara RRH and be able to design interventions to improve on adherence to PS prevention practices. Any information you give will be used for scholarly purpose and your confidentiality will be protected.

1. What causes PS prevalence to be higher than other causes of maternal deaths in this hospital?

2. Briefly mention what you do to prevent PS from the time of antenatal care up to post-natal period

3. What strategies can improve on the knowledge of PS prevention practices adherence among post-partum women?

4. What strategies could be employed to improve compliance to PS prevention practices among the post-partum women?

Thank you for your participation

Appendix IV: Health facility check list

Please tick from the list what you find present at the health facility.

1. Hand washing facilities

2. Staff washing hands after performing an activity

3. Hand sanitizers/alcohol hand wash

4. Gloves

5. Infection control guidelines

6. Waste disposal facilities

7. Information Education Communication materials

8. Staff conducting health education

9. Flowing water

10. Clean beds

11. Clean floor

12. Autoclave

13. Protective Uniform

14. Staff wearing closed shoes

15. Food stuff in the ward or clinic

16. Functional toilets facilities

Appendix V: Work Plan

| Activity | PERIOD 2019 | | | | | | | | | |
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Selection of Problem area		▓								
Approval and proposal writing			▓	▓	▓					
Proposal submission and Review						▓	▓			
IRB Approval							▓	▓		
Data collection								▓		
Data Analysis and Report writing									▓	
Submission, review, approval and dissemination									▓	▓

Appendix VI: Budget

No.	Item	Quantity	Cost Unit	Amount
1.	Stationery	7 Reams	17,000/=	119,000/=
2.	Allowance for Statistician	1	600, 000/=	600,000/=
3.	Printing services (photocopying, editing, formatting and printing and binding)	12	6,000/=	72,000/=
	Data collection/Research assistant	2	300,000/=	600,000/=
4.	Internet	10 GB	10,000/=	100,000/=
6.	Travel Expenses	5	50,000	250,000/=
	Total			**1,741,000/=**