


Puerperal sepsis-related knowledge and reported self-care practices among postpartum women in Dar es salaam, Tanzania

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Abstract

Background: Knowledge and reported self-care practices of postpartum women are important for early detection, prevention and treatment of puerperal sepsis.

Objectives: This study analyzes the knowledge and self-care practices for prevention of puerperal sepsis and their determinants among postpartum women.

Methods: A hospital-based analytical cross-sectional study which included 343 postpartum women was conducted from February to March 2021. Data were collected using interviewer-administered questionnaire. Predictors of knowledge and self-care reported practice were determined using binary logistic regression. $p < 0.05$ was considered significant.

Results: More than half ($n = 213$, 62.1%) of the postpartum women had adequate knowledge on prevention of puerperal sepsis. Only 39 (11.4%) of the women reported adequate self-care practices toward prevention of puerperal sepsis. Secondary education (adjusted odds ratio = 0.18, 95% confidence interval = 0.06–0.49, $p = 0.001$), tertiary education (adjusted odds ratio = 0.52, 95% confidence interval = 0.19–1.38, $p = 0.021$) and getting information from healthcare providers (adjusted odds ratio = 1.06, 95% confidence interval = 0.55–2.06, $p = 0.049$) were significant determinants of knowledge on prevention of puerperal sepsis. Also, secondary education (adjusted odds ratio = 0.11, 95% confidence interval = 0.04–0.30, $p = 0.001$), tertiary education (adjusted odds ratio = 0.16, 95% confidence interval = 0.06–0.39, $p = 0.001$), and having more than four antenatal care visits (adjusted odds ratio = 1.21, 95% confidence interval = 0.49–3.27, $p = 0.041$) were significant determinants of reported self-care practices for prevention of puerperal sepsis.

Conclusion: A significant gap in reported self-care practices to prevent puerperal sepsis was evidence. Secondary and tertiary education were significant predictors for both knowledge and self-care reported practices. Special attention should be given to women with low education level.

Keywords

knowledge, peripartum period, postpartum women, pregnancy complications, puerperal sepsis, self-care practices

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Introduction

Puerperal sepsis causes 11% of all global maternal deaths and is a significant contributing factor of maternal deaths.¹ It is also the third leading cause of direct maternal mortality in developing nations.² It has been estimated that 30 million patients are affected by puerperal sepsis and nearly 6 million among them die.³ Low- and middle-income countries are disproportionately affected by puerperal sepsis particularly among vulnerable populations

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such as those with HIV/AIDS infection. One in 10 maternal deaths worldwide are attributed to sepsis.⁴ Case fatality rates of puerperal sepsis have been reported to be as high as 8% and survivors commonly experience significant morbidities.⁴

According to the World Health Organization (WHO)⁵ report of 2015, puerperal sepsis was defined as an infection of the genital tract occurring any time between rupture of membranes, labor and the 42-day postpartum. The report also showed that two or more of the following clinical criteria must be present: pelvic pain, fever, abnormal vaginal discharge or delay in uterine involution.⁵

Puerperal sepsis can cause chronic health problems such as chronic pelvic inflammatory disease (PID) and infertility, and it is the third common cause of maternal mortality following postpartum hemorrhage and hypertensive disorder of pregnancy.⁶ In Tanzania, infectious diseases are a chief public health issue because they contribute to extended hospital stays, long-term disabilities, increased resistance of microorganisms to antimicrobials, substantial financial burden for the health system and families, and death. This has led to the preparation of national Infection Prevention and Control (IPC) Guidelines for hospitals so as to ensure standardized and evidence-based IPC practices in all healthcare facilities.⁷ Strategies have been implemented in Tanzania to ensure that, every birth occurs at a medical facility with the assistance of a skilled birth attendant, access to emergency obstetric and newborn care, as well as access to family planning and effective referral system.²

In Tanzania, the maternal mortality rate remains high at an estimated 556 deaths per 100,000 live births⁸ and maternal sepsis accounts for 16.7% of all deaths.⁹ The prevalence of puerperal sepsis in Tanzania has been estimated to be as high as 92% in a study which was conducted at Muhimbili National Hospital.¹⁰ Another study which was conducted in Dodoma region indicated that among 35 maternal deaths, 12 were due to puerperal sepsis.¹¹

Individual's knowledge and positive attitude on self-care practices are the key factors that help in promoting optimal postpartum women's health. Studies have reported that risk factors contributing to puerperal sepsis include prolonged labor, early rupture of membrane for more than 24h, repeated vaginal examination for more than five times during labor, retained products of conception, and maternal anemia.^{10,12,13} Women with informal, primary level education, and low monthly income of the mother or the family are also at increased risk.² In Kenya, age was shown to be an important predictor for developing puerperal sepsis.¹⁴ Knowledge among postnatal women on prevention of puerperal sepsis has been shown to be a determining factor of self-care reported practice in prevention of puerperal sepsis.¹⁵⁻¹⁷

This study is based on the indicated gaps and lack of a single study conducted in Tanzania in identifying knowledge

and reported self-care practices and their determinates for prevention of puerperal sepsis which contribute to maternal morbidity and mortality. Therefore, this study aimed to assess the levels of knowledge and reported self-care practices for prevention of puerperal sepsis and also to assess the factors associated with the two domains evaluated among postpartum women in Tanzania.

Methods

Study design and setting

This was a hospital-based analytical cross-sectional study. Three district hospitals and five health centers in Dar es Salaam region were involved in the study. The region includes one city (Ilala) and four municipalities: Ubungo, Kinondoni, Temeke, and Kigamboni. Dar es Salaam region is highly populated with 586 health facilities. Among them, 397 are private and 189 are public health facilities. Almost all health facilities provide maternity services (municipal profile, 2016). The region had a population of 4,364,541 according to the National Census 2021 and it is Tanzania's biggest city.

Study population

The study included postpartum women. The inclusion criteria were as follows: all postpartum women in the postnatal clinic who were able to participate in the study and agreed to sign the consent form. All postnatal women who were seriously ill, and those who declined to participate were excluded from the study.

Sample size and sampling method

The sample size was calculated using the formula for quantitative studies ($n = Z^2 P(1 - P)/d^2$)¹⁸ with the following assumptions: n is the required sample size, P is the proportion (33.5%) of knowledge and hygienic practices for postpartum women,¹¹ d is the margin of error to the desired level of precision to the true value (5%), and Z is the constant standard normal variation (1.96 for 95% confidence level). Proportionate sampling method was adapted to handpick the number of study participants from each selected facility using the following formula: $n_i = N_i/N_i^*n$, whereas n_i is the required number of respondents per each facility, N_i is the total number of deliveries per each facility per day, N_i^* is the total number of deliveries in all selected facilities, and n is the total sample size.

Considering the number of deliveries per day ($n = 79$) from the study sites, the sample size of 353 was proportionately allocated to the eight hospitals, and therefore, 143, 72, 58, 18, 18, 26, 9, and 9 study participants were selected from each of the study sites. Then, convenience sampling method was used to obtain the study participants from the selected health facilities in which the study

participants were consecutively recruited until the required number of study participants was met. The estimated sample size was 353. The response rate was 97% where 3% which is equivalent to 10 individuals did not sign the consent form to participate in the study due to various reasons.

Measurement of variables

Knowledge about the prevention of puerperal sepsis was measured using questions regarding definition, time of occurrence, causes, predisposing factors, signs and symptoms, and measures to reduce the risk of puerperal sepsis. A total of 10 questions were used to assess knowledge on prevention of puerperal sepsis which had four possible responses. However, at time of data analysis, we converted them into two options “Yes” for correct and “No” for incorrect response. Those who scored correct 8 and more questions were regarded to have adequate knowledge.^{14,16}

The questions used to assess self-care reported practice which had two response options “Yes” for correct response and “No” for incorrect response. The questions were adapted from previous studies which were done in India and Bangladesh.^{14,16} The responses were summed and then dichotomized. Reported self-care practice was evaluated using 14 questions that were focusing on hygienic practices including handwashing, principles of perineal hygiene, frequency of sanitary pad change, postpartum exercise, wound infection prevention and postpartum water intake per day. Those who score 13 and above were regarded as having adequate self-care reported practice.^{14,16} The questionnaire is now available as Supplementary Material.

Data collection methods and tools

We used interviewer-administered questionnaire to collect the data. The questionnaire was translated in Swahili for easy understanding. The interview was done in a private room within the postnatal clinic. The questionnaire involved closed-ended questions with three parts: demographic characteristic, prevention of puerperal sepsis, and self-care practices. We adopted and modified the questionnaire which was used in the previous two studies.^{16,18} Data collection was done from the postnatal women at the sixth weeks after delivery. Two research assistants (nurse midwives) completed 2 days of training prior to data collection. The interview was of 25–30 min duration.

Statistical analysis

Statistical analysis was performed using Statistical Package for Social Science (SPSS) version 23. Descriptive statistics were used to analyze the sociodemographic characteristics and the results were presented

in proportions. Pearson’s chi-square statistical test was used to assess the association between categorical variables. Inferential statistics comprised of binary logistic regression analysis for determining the determinants of knowledge and self-care reported practice. $p < 0.05$ was considered significant. Confounding factors were controlled for each variable.

Results

Background information

A total of 343 postpartum women participated in this study. The over half ($n = 186$, 54.2%) of them were aged between 18 and 28 years with the mean age of 27.56 ± 6.22 years. Most ($n = 154$, 44.9%) of the study participants had completed primary education. The majority ($n = 216$, 63%) of the postpartum women were married and most of them ($n = 183$, 53.4%) were multiparous. Most ($n = 154$, 44.9%) of them were not employed. Of them ($n = 279$, 81.3%) had income of less than US\$1 per month. Most ($n = 260$, 75.8%) of the postpartum women had attended more than four antenatal care (ANC) visits. The majority ($n = 282$, 82.2%) of them began their prenatal care after 12 weeks of pregnancy. Many ($n = 255$, 74.3%) of them received information about puerperal sepsis from healthcare workers (Table 1).

Postpartum women’s knowledge on prevention of puerperal sepsis

Out of 343 study participants, ($n = 213$, 62.1%) had adequate knowledge on prevention of puerperal sepsis, most ($n = 157$, 45.8%) of them were able to define puerperal sepsis, and ($n = 154$, 44.9%) knew the time when puerperal sepsis could occur. Among them, ($n = 156$, 45.5%) were aware of the causes of puerperal sepsis, ($n = 153$, 44.6%) were aware of signs and symptoms of puerperal sepsis, and ($n = 165$, 48.1%) knew the measures to reduce the risk of puerperal sepsis. Other details are found in Table 2.

Factors associated with postpartum knowledge on prevention of puerperal sepsis

In multivariate analysis, the following variables remained strongly associated with postpartum women’s knowledge on prevention of puerperal sepsis. Postpartum women with secondary education had 82% chance of having adequate knowledge compared to those with primary school level of education and the difference was significant (adjusted odds ratio (AOR)=0.18, 95% confidence interval (CI)=0.06–0.49, $p = 0.001$). Those with college/university education were 48% more likely to have adequate knowledge puerperal sepsis compared to those with primary education (AOR=0.52, 95% CI=0.19–1.38, $p = 0.021$).

Table 1. Postpartum women background information (N=343).

Variables	Frequency (n)	Percentage (%)	Mean \pm SD
Age (years)			27.56 \pm 6.216
18–27	186	54.2	
28–37	131	42.9	
38–47	26	7.6	
Level of education			
Primary	154	44.9	
Secondary	137	39.9	
College/university	52	15.2	
Marital status			
Unmarried	59	17.2	
Married	216	63	
Cohabit/divorced	68	19.8	
Religion			
Christian	153	44.6	
Muslim	190	55.4	
Parity			1.87 \pm 1.046
Prime	160	46.6	
Multiparous	183	53.4	
Occupation			
Unemployed	154	44.9	
Employed	52	15.2	
Self-employed	137	39.9	
Income status (US\$) per day			
<1	279	81.3	
\geq 1	64	18.7	
Antenatal visits			
<4 visits	83	24.2	
>4 visits	260	75.8	
Booking status (weeks)			
<12	61	17.8	
>12	282	82.2	
Puerperal sepsis information			
Media	56	16.3	
Friends	32	9.3	
Health workers	255	74.3	

SD: standard deviation.

Table 2. Postpartum women's knowledge on prevention of puerperal sepsis (N=343).

Item	Correct response (n)	Percentage (%)
Puerperal sepsis definition	157	45.8
Time of occurrence	154	44.9
Puerperal sepsis causes	156	45.5
Puerperal sepsis contributing factor	92	26.8
Puerperal sepsis signs	153	44.6
Signs of episiotomy, CS wound infections	306	89.2
Measure to reduce risk of puerperal sepsis	165	48.1
UTI infection definition	239	69.7
UTI predisposing to puerperal sepsis	306	89.2
Measure to reduce risk of UTI	298	86.9

CS: cesarean section; UTI: urinary tract infection.

Table 3. Factors associated with postpartum knowledge on prevention of puerperal sepsis (N=343).

Variables	COR	p-value	95% CI		AOR	p-value	95% CI	
			Lower	Upper			Lower	Upper
Age (years)								
18–27	Reference							
28–37	2.32	0.001	1.44	3.75	0.37	0.073	0.13	1.09
38–47	2.39	0.062	0.96	5.95	0.79	0.650	0.28	2.22
Educational level								
Primary	Reference							
Secondary	3.13	<0.001	1.91	5.11	0.18	0.001	0.06	0.49
Collage/university	6.60	<0.001	2.91	14.95	0.52	0.021	0.19	1.38
Marital status								
Single	Reference							
Married	1.39	0.263	0.78	2.49	0.58	0.203	0.25	1.34
Cohabited	2.71	0.009	1.28	5.74	0.51	0.049	0.26	0.98
Occupation								
Unemployed	Reference							
Employed	0.51	0.006	0.32	0.83	0.74	0.260	0.43	1.26
Self-employed	1.58	0.23	0.75	3.29	1.54	0.940	0.44	2.44
Income status (US\$) per day								
< 1	Reference							
≤ 1	1.88	0.040	1.029	3.44	1.45	0.340	0.68	3.05
ANC visits								
< 4 visits	Reference							
≥ 4 visits	2.00	0.007	1.21	3.31	0.61	0.088	0.34	1.08
Booking status (weeks)								
≤ 12	0.901	0.75	0.51	1.62				
> 12	Reference							
Source of information								
Media	Reference							
Friends	0.67	0.18	0.37	1.20	0.37	0.860	0.14	1.01
Health workers	0.26	0.001	0.12	0.57	1.06	0.001	0.55	0.96

COR: crude odds ratio; AOR: adjusted odds ratio; CI: confidence interval.

Postpartum women who received information regarding prevention of puerperal sepsis from healthcare providers (HCPs) had a 1.06-fold increased chance of having adequate knowledge compared to those who received information from mass media (AOR = 1.06, 95% CI = 0.55–0.96, $p=0.001$). Also, postpartum women who were cohabited/divorced had 49% chance of having adequate knowledge on puerperal sepsis compared to single pregnant women; the difference was significant (AOR = 0.511, 95% CI = 0.26–0.98, $p=0.049$) (Table 3).

Self-care reported practices of postpartum women on prevention of puerperal sepsis

Regarding self-care practices of postpartum women in prevention of puerperal sepsis, only ($n=39$, 11.4%) of postnatal women had adequate self-care reported practices for prevention of puerperal sepsis. Of all the participants, ($n=135$, 39.4%) reported that they were washing their hands prior to sanitary pad change, ($n=136$, 39.7%) were

changing their sanitary pad when soiled, ($n=54$, 15.7%) changing their pad twice daily, and ($n=141$, 41.1%) changing pads three times per day. Also, ($n=142$, 41.4%) were cleaning their perineum from front to back. Regarding postnatal exercises, ($n=124$, 36.2%) were practicing walking exercises after delivery, ($n=66$, 19.2%) reported to practice pelvic exercises after delivery, and ($n=13$, 3.8%) were practicing deep breathing after delivery.

On wound infection prevention ($n=21$, 6.1%) reported that they restricted visitors, ($n=156$, 45.5%) reported that they would keep the perineum clean and dry, ($n=98$, 28.6%) reported that they would wear clean and light clothes, and only ($n=111$, 32.4%) reported that would plan to drink 2–4 L of water per day after delivery (Table 4).

Factors associated with self-care reported practices on prevention of puerperal sepsis

In multivariate analysis, educational level and number of ANC visits remained to be strongly associated with

Table 4. Self-reported practices among postpartum women for prevention of puerperal sepsis (N=343).

Item	Correct response (n)	Percentage (%)
Hand washing prior to sanitary pad change	135	39.4
Cleaning perineum from front to back	142	41.4
Sanitary pad change (multiple response) when wet	136	39.7
Once daily	9	2.6
Twice daily	54	15.7
Three times daily	141	41.1
Postnatal exercise		
Deep breathing for post CS	13	3.8
Pelvic exercise	66	19.2
Walking exercise	124	36.2
Wound infection prevention		
Restrict visitors	21	6.1
Perineum clean and dry	156	45.5
Wearing clean and light clothes	98	28.6
Water intake per day		
Less than one liter	221	64.4
One to three and a half liters	111	32.4

CS: cesarean section.

postpartum women's reported self-care practice for prevention of puerperal sepsis. Postpartum women with secondary education had 89% chance of having good practice than those with primary education (AOR=0.11, 95% CI=0.04–0.30, $p=0.001$), and those with college/university education were 84% more likely to have good practice on prevention of puerperal sepsis (AOR=0.16, 95% CI=0.06–0.39, $p=0.001$). Postpartum women who had more than four visits of ANC services had 1.21-fold increased odds of having good practice of self-care compared to those with fewer than four ANC visits (AOR=1.21, 95% CI=1.49–3.27, $p=0.041$) (Table 5).

Discussion

Postpartum women's knowledge and self-care practices are highly recommended for prevention of puerperal sepsis. This study included the following key findings: positive association between secondary education, college/university education, health information regarding prevention of puerperal sepsis from HCPs and postpartum women's knowledge and reported self-care practice to the prevention of puerperal sepsis.

In this study, the proportion of participants with adequate knowledge was 62.1%. Our finding was much higher compared to studies conducted in Bangladesh, Nepal, urban India, rural India, and Ethiopia, in which the level of knowledge of postpartum women on prevention of puerperal infection was 39.3%, 36.73%, 35%, 30%, and 12.6%, respectively.^{15–19} Another study that was conducted in India reported that postnatal mothers had moderate knowledge regarding prevention of puerperal sepsis.²⁰

The reason for the difference observed in the level of knowledge may be contributed to the variation in the number of ANC visits across studies. Tanzania started to implement the WHO recommendation in 2019, in which antenatal mothers receive full package of health education including postnatal care.³ Whereby various studies conducted in Ethiopia and Uganda reported that pregnant women attended four visits.^{21,22}

Regarding education level in this study, postnatal women who had secondary level of education were 82% more likely to have adequate knowledge on prevention of puerperal sepsis. This is similar to the findings to the study conducted by Sultana et al.¹⁵ (2018) in Bangladesh and Lalitha¹⁷ in India, in which it was reported that secondary education level was positively associated with knowledge of postnatal women on prevention of infections in early puerperium. Another study conducted in Eritrea showed that postnatal mothers' knowledge increased as the level of education of postnatal women increased.²³ Likewise, Bililign et al. reported that secondary or higher education level was associated with increased knowledge about postnatal danger signs.²⁴ Also Amenu et al. reported that postnatal women knowledge on danger signs increases with level of education.²⁵ Also, Evjen-Olsen who conducted study in Tanzania reported that participants with low formal education had an increased risk of mortality due to pregnancy complications.²⁶ Our findings support that educational level has a clear impact on knowledge level of postpartum women toward prevention of puerperal sepsis. Low level of education regarding puerperal sepsis may be associated with delay in seeking healthcare services which may increase the chance for maternal morbidity and mortality.²⁵

Table 5. Factors associated with reported self-care practices among postpartum women (N=343).

Variables	COR	p-value	95% CI		AOR	p-value	95% CI	
			Lower	Upper			Lower	Upper
Age group (years)								
18–27	Reference							
28–37	0.48	0.230	0.15	1.58	1.15	0.860	0.24	5.47
38–47	0.99	0.980	0.31	3.18	1.13	0.860	0.29	4.31
Educational level								
Primary	Reference							
Secondary	0.07	0.001	0.03	0.18	0.11	0.001	0.04	0.30
College/university	0.13	0.001	0.06	0.29	0.16	0.001	0.06	0.39
Marital status								
Single	Reference							
Married	1.41	0.500	0.52	3.87				
Cohabited	1.65	0.390	0.52	5.22				
Employment status								
Unemployed	Reference							
Employed	6.08	0.001	2.36	15.71	0.48	0.120	0.19	1.22
Self-employed	2.76	0.020	1.16	6.57	0.83	0.700	0.31	2.18
Income status (US\$) per day								
<1	Reference							
≥1	0.21	0.001	0.10	0.42	0.12	0.190	0.76	4.15
ANC visits								
<4 visits	Reference							
≥4 visits	1.96	0.001	1.51	2.53	1.21	0.041	1.49	3.27
Booking status (weeks)								
≤12	Reference							
>12	1.013	0.980	0.43	2.42				
Information source								
Media	Reference							
Friends	0.33	0.320	0.04	2.94				
Health workers	1.52	0.410	0.56	4.08				

COR: crude odds ratio; CI: confidence interval; AOR: adjusted odds ratio; ANC: antenatal care.

In this study, postpartum women who received health information from HCPs had a 1.06-fold increased chance of having adequate knowledge on prevention of puerperal sepsis. The association of HCPs information and adequate knowledge of postpartum woman was supported by a study conducted in India which showed that there was a significant association between information from HCPs and postnatal mothers' knowledge on postnatal care, including prevention of puerperal sepsis.²⁰ Many studies have shown the potential positive impact of effective education to helping fill the knowledge gap regarding key danger signs in the postpartum period.²⁶

One possible reason for postpartum women having inadequate knowledge on postnatal care including prevention of puerperal sepsis may be due to lack of health information from HCPs who may provide less attention to postnatal women compared to the care provided during pregnancy and/or delivery.^{20,27} Regardless of the reason for the difference, knowledge about of antenatal and postnatal

care has consistently been shown to increase with the number of ANC visits.^{26,28}

Other studies have shown that the number of ANC visits is significantly associated with pregnant women's knowledge on danger signs including obstetric danger signs and puerperal sepsis^{24,27} and provision of postpartum care.²⁹ Ensuring emphasis on provision of adequate ANC information for at least four ANC visits including postpartum health hygiene education is the key ways in reducing the risk of postpartum infections.^{26,30} Optimal prenatal care visits enable early detection, appropriate treatment, and timely referral for all postnatal women. Through ANC coverage of at least four visits, a pregnant woman will also ideally receive effective counseling and health teaching which are keys for self-care measures during pregnancy and postpartum period.

Concerning reported self-care practices among postpartum women in this study, only 11.4% had adequate practice for the prevention of infection after delivery. The low level of self-care practice observed in this study differed

from other studies, for example, a study conducted in Saveetha University, Thandalam, India, South in Asia, and in Karnataka, India, reported that postnatal women hygiene practice for prevention of infection was 36.7%, 66.8%, and 43.3%, respectively.^{16,15,31} The reason of low level of self-care practice for this study could be contributed by many factors, such as low knowledge regarding the cause of puerperal sepsis and its preventive measures.¹⁴ Also, HCPs may give less attention on instructing postnatal mothers about self-care for the prevention of puerperal sepsis of postnatal.¹⁵

In this study, we found a positive association between secondary education, college/university education, and reported self-care practice for prevention of puerperal sepsis. This is in line with the finding in the study by Gaafa et al. at Benha University Hospital, Egypt, which showed that postnatal women who had formal education was associated with poor health practice on puerperium care compared to those with secondary level of education.³² Regarding postnatal women who had more than four ANC visits had a 1.21-fold increased chance of having good self-care practice compared to those with fewer than four ANC visits. This is similar to various studies.^{16,32,33} The reason of similarity may be explained by fact that the attendance of ANC for more than four visits could be beneficial for mothers to receive more information regarding prevention of puerperal sepsis.

Limitation of the study

In this study, postnatal women were reporting on self-care practice which might have introduced recall bias of either over-reporting or under-reporting depending on the person's behavior in reporting the recent and past information. Convenience sampling might have caused selection bias.

Recommendations

There is a need of raising awareness on prevention of puerperal sepsis as well as ensuring its early detection and treatment. Effective health education should be given during antenatal and postnatal care visits in order to raise the awareness toward prevention of postpartum complications including puerperal sepsis. Considering of couple and establishing education strategies should be taken by health systems to ensure better serve postpartum women. Postnatal women together with their families need effective health education information concerning postpartum self-care practice to best ensure prevention and early detection of puerperal sepsis.

Conclusion

Self-care practices for prevention of puerperal sepsis among postpartum women in this study were low

compared to their knowledge. Low level of education was a key factor associated with low knowledge and self-care practices. Therefore, regular and intensive training regarding puerperal sepsis is urgently required especial to postnatal women with low level of education.

Author contribution(s)

Dorice B Nchimbi: Conceptualization; Data curation; Formal analysis; Methodology; Project administration; Validation; Writing—original draft; Writing—review and editing.

Angelina A Joho: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Supervision; Visualization; Writing—original draft; Writing—review and editing.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval and consent to participate

The study was approved by the Institutional Review Board of the University of Dodoma (UDOM/MA.84/261/01/85). Written informed consent was obtained from every participant. Strict ethical standards and procedures were adhered to and anonymization of the participants was ensured. Written informed consent was obtained.

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Supplemental material

Supplemental material for this article is available online.

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