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Factors Linked to Puerperal Sepsis among Postnatal Mothers at Hoima Regional Referral Hospital, Hoima District

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ABSTRACT

The study aimed to identify factors associated with puerperal sepsis among postnatal mothers in Hoima Regional Referral Hospital, Hoima district. The major socioeconomic factors included low education levels (40%), weak financial backbone (53.3%), and living in a semi-urban area (43.3%). Health-related factors included birth by caesarean section (80%), frequent vaginal examinations (56.7%), and limited hospital staff (53.3%). The majority of respondents had given birth by cesarean section, and the expectant mother had to buy her own gloves for the midwife to wear during delivery. Prevention measures for puerperal sepsis included education of mothers about the condition (66.7%), training of community workers to identify mothers with the condition for early treatment, management of puerperal sepsis at larger hospitals (63.3%), and improving home hygiene to prevent bacteria (100%). These measures aim to ensure women can safely plan for pregnancies, have normal deliveries, and maintain a healthy lifestyle for at least six weeks after delivery.

Keywords: puerperal sepsis, postnatal, mothers

INTRODUCTION

Puerperal sepsis an infection of the genital tract occurring at any time between the rupture of membranes or labour and the 42nd day of postpartum; in which, two or more of the following are present: pelvic pain, fever, abnormal vaginal discharge and delay in the reduction of the size of the uterus [1]. Globally, the World health organization reported about 358,000 maternal deaths occurring during labor and childbirth and 15% were related with puerperal sepsis. It is ranked as the sixth leading cause of disease burden for women of age 15-44 years, next to depression, HIV/AIDS, tuberculosis, abortion and schizophrenia [2, 3]. As many as 5.2 million, new cases of maternal sepsis are annually occurring and an estimated 62,000 of maternal deaths result from the condition [4]. In the United States, puerperal infections are believed to occur in between one and eight percent of all births. About three die from puerperal sepsis for every 100,000 births. The single most important risk factor is Caesarean section. The number of maternal deaths in the United States is about 13 in 100,000. They make up about 11% of pregnancy related deaths in the United States [4].

In sub-Saharan Africa, It is estimated that puerperal sepsis causes at least 35,000 maternal deaths every year, mostly in low-income countries. Studies from high-income countries report incidence of maternal morbidity due to sepsis is 0.1-0.6 per 1000 deliveries. The causative microorganisms are generally polymicrobial with beta-haemolytic streptococci group A (GAS) often being the cause of severe cases of puerperal fever [5]. In Kenya, puerperal sepsis accounts for approximately 15% of maternal deaths. According to Kenya Demographic Health Survey, Kenya is one of the countries in sub-Saharan Africa that still experiences high maternal mortality. For instance, in September,

2012, the maternal mortality ratio was estimated to be 488 cases per 100,000 live births. The predisposing factors to puerperal sepsis in Kenya include anemia in pregnancy, prolonged labor, frequent vaginal examination, premature rupture of membranes, and use of unsterilized/unwashed instruments during delivery [6]. In Tanzania, postpartum infection occurs in about 1 to 8% of vaginal deliveries, and it is five to ten times higher following a caesarean section. Puerperal sepsis morbidity affects 2 to 10% of patients [7]. It is clear that the absence or inappropriate use of management protocols has been a major factor in a large number of maternal deaths due to pregnancy-related sepsis [8]. In Uganda, the WHO- MDG 5 (aimed at reducing maternal mortality by 75 % between 1990 and 2015) was not attained. The current maternal mortality ratio (MMR) in Uganda is 438 per 100,000 live births coming from 550 per 100,000 in 1990. The incidence of puerperal sepsis in Uganda is estimated to be 30.9% occurring among vaginal deliveries and caesarian sections conducted in the country [9]. Statistics obtained from Mulago hospital implicate Puerperal sepsis to be the third leading cause of maternal mortality among mothers who undergo caesarian section [10].

METHODOLOGY

Study design

A quantitative cross sectional descriptive study [11] design was employed.

Study setting

The study was carried out at Hoima Regional referral hospital. among postnatal mothers

Study population

The study population included postnatal mothers, with puerperal sepsis attending Hoima Regional referral hospital, Hoima district.

Sample size determination

A total of 30 postnatal mothers with puerperal sepsis was included in the study.

Sampling procedure

The study used a simple random sampling method where by a container with pieces of paper written on serial numbers from 0-30 were availed to respondents. They were requested to randomly pick one piece of paper each and only those who picked pieces of paper with even numbers and consented to participate in the study were sampled.

Inclusion criteria

All postnatal mothers with puerperal sepsis, who were available in the hospital during the days of data collection, were sampled and those who consented to participate in the study were included.

Data collection procedures

After approval of the proposal by the supervisor and Dean, Kampala International University, an introductory letter was got from the university introducing the researcher to the hospital director of Hoima hospital, who after permitted the researcher to carry out the study from the hospital. The hospital director introduced the researcher to the in charge of the postnatal ward who also introduced the researcher to the respondents. The researcher explained details about the study and assured respondents of utmost confidentiality of their responses [12]. He sought informed consent from respondents and only those who consented and were selected at the time of data collection, were included in the study. The researcher used self-administered questionnaires and interview guides to the respondents. For respondents who did not understand English, the researcher verbally translated for them the questions in local languages and responses were recorded in the research tool.

Data analysis

Collected data was manually analyzed and later presented in tables, figures and texts.

Ethical consideration

The quality of research was ensured by adhering to the highest possible standards of research through accountability and ability to execute the research process. Confidentiality and anonymity were granted by protecting the researcher's identity, privacy, self-worth and dignity by not indicating the respondent's name on the research instrument except the number for questionnaires which will be done for purposes of data identification during editing [12]. It was a project of free participation. All volumes were provided with detailed information by the researcher about the study procedures and the risks and benefits to be involved. They had an opportunity to discuss with the researcher if they wanted more information and clarification. All respondents who were selected for the study were allowed to read and sign the informed consent form prior to the start of the study. Respondents had the right to withdraw at any stage of the study without giving any notification.

RESULTS

Table 1: Socio-demographic data of the respondents

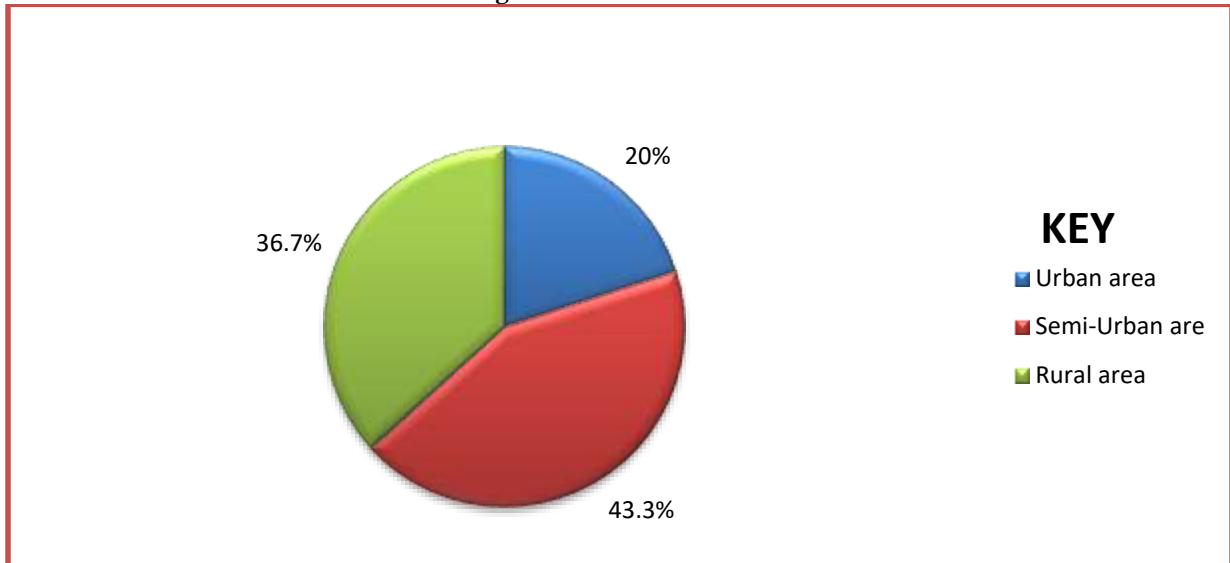
Variable	Frequency (f)	Percentage
Age		
16-22	8	26.7
23-29	17	56.7
30 and above	5	16.7
Total	30	100
Religion		
Catholic	9	30
Protestants	16	53.3
Muslims	5	16.7
Total	30	100
Tribe		
Muganda	3	10
Munyankore	7	23.3
Mutoro	18	60
Other	2	6.7
Total	30	100
Marital status		
Married	26	86.7
Single	3	10
Divorced /separated	1	6.7
Total	30	100
Birth order of your child		
First born	9	30
Second born	4	13.3
Third born	7	23.3
Forth born	7	23.3
Other	3	10
Total	30	100

From the table above,

Slightly more than half, 17/30 (56.7%) of the respondents were aged 23-29 years old while the lowest number, 5/30 (16.7%) of the respondents were aged more than 30 years. To do with religion, the highest number, 16/30 (53.3%) of the respondents were protestants while the lowest number, 5/30 (16.7%) of the respondents were Muslims. As regards tribe, majority, 18/30 (60%) of the respondents were Batoro while the lowest number, 2/30 (6.7%) of the respondents belonged to other unlisted tribes. Concerning their marital status, more than three quarters, 26/30 (86.7%) of the respondents were married, while the lowest number, 1/30 (6.7%) of the respondents were divorced/separated. Regarding the birth order of their children, the highest number, 9/30 (30%) of the respondents had their first born while the lowest number, 3/30 (10%) had children in an unlisted birth order

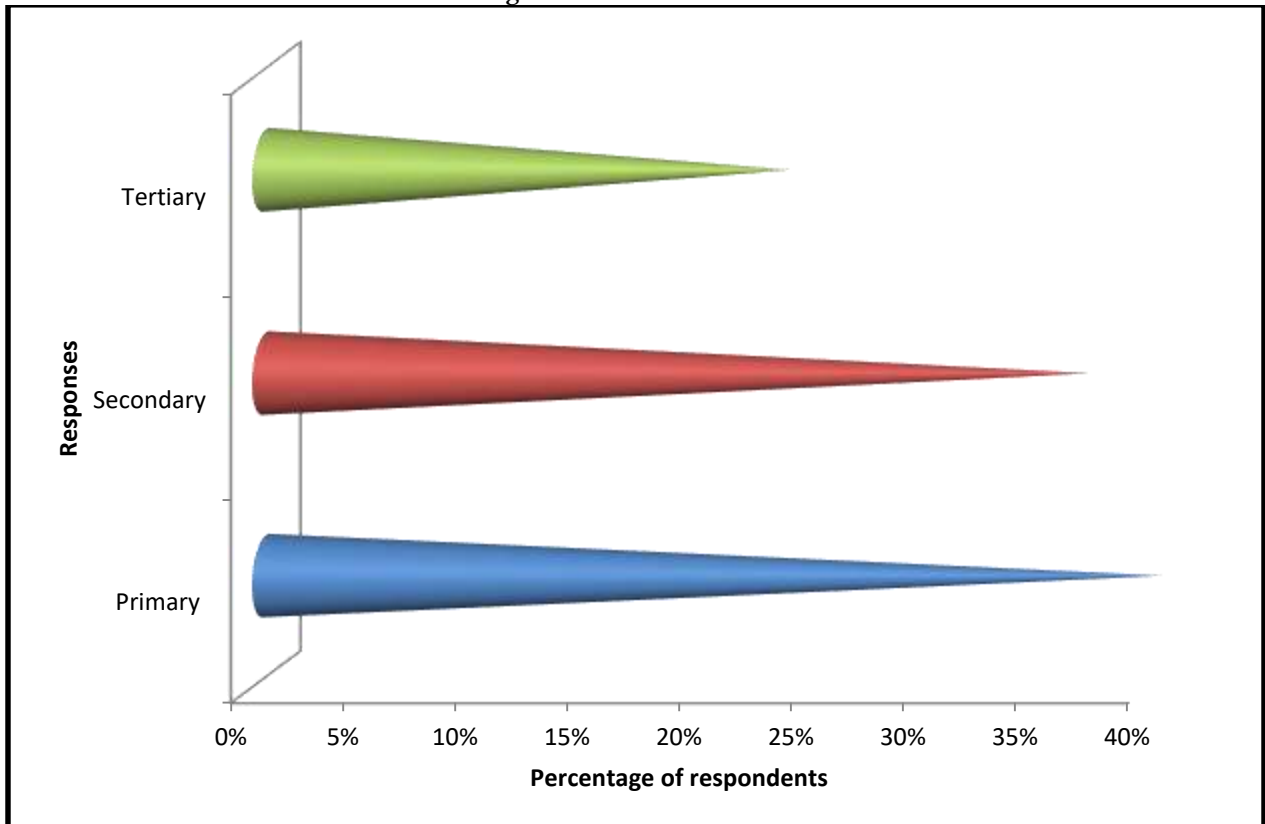
Socioeconomic factors associated with puerperal sepsis among postnatal mothers

Figure 1: Area of residence



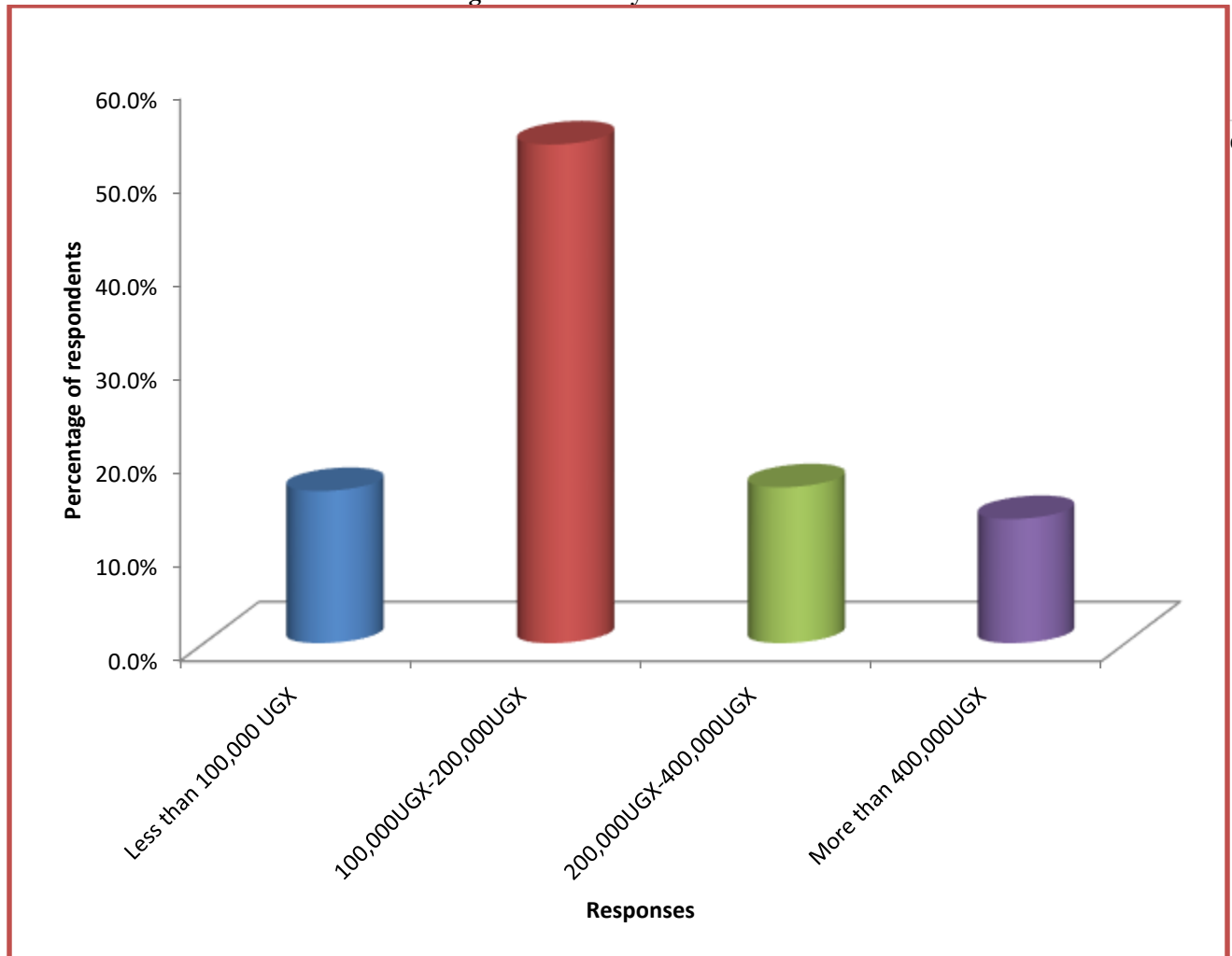
From the figure above, the highest number, 13/30 (43.3%) of the respondents lived in a semi-urban area while the lowest number, 6/30 (20%) of the respondents lived in the urban area.

Figure 2: Education level



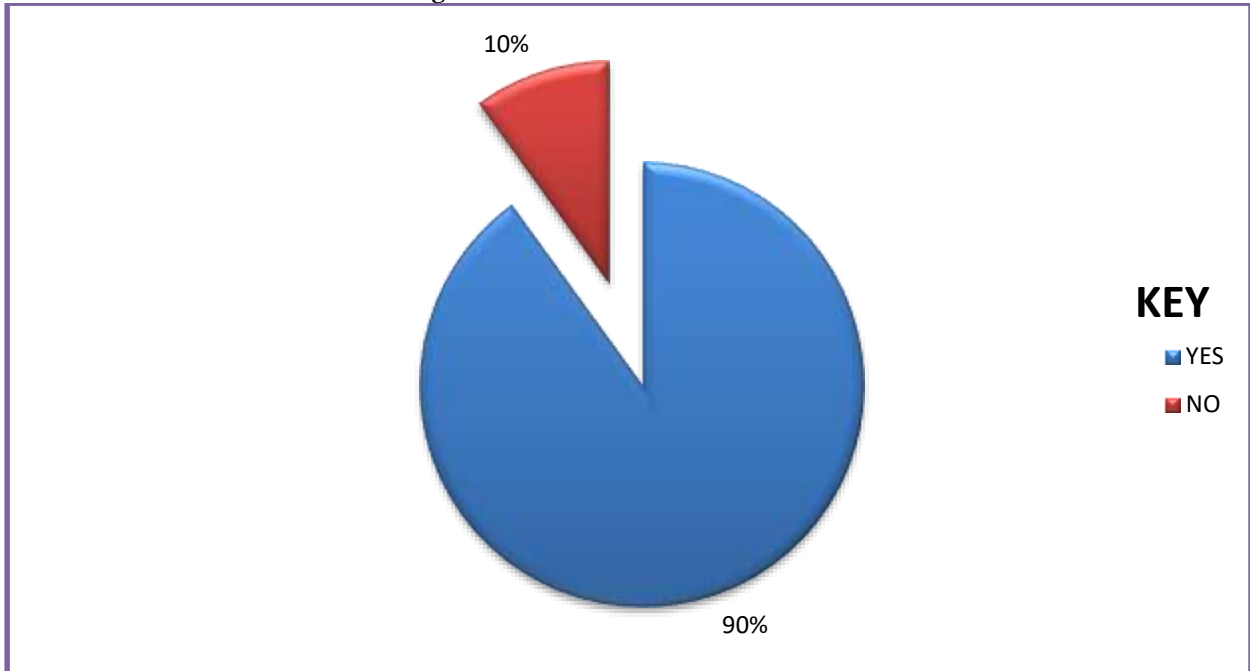
From the figure above, majority, 12/30 (40%) of the respondents said that they had attained primary level education, while the lowest number, 7/30 (23.3%) of the respondents said that they had attained tertiary level education

Figure 3: Monthly Income



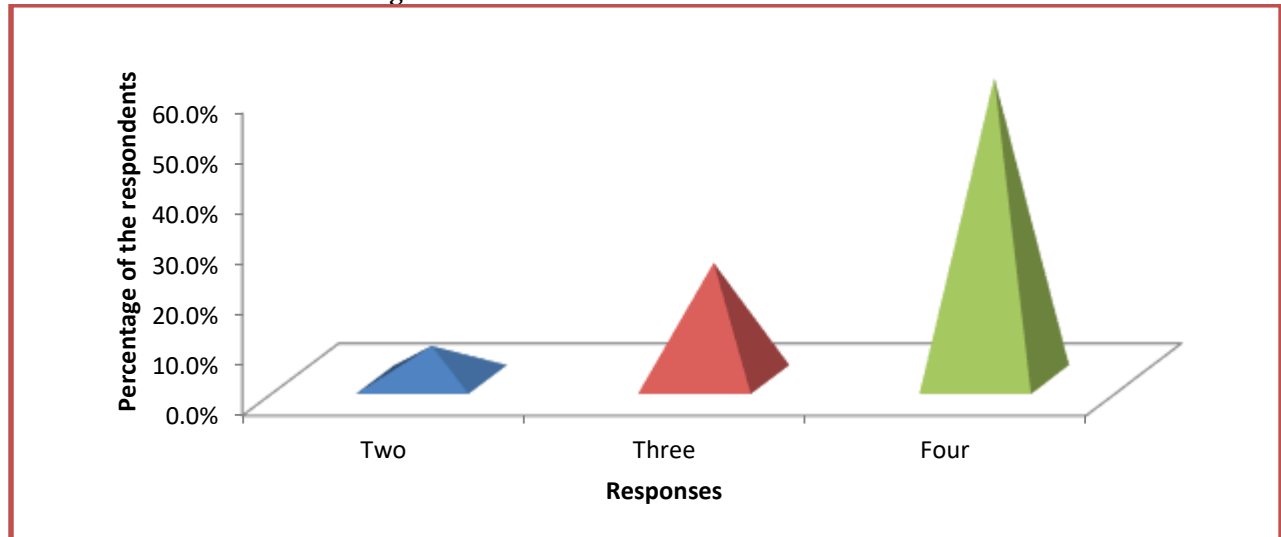
Slightly more than half, 16/30 (53.3%) of the respondents said that they earned between 100,000 UGX- 200,000 UGX as their monthly salary, while the lowest number, 4/30 (13.3%) of the respondents earned more than 400,000 UGX per month

Figure 4: Attendance of antenatal care



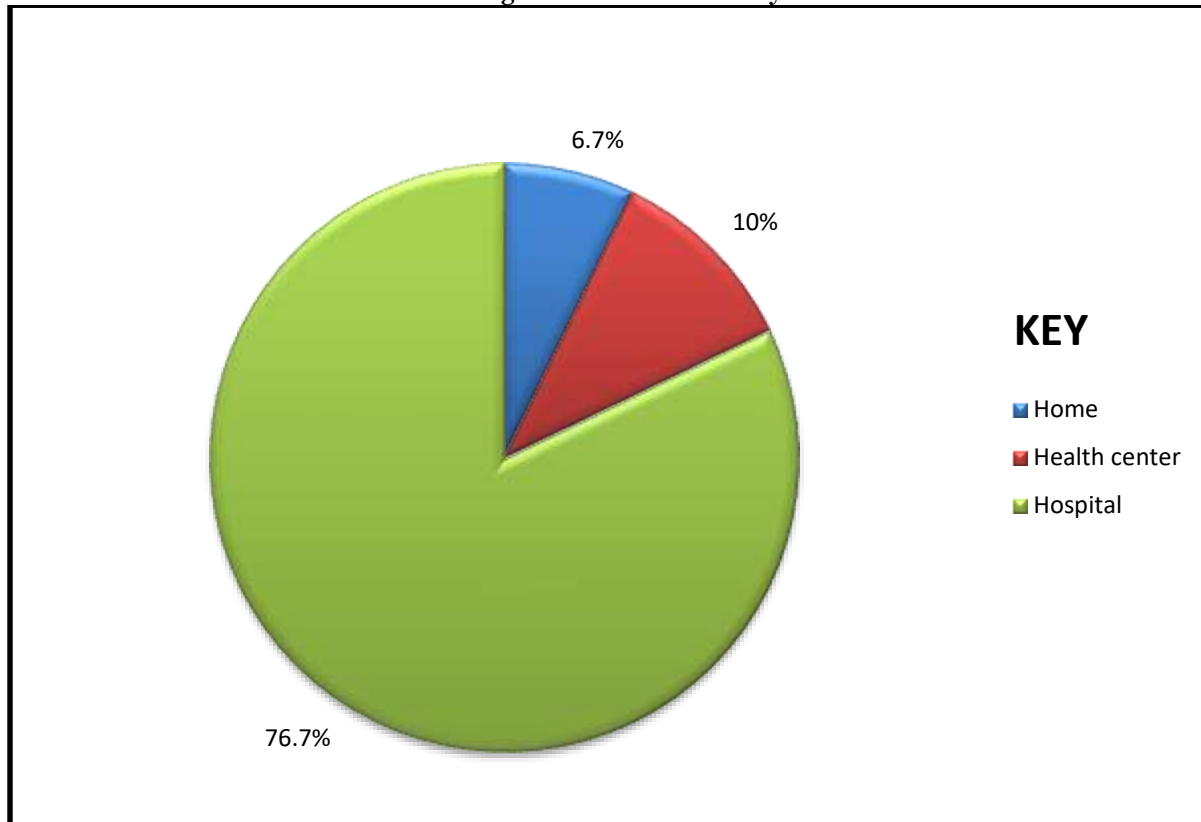
From the figure, an overwhelming majority, 27/30 (90%) of the respondents said that they attended antenatal care while the lowest number, 3/30 (10%) of the respondents said that they did not attend antenatal care.

Figure 5: Number of antenatal visits attended



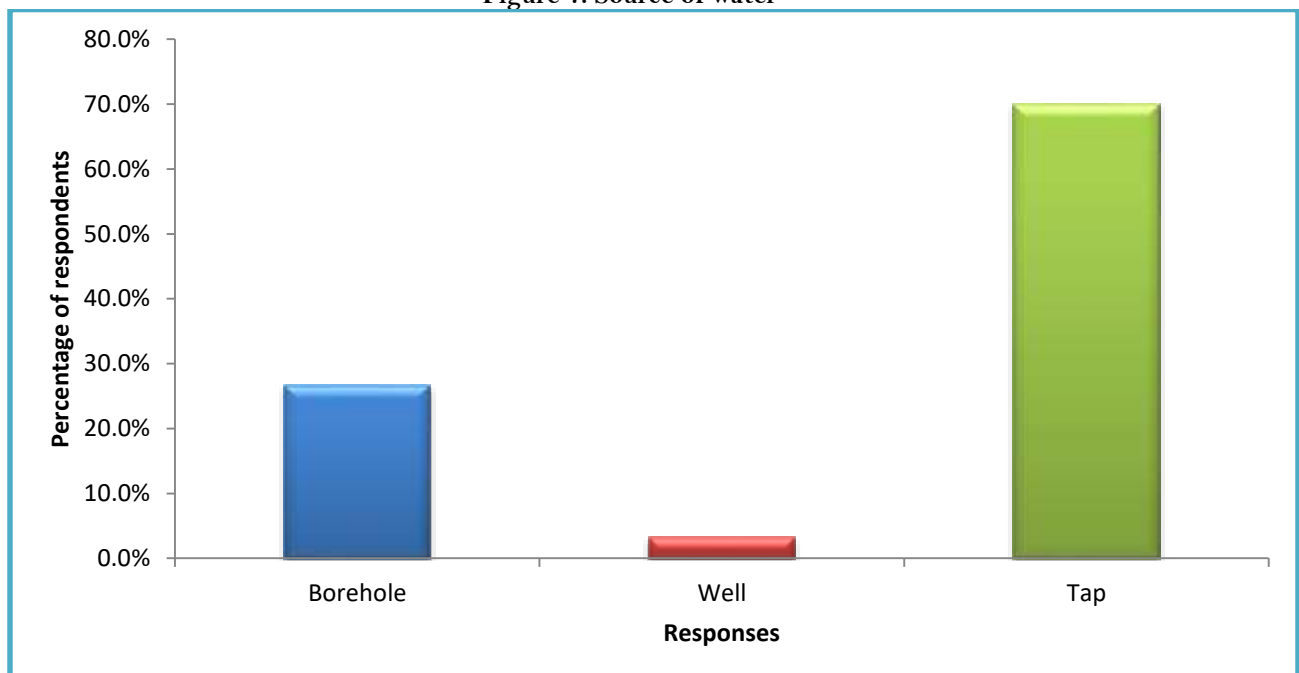
From the figure, more than half, 18/30 (60%) of the respondents said that they attended four antenatal visits while the lowest number, 2/30 (6.7%) of the respondents said that they attended two antenatal visits

Figure 6: Place of delivery



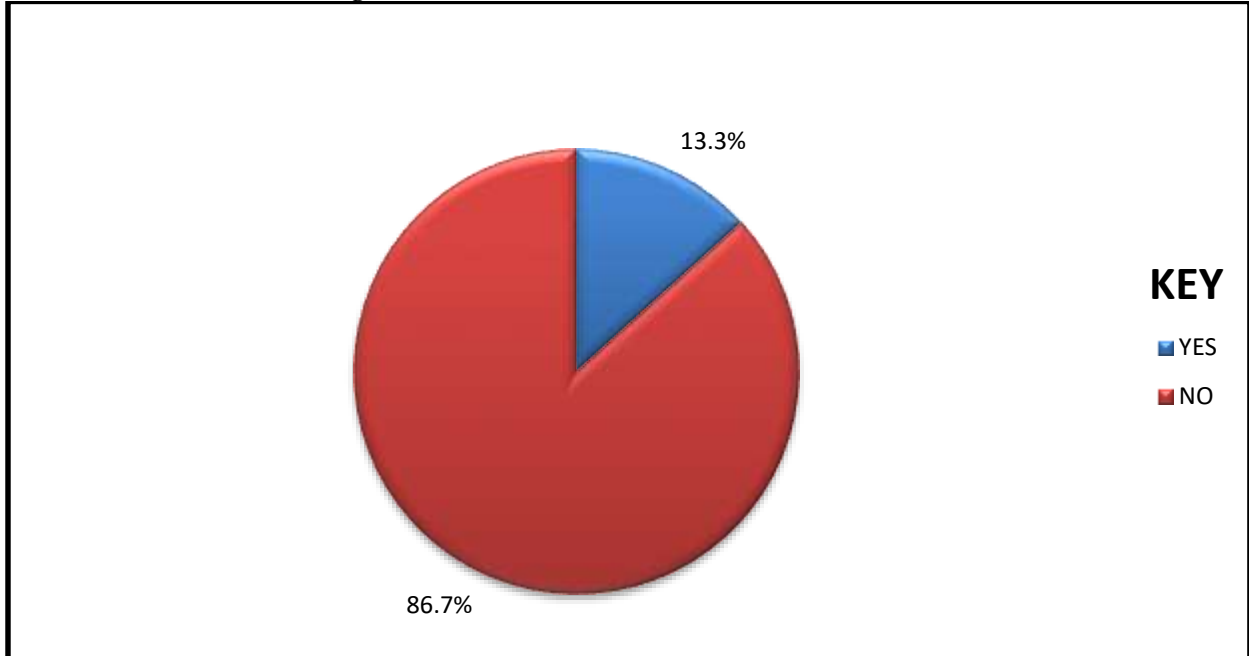
More than three quarters, 25/30 (83.3%) of the respondents said that they delivered from the hospital while the lowest number, 2/30 (6.7%) of the respondents said that they delivered their babies from home.

Figure 7: Source of water



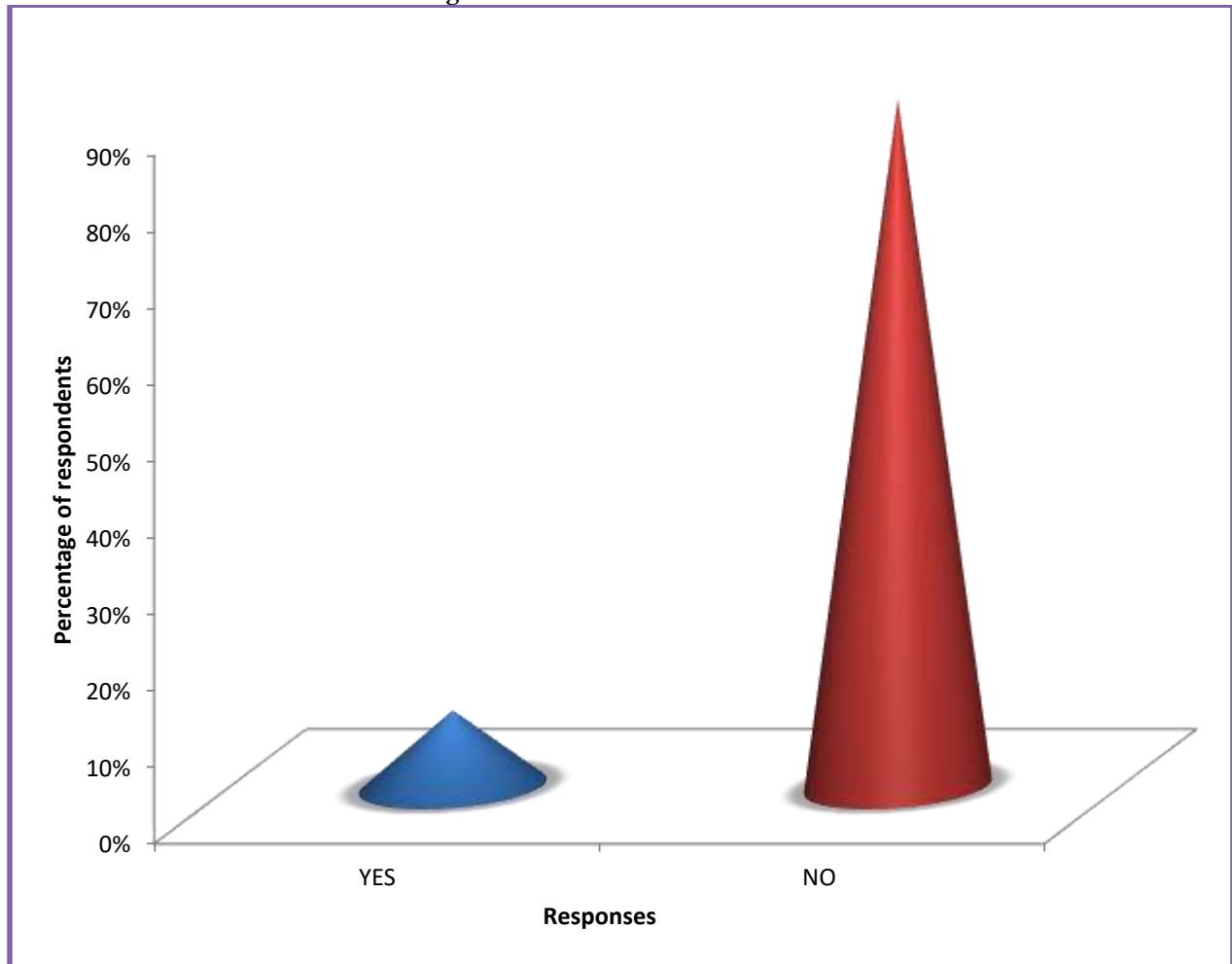
The highest number, 21/30 (70%) of the respondents said that they fetched water from the tap while the lowest number, 1/30 (3.3%) of the respondents said that they fetched water from the well

Figure 8: Whether the house is shared with animals



More than three quarters, 26/30 (86.7%) of the respondents said that they did not share their house with animals while the lowest number, 4/30 (13.3%) of the respondent said that they shared their houses with animals

Figure 9: Use of herbal medicines



Almost all, 27/30 (90%) of the respondents said that they did not use herbal medication for treatment of their infection before coming to the hospital, while the lowest number of the respondents, 3/30 (10%) of the respondents said that they used some herbal medication for treatment of their infection before coming to the hospital for treatment.

Table 2: Measures of preventing puerperal sepsis among postnatal mothers

Variable	Frequency (f)	Percentage (%)
Education of mothers about puerperal sepsis can be helpful in preventing the infection		
Agree	7	23.3
Strongly Agree	20	66.7
Disagree	3	10
Total	30	100
More money should be given to the hospitals in order to implement interventions which are helpful in preventing puerperal sepsis		
Agree	1	3.3
Disagree	7	23.3
Strongly Disagree	22	73.3

Total	30	100
Eating nutritious food does not have any effect on prevention of puerperal sepsis		
Agree	4	13.3
Strongly Disagree	26	86.7
Total	30	100
More community health workers should be trained about identification of puerperal sepsis in order to aid early treatment		
Agree	6	20
Strongly Agree	21	70
Disagree	3	10
Total	30	100
People with puerperal sepsis should be managed in a bigger hospital rather than from a small health center		
Agree	6	20
Strongly Agree	19	63.3
Disagree	5	16.7
Total	30	100
Women should improve their hygiene at home in order to prevent puerperal sepsis		
Strongly Agree	30	
Total	30	100

From the table,

More than half, 20/30 (66.7%) of the participants strongly agreed that education of mothers about puerperal sepsis could be helpful in preventing the infection while the lowest number, 3/30 (10%) of the respondents disagreed.

Almost three quarters, 22/30 (73.3%) of the respondents strongly disagreed to the notion that more money should be given to the hospitals in order to implement interventions which are helpful in preventing puerperal sepsis while the lowest number, 1/30 (3.3%) agreed. More than three quarters, 26/30 (86.7%) of the respondents strongly disagreed to the notion that eating nutritious food did not have any effect on prevention of puerperal sepsis while the lowest, 4/30 (13.3%) number of the respondents agreed. The highest number, 21/30 (70%) of the respondents strongly agreed that more community health workers should be trained about identification of puerperal sepsis in order to aid early treatment while the lowest number, 3/30 (10%) of the respondents disagreed. More than half, 19/30 (63.3%) of the respondents strongly agreed that people with puerperal sepsis should be managed in a bigger hospital rather than from a small health center while the lowest number, 5/30 (16.7%) of the respondents disagreed. All, 30/30 (100%) of the respondents strongly agreed that women should improve their hygiene at home in order to prevent puerperal sepsis

DISCUSSION

Slightly more than half, (56.7%) of the respondents were aged 23-29 years old. This is probably because this is a very reproductive age in which most women get married and thus start to have children. To do with religion, the highest number, (53.3%) of the respondents were Protestants. This is probably because the region is inhabited by many Christians, most of whom belong to the protestant denomination. As regards tribe, majority, (60%) of the respondents were Batoro. This can be attributed to the fact the study was conducted in a Batoro inhabited region and thus attracted more of the people from this tribe. Concerning their marital status, more than three quarters, (86.7%) of the respondents were married. This is probably because it is culturally appropriate for only the married women to have children. Regarding the birth order of their children, the highest number, (30%) of the respondents

had their first born. This could be attributed to the fact that most of the women belonged to a young age group in which they are perceived to have been newly married and thus expecting their first-born children. The highest number, (43.3%) of the respondents lived in a semi-urban area. This implies that they did not have adequate health care facilities in their localities and thus could treat the sepsis at its earliest times. This is in correlation with results obtained from a study by [13] in Tanzania in which residence of mothers was significantly associated with puerperal sepsis. It showed that women who lived in the rural areas were 2.5 times more likely to develop puerperal sepsis when compared to those mothers living in the urban areas, whose chances were around 1.3%. Majority, 12/30 (40%) of the respondents said that they had attained primary level education. This could imply that they had a limited understanding the effects, prevention and need for treatment of the puerperal sepsis. This is in line with results obtained from a study by [14] who mentioned that educational level of mothers was associated with the puerperal sepsis. Furthermore, a multivariate study by [15] in Ethiopia revealed that mothers who did not have formal education were affected 33% more times than their counterparts. In addition, mothers who completed up to primary level also developed puerperal sepsis 21% more times than their highly educated counterparts. Slightly more than half, (56.7%) of the respondents mentioned that vaginal examination was done more than five times before delivery of the baby. This increases the chances of introducing infections into the cervix and thus could predispose the mother puerperal infections with cause puerperal sepsis. This is in line with results from a study in Burundi which showed that mothers who had more than five times vaginal examination during delivery were 4.0 times more likely to develop puerperal sepsis compared to those who had vaginal examination 1–2 times [16]. Another study from Kenya reported that women who had 2 or more vaginal examination were 3.95 times more likely to develop puerperal sepsis because frequent manipulation of genital tracts would facilitate ascension of microorganisms from lower genital tract and thereby increase in probability to develop puerperal sepsis [17]. The highest number, 20/30 (66.7%) of the respondents mentioned that they were asked to buy gloves for the midwife to use. The scarcity of the gloves from the hospital increases the incidence of cross infection and thus could predispose the mothers to infections. This is in line with results obtained from a study by [18] in which the use of gloves was expected to reduce the infection. The study found out that mothers who came to deliver were requested to purchase gloves to be used in the delivery procedure. In this regard, those with prolonged labor were likely to be subjected to glove recycling due to frequent check-ups. More than half, (66.7%) of the participants strongly agreed that education of mothers about puerperal sepsis could be helpful in preventing. The education helps mothers to understand the causes, predisposing factors and effects of puerperal sepsis after delivery. This is in line with [19] who mentioned that educating the mothers on personal hygiene and increasing their awareness about puerperal sepsis could be effective in the eradication of this menace. He however argued that the poor infrastructure and topography his study area (i.e., having steep hills and valleys) had made it difficult for the few available community health workers to access deep into the community to create awareness on the condition.

CONCLUSION

From the study, the major socioeconomic factors associated with puerperal sepsis among postnatal mothers included; low education level (40%), weak financial backbone (53.3%) and living in a semi-urban area (43.3%). The major health related factors associated with puerperal sepsis among postnatal mothers included; birth by caesarian section (80%), frequent vaginal examinations (56.7%), limited number of hospital staff to work on all the expecting mothers (53.3%) An overwhelming majority, (80%) of the respondents had given birth by cesarean section and the need for the expectant mother to buy her own gloves for the midwife to wear while delivering her.

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