

Knowledge and practice towards prevention of puerperal sepsis among postpartum women at Bwindi Community Hospital.

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Abstract: Puerperal sepsis is a major cause of preventable maternal morbidity and mortality worldwide. Compliance to prevention practices of puerperal sepsis is crucial to avert infections that result in long term disabilities, as well as maternal deaths. Although interventions have been put in place by Ministry of Health Uganda, women still die of puerperal sepsis. The purpose of the study was to assess knowledge and practice towards prevention of puerperal sepsis among postpartum women at Bwindi community Hospital. A cross sectional descriptive study design using convenient sampling procedure was used to select 73 participants and an interviewer administered questionnaire was used to collect data. Data was analysed using Microsoft excel, presented in figures and tables. Results found that 45.2% of the study participants had poor knowledge regarding prevention of puerperal sepsis (score of < 50%). With respect to practice, 56.2% of respondents had poor practice towards prevention of puerperal sepsis i.e., had an average practice score of < 60%. Generally, respondents' knowledge and practice regarding prevention of puerperal sepsis were poor. Therefore, much emphasis should be put on promoting awareness of women on prevention of puerperal sepsis mainly on signs and symptoms, risk factors, preventive measures and when to resume sex after birth as part of the antenatal and post-partum health education package.

Keywords: Postnatal Care, Puerperal sepsis, Rural Uganda, Postnatal

Introduction and background

Postpartum period or puerperium, also called "fourth trimester," refers to the time after delivery when maternal physiologic changes related to pregnancy return to the non-pregnant state up to 42nd days from delivery (Kansky, 2016). It is of great importance for both mother and baby as it is an aspect of maternity care which receives less attention compared to pregnancy and delivery (Indra, 2015). Compliance to prevention practices of puerperal sepsis 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, 2016). Maternal complications associated with puerperal sepsis include prolonged hospital stay, septicaemia, disseminated intravascular coagulation, pelvic inflammatory disease, infertility, and death (Dare, 2015). Most postpartum infections take place after hospital discharge, which is usually after 48 hours following delivery. In the absence of postnatal follow-up, in many developing countries, many cases of puerperal infections go undiagnosed and unreported (Ifunanya et al., 2019).

According to World Health Organization (2015), puerperal sepsis is an infection of genital tract, which occurs at any time from the rupture of membranes or time of labour and up to 42 days from delivery. It is accompanied with 2 or more of the following conditions: pelvic pain, high body temperature (that is axillary temperature 37.6 °C or above on any occasion), abnormal genital discharge (presence of pus), bad smell or foul odour of discharge, delay in the reduction of the size of the uterus (< than 2 cm / day with in the first eight days) (Kareem, 2016). The World Health Organisation estimates that about 358,000 maternal deaths occur during labour and childbirth with 15% related to puerperal sepsis. A more recent study estimates that about 6 million women globally develop puerperal sepsis and around 77,000 mothers die of it that is 8% of women and ranks the fourth common cause of maternal mortality after postpartum bleeding, unsafe abortion, and hypertensive disorder of pregnancy (Atlaw & Seyoum, 2019).

Approximately 5.2 million, new cases of maternal sepsis are annually occurring and cause an estimated 62,000 maternal deaths. Puerperal sepsis causes at least 75,000 maternal deaths every year and mostly occurs in low-income countries with a distribution of 11.6% in Asia, 9.7% in Africa, 7.7% in Latin America and the Caribbean compared to the 2.1% in developed countries (WHO, 2016). As indicated in many studies, puerperal sepsis is highest in low-income countries. Puerperal sepsis accounts for 15% of maternal deaths worldwide. In Africa, puerperal sepsis is the second leading cause of maternal morbidity and mortality, accounting for more than 10% of maternal deaths. On the other hand, the rate of puerperal sepsis has declined significantly in high-income countries for example, in the United States puerperal sepsis

occur in only 5.5% of vaginal deliveries and 7.4% of caesarean section deliveries (Kiponza, 2019). In Bangladesh, revealed that only (38.7%) of mothers had knowledge on prevention of puerperal sepsis whereas (43.3%) had satisfactory practice on prevention of puerperal sepsis (Sultana, et al., 2018). It was also found that educating women can prevent puerperal sepsis by improving their knowledge towards prevention of puerperal sepsis (Gamel et al., 2020).

In Uganda, there has been an estimated decline in maternal mortality ratio (MMR) between 1990 and 2022 (from 550 in 1990 to 336 in 2016 and 189 per 100,000 births in 2023) (UDHS 2016 and UDHS, 2022). According to the annual health sector performance report of 2018/2019, puerperal sepsis was the third leading cause of maternal mortality with 6% of all death attributed to it (Ministry of Health AHSPR, 2018). In western Uganda, women had knowledge on the cause, effect, complications, and prevention of puerperal sepsis with associating more than half associating puerperal sepsis with poor personal hygiene practices after delivery (Ambrose et al., 2016). Ngonzi et al., (2016) associated age and education to autonomous decision-making enabling women to deliver thus reducing the risk of puerperal sepsis. At Bwindi Community Hospital, puerperal sepsis occurs in 2.1% of all deliveries, despite the efforts by the hospital such as provision of clean gowns to post-operative women on daily basis and health education session to them during their stay about self-care.

Purpose of the Study – The study assessed knowledge and practice towards prevention of puerperal sepsis among postpartum women at Bwindi community Hospital.

Specific Objectives

1. To assess the knowledge towards prevention of puerperal sepsis among postpartum women at Bwindi community Hospital.
2. To assess the practice towards prevention of puerperal sepsis among postpartum women at Bwindi Community Hospital.

Justification for the Study - Puerperal sepsis is a known health problem worldwide, and so this study intends to identify the level of knowledge and practice of women towards prevention of puerperal sepsis. The findings of this study will help to have a broader and recent picture and provide insight into the knowledge and practice towards prevention of puerperal sepsis among postpartum women at Bwindi Community Hospital.

Additionally, this study will help stake holders and other policy makers to use the knowledge of the objectives to improve on safe motherhood. Knowing the patient factors that predispose mothers to puerperal sepsis will help health personnel prioritize interventions towards the prevention of puerperal sepsis.

Methodology

Study Design - The researcher employed a descriptive cross-sectional study design to obtain information from women in the postnatal ward before discharge at BCH.

Study Setting - The study was carried out at Bwindi Community Hospital (BCH) which is located within Buhoma village in Buhoma Town Council, Kanungu District, in Southwestern Uganda. It is located at the edges of Bwindi impenetrable National Park on its south and near the border with the Democratic Republic of Congo. This area is considered hard to reach as per the Ministry of Health (MoH) classification. It's approximately 30 km from Kanungu town council where the administrative district health office is located and 540km from Kampala where MoH head offices are located. The hospital serves a population of about 83,000 people in the 4 sub counties (Kayonza, Kyeshero, Kanyantorogo, and Mpungu) and 3 town councils (Kanyantorogo, Butogota and Buhoma). The area is characterized by rugged terrain and is mainly hilly with deep valleys with some areas inaccessible by public means of transport and the people in the area are mainly peasants with tea being the main cash crop. The Hospital conducts on average 90 deliveries per month. The setting was selected because it is one of the largest hospitals with many deliveries, both normal deliveries and caesarean sections. Bwindi community hospital is also easily accessible to the researcher as I have a working relationship with the hospital and that the targeted number of study participants would be got with ease.

Study population - The study population included women who delivered at the hospital both caesarean section and normal deliveries at postnatal ward before discharge at BCH who was available during the time of study.

Sample Size Determination

The sample size was calculated using a sample size calculation formula by Yamane (1967) as reflected below.

$$n = N / [1 + N (e)^2]$$

Where n signifies the sample size, N the population under study and in this case, it is an average of 90 women that delivered at BCH. In the formula e represents the margin of error and in this study 5% was considered.

$$n = 90 / [1 + 90(0.05)^2]$$

$$n = 73 \text{ participants}$$

Sampling Procedure - The researcher employed a convenient sampling procedure to select the participants from women that delivered at BCH. The exercise was done on a daily basis until the required sample size was achieved. Women were approached just after discharge, assessed for eligibility, and enrolled in the study upon consent. However, in situations where one would be found not to meet the inclusion criteria, another woman would be enrolled.

Inclusion Criteria - The study included all post-partum women delivered at BCH and being discharged during the data collection period.

Definitions of Variables

Independent Variable - Age in years, Level of education, Occupation, Parity, Marital status, Mode of delivery, Antenatal care visits attended, and area of residence. These can affect the knowledge and practice regarding prevention of puerperal sepsis.

Dependent Variables - These are knowledge and practice of post-partum women towards prevention of puerperal sepsis. In this study knowledge was considered to be what women understand in respect to prevention of puerperal sepsis whereas practice was considered as what women do in regard to prevention of puerperal sepsis.

Research Instruments - The researcher used an interviewer administered questionnaire as the research instrument for data collection. This included structured and semi structured questions written in a simple language and that was filled by the researcher herself by interviewing the post-partum women.

Data Collection Procedure - The entire data collection exercise was conducted over a course of one month using an interviewer administered questionnaire. Data was collected from 3 respondents every day during the month of March 2022 until the sample size was raised.

Data Management - Before leaving the study area, the researcher checked all the filled questionnaires for errors and missing information to avoid any omissions. Any errors identified were verified and corrected immediately by the researcher before departure of the respondent. Data was coded, entered in excel spread sheet and saved in a locked folder on a computer secured with password accessed by only the researcher and supervisor. The coded data collection tools were kept in in double-locked cupboard with restricted access to only the researcher.

Data Analysis - Descriptive statistics was applied for this study. The data were entered into the Microsoft excel spread sheet after coding. This information was checked to ascertain its validity and presented using tables and figures in form of frequencies and percentages.

Assessment of knowledge score - In order to interpret the responses of postpartum women, a correct answer scored one while a wrong answer scored zero. The total score was then computed and converted into percentage scores and graded as reflected below using a similar scale like that used by Harsha and Tanya (2014).

Rank (%)	Indication
80-100	Very good to excellent understanding of the concepts. Participant thoroughly understands all or nearly all concepts and can make connections to similar concepts.
70-79	Good understanding and application of the concepts. Participant understands most concepts and can make connections to similar concepts.
60-69	Basic understanding and application of concepts. participant understands most concepts and is likely to occasionally make connections to similar concepts
50-59	Limited understanding of concepts. Participant understands some key concepts. Likely to rarely make connections to similar concepts.
<50	Dose not demonstrate the required understanding of the concepts.

Adopted from Harsha and Tanya (2014)

Assessment of knowledge score Under ideal environment, practice should be scored basing on observation. However, this was not possible in this study. The research team therefore designed questions/statements to correct data about practices in such a way that encouraged the participants to say out their practice regarding prevention of post-partum sepsis.

Each response scored 1 if it was the ideal practice and 0 if it was not the recommended practice. Overall practice was got by summing up all the correct responses and then converting them into percentage. Grading was done using a similar scale adopted from Ramaiah and Jayarama (2018) as shown below.

Rank (%)	Indication
<60	Poor practice
≥60	Good practice

Ethical Considerations - The study was approved by the research and scientific committee of Bwindi Community Hospital and Uganda College of Health Sciences Bwindi. Signed informed consent was obtained for all participants and anonymity ensured through use of participant IDs and data kept under restricted access to only those who were directly involved in the study.

Results

According to the results in table 3 below, majority of the participants 29(39.7%) were aged between 20-24 years. Almost half, 36 (49.3%) of the participants had their highest level of education as primary level. This study findings indicate that majority of the participants 54(74.0%) were housewives/peasants. The biggest proportion of the participants 33(45.2%) had only had their first child (were para 1). Almost all the participants 69(94.5%) were married/cohabiting. More than half of respondents 43(58.9%) had their delivery vaginally. More than half 38(52.1%) of the participants had attended antenatal care for 1-4 times. Regarding the area of residence, majority 62(84.9%) were staying in the rural areas.

Table 3: Socio demographic characteristics of participants (n =73)

Variable	Response	Frequency	Percentage
Age	15-19	27	37.0
	20-24	29	39.7
	25-49	17	23.3
Highest level of Education	None	4	5.5
	Primary level	36	49.3
	Secondary level	19	26.0
	Tertiary level	14	19.2
Occupation	Housewife/ peasant	54	74.0
	Formal	13	17.8
	Informal	5	6.8
	Business	1	1.4
Parity	1	33	45.2
	2-4	30	41.1
	5 and above	10	13.7
Marital status	Single	3	4.1
	Married/ cohabiting	69	94.5
	Divorced/ widowed	1	1.4
Mode of delivery	Vaginal delivery	43	58.9
	Caesarean section	30	41.1
Antenatal visits	1-4 visits	38	52.1
	More than 4 visits	35	47.9
Area of residence	Rural	62	84.9
	Urban	11	15.1

Field data, 2022**Knowledge of postpartum women towards prevention of puerperal sepsis**

As reflected in table 4 below, results from this study indicated that the significant proportion of participants 49(67.1%) were not able to define the term puerperal sepsis. The biggest proportion of the respondents regarding signs and symptoms of puerperal sepsis 33(45.2%) mentioned smelly and pus like vaginal discharge only. With respect to changing of pads, majority 45(61.6%) knew that pads should be changed as frequently as possible. Concerning with risk factors for puerperal sepsis, majority 61(83.5%) only knew unhygienic perineal care practices. The following risk factors were not mentioned by any of the respondents, prolonged labour, prolonged rupture of membranes and anaemia. In regard to preventive measures slightly less than half of the respondents 36(49.3%) never knew any of the preventive measures. Concerning with when to resume sex after delivery, a significant proportion 30(41.1%) mentioned that it should be resumed immediately. Regarding washing of hands before and after perineal care, majority 68(93.2%) of the respondents pointed out washing hands always.

Table 1. Knowledge on prevention of puerperal sepsis among postpartum women (n=73)

Variables concerning knowledge	Frequency	Percentage
Meaning of puerperal sepsis		
Knowledgeable	24	32.9
Not knowledgeable	49	67.1
Signs and symptoms of puerperal sepsis		
Smelly and pus like vaginal discharge	33	45.2
Lower abdominal pain	19	26.0
Fevers	3	4.1
Vaginal bleeding	21	28.7
Changing of pads		
Whenever soiled	27	37.0
As frequently as required	45	61.6
Not sure	1	1.4
Risk factors for puerperal sepsis		
Unhygienic perineal care practices	61	83.5
Early sexual intercourse	5	6.8
Unbalanced diet	1	1.3
Pre-delivery infections	3	4.1
None known	11	15.0
Preventive measures		
Using hygienic urinals and general body hygiene	34	46.5
Eating fruits and vegetables for the body's immunity	4	5.4
Abstaining from sex in last two months of pregnancy	1	1.3
Using clean underwear/knickers	8	10.9
Having a balanced diet	1	1.3
None known	36	49.3
Resumption of sexual intercourse		
Before 6 weeks	30	41.1
After 6 weeks	27	37.0
Do not know	16	21.9
Washing of hands before and after perineal care		
Sometimes	5	6.8
Always	68	93.2

Field data, 2022

General level of knowledge about prevention of puerperal sepsis among postpartum women at BCH.

As reflected in table 5, the biggest proportion 33(45.2%) of the study participants did not demonstrate the required understanding of the concepts regarding prevention of puerperal sepsis.

Table 5: Overall knowledge about prevention of puerperal sepsis among postpartum women.

Rank (%)	Indication	Frequency (F)	Percentage (%)
80-100	Very good to excellent understanding of the concepts.	11	15.1
70-79	Good understanding and application of the concepts.	12	16.4
60-69	Basic understanding and application of concepts	0	0
50-59	Limited understanding of concepts	17	23.3
<50	Dose not demonstrate the required understanding of the concepts.	33	45.2

Field data, 2022**Practice of respondents towards prevention of puerperal sepsis**

As reflected in table 6, majority 45(61.6%) resumed sex immediately before 6 weeks More than half 42(57.5%) changed their pads whenever soiled Regarding where to go after seeing signs and symptoms suggestive of puerperal sepsis majority 68(93.2%) mentioned that they would go to the nearby health facility. Results of this study indicated that concerning washing of hands before and after perineal care majority 69(94.5%) mentioned that they washed their hands. Most respondents 58(79.55%) cleaned the perineum at least 3 times daily. With respect to general body hygiene only 15(20.5%) bathed 3 times daily. This study findings showed that majority 52(71.2%) of the participants practiced vaginal douching. In regard to changing of underwear more than half 47(64.4%) sometimes changed underwear after perineal wash and concerning composition of meals majority 47(61.6%) had unbalanced diet.

Table 2: Practice of respondents towards prevention of puerperal sepsis (n=73)

Items of practice/ variable	Frequency	Percentage
Resumption of sexual intercourse		
Before 6 weeks	45	61.6
After 6 weeks	28	38.4
Where to go after seeing signs and symptoms		
Go to the nearby health facility	68	93.2
Go to the traditional birth attendant	1	1.4
Remain at home	1	1.4
Not sure	3	4.1
Changing of pads		
Whenever soiled	42	57.5
As frequently as required	31	42.4
Washing of hands		
Sometimes	4	5.5
Always	69	94.5
Washing of perineum		
Sometimes	15	20.5
At least 3 times a day	58	79.5

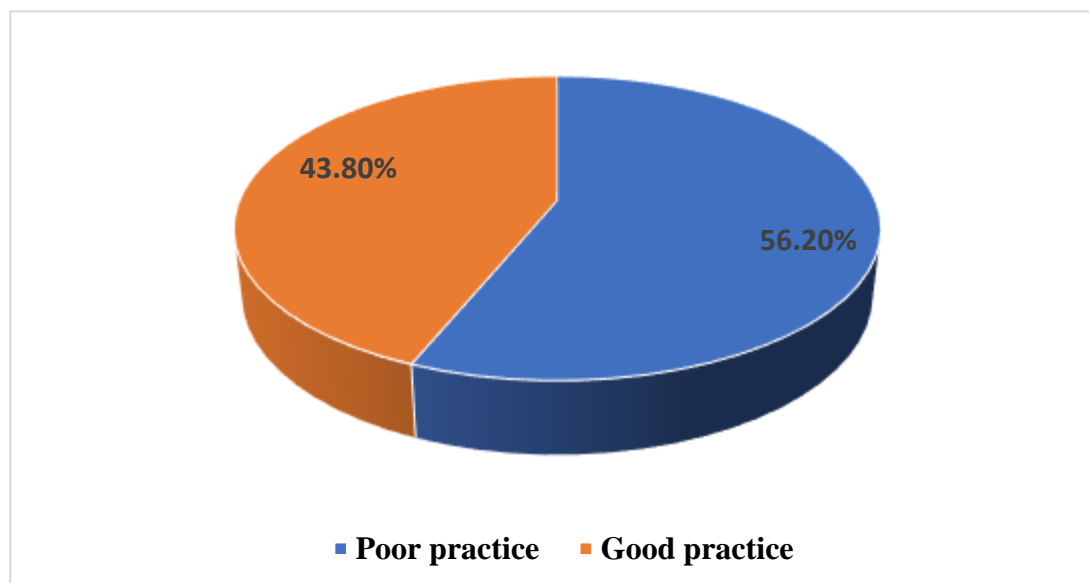
Checking of perineum		
Never	2	2.7
Sometimes	41	56.2
Daily	30	41.1
General body hygiene		
Sometimes	58	79.5
At least 3 times a day	15	20.5
Vaginal douching		
Never	8	11.0
Sometimes	13	17.8
Always	52	71.2
Changing of under wear after perineal washing		
Sometimes	47	64.4
Always	26	35.6
Composition of meals		
Balanced diet	26	35.4
Un balanced diet	47	61.6

Field data, 2022

General level of practice towards prevention of puerperal sepsis among postpartum women

This section presents level of practice towards prevention of puerperal sepsis among postpartum women. Each response score one if it was the ideal practice and zero if it was not the recommended practice. Overall practice was got by summing up all the correct responses and then convert them into percentage. Grading was done using a similar scale like that used by Ramaiah and Jayarama (2018) as shown below.

Figure 1: General level of practice about prevention of puerperal sepsis among postpartum women (n=73).



Field data, 2022

As reflected in figure 1, findings indicated that majority (56.2%) of the respondents had poor practice towards prevention of puerperal sepsis.

Discussion

With respect to overall knowledge, this study findings revealed that nearly half (45.2%) of the study participants were not able to demonstrate the required understanding of the concept about prevention of puerperal sepsis (scored < 50%). This could be an indicator that health education on prevention of puerperal sepsis is insufficient. This is further supported by the findings of this study which revealed that < 5% of respondents gave greater than three correct responses on preventive measures, risk factors and signs and symptoms of puerperal sepsis. Hassan et al., (2021) also found that 87.4% of the studied participants had unsatisfactory knowledge. Findings of this study were contrary to those out of a study by Sarkar, Aharawat & Kumar (2019) which showed that, 63.33% postnatal mothers had high knowledge followed by, 36.66% average knowledge and none of sample had low knowledge regarding prevention of puerperal. The variation in between two studies could be because of differences in study settings given that this study was based in a rural setting while that by Sarkar et al., (2019) was conducted in an urban area. Gamel, Genedy & Hassan, (2020) who studied the "Impact of Puerperal Sepsis Self - Care Nursing Guideline on Mothers Knowledge and Practices "in Egypt, and results indicated that less than two third of the studied sample had unsatisfactory knowledge regarding puerperal sepsis in pretest. From the research point of view, the reason is that most of the participants were from rural area who didn't receive any kind of health education. Abdel-fattah, Abdel-moniem & Farrag (2022) showed that less than two third (61.7%) of the studied sample had unsatisfactory knowledge regarding puerperal sepsis and its prevention.

Following analysis and grading using a similar scale like that applied by Ramaiah and Jayarama (2018) where a score greater than 60% reflected good practice while 60% and less scored poor practice, findings revealed that, majority (56.2%) of the respondents had poor practice towards prevention of puerperal sepsis. This implies that most women stand a high chance of getting puerperal sepsis. Majority having an overall poor practice in this study could have been because of general poor knowledge since majority 33(45.2%) of participants were not able to demonstrate required understanding of the concept about prevention of puerperal sepsis. This study is in line with that conducted in India by Sarkar et al., (2019), to assess practice regarding prevention of puerperal infection among postnatal mothers found out that 52.5% of postnatal mothers had unsatisfactory practices and 47.5% had satisfactory practices, similarly according to a study in Egypt, illustrated that 74.7% of the studied sample had poor practice about prevention of puerperal sepsis and 25.3% of them had good practice (Mohammed et al., 2021). Generally, knowledge and practice towards prevention of puerperal sepsis among postpartum women was poor.

Recommendations

This study recommends are extensive health education for postpartum women especially while they are still on the ward and at the point of discharge with focus on signs and symptoms, risk factors, preventive measures and when to resume sex after birth in order increase their knowledge and in turn reduce sepsis risk.

Limitations of the study

Under ideal circumstances, for one to rate practice, observation method should be used. This was not possible for this study.

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