International Journal of Research in Medical Sciences
*Sultana S et al. Int J Res Med Sci. 2018 Oct;6(10):3264-3269*
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20184029

**Original Research Article**

# Knowledge and practice regarding prevention of puerperal sepsis among postpartum women attending a private hospital in Bangladesh

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**Received:** 26 July 2018
**Accepted:** 29 August 2018

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## ABSTRACT

**Background:** Puerperal sepsis is a common pregnancy-related condition that could eventually lead to obstetric shock or sometimes death. In developing world, the puerperal sepsis is the second most cause of maternal mortality. Cases of Maternal mortality have not declined in spite of efforts by both the public and private sector to prevent such deaths.
**Methods:** A descriptive cross-sectional study was conducted among 150 postpartum mothers who attended Ibn Sina Medical College Hospital (ISMCH) Bangladesh during August to December 2017. A non-probability purposive sampling technique was used to select the study participants and the data was collected using pre-tested semi-structured questionnaire by face to face interview. The collected information was analysed using SPSS 22.0 version.
**Results:** About 50.7% of the study participants were in the age group 19-29 years and the mean age of the study participants was 29.6±15.9 years. More than seven-tenths (73.3%) of the study participants were Muslims and the majority (24.7%) of the study participants had senior secondary certificate. Most of the study participants (62%) were living in urban area and only 18.7% were service holders. Only 39.3% of the respondents think that they have sufficient knowledge regarding prevention of puerperal sepsis and about 78% of the study participants mentioned that getting immediate medical care for any wounds or even seasonal diseases prevents puerperal sepsis. About 37.4% were disagreed to avoid sexual intercourse during last 2 months of pregnancy prevents puerperal sepsis and about 51.3% were agreed to avoid appearances in crowded and unhygienic places, this will prevent from catching respiratory diseases.
**Conclusions:** The findings reported that most of the study participants had poor level of knowledge regarding prevention of puerperal sepsis. However, the study participants had satisfactory practice level about prevention of puerperal sepsis. It further reveals that educational level and age of the study participants was found statistically significant with knowledge about prevention of puerperal sepsis.

**Keywords:** Knowledge, Practice, Prevention, Puerperal sepsis, Postpartum

## INTRODUCTION

Puerperal sepsis is a common pregnancy-related condition that could eventually lead to obstetric shock or even death in some cases. In developing world, it has been reported that puerperal sepsis is the second most cause of maternal mortality. Maternal mortality cases have not declined in spite of efforts by both sectors

(public and private) to prevent such deaths.[1] Puerperal sepsis is a serious type of septicemia contracted by women during or soon after child birth, miscarriage or unsafe abortion.[2] It has been reported that some morbidities associated with puerperal sepsis includes; Septicemia, Vaginal discharge, Peritonitis or abscess formation leading to surgery, Endotoxic shock, Pelvic abscess, and finally Mortality among others.[3]

Puerperal sepsis is said to be the second most common cause of maternal morbidity and mortality in the developing world.[4] Some studies from high-income countries reported that an incidence of maternal morbidity due to sepsis has been increased from 0.65 per 1000 deliveries in 2002 to 1.13 per 100,000 maternities in 2008.[5] Another study also reported that puerperal sepsis is among the cause of various forms of morbidity among the woman.[6] Campaign about the awareness of sepsis can reduce the overall risk of mortality and morbidity from maternal sepsis in high income and low-income countries. A study has shown that predisposing factors to puerperal sepsis includes; anaemia in pregnancy, prolonged labour, frequent vaginal examination, premature rupture of membranes and use of un sterilized/unwashed instruments during delivery.[1]

Above 70% of maternal deaths in the developing world are caused by sepsis among other causes including; hemorrhage, hypertension disorders, unsafe abortion, and obstructed labor. Sepsis was the most frequent underlying cause of maternal morbidity and mortality in the 19th century, responsible for 50% of all cases. It is the leading cause of death in the intensive care unit in the United States.[7] In Bangladesh, information on puerperal sepsis is limited due to socio-cultural behavior related to health care seeking pattern of the pregnant women. However, available data shows that the incidence of puerperal sepsis in Bangladesh is 4.5 per 100 live births.[8] Two hospital-based studies conducted in Mymensingh Medical College Hospital and Dhaka Medical Collage Hospital in Bangladesh revealed that maternal mortality due to puerperal sepsis in these two government health facilities was 17 and 20.3 per 100 live births respectively.[9,10] A community survey in Bangladesh reported that more than three-quarters of women suffered from a non-trivial illness during the first 6 weeks postpartum.[11]

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.[12] Pregnancy-related sepsis was the commonest cause of all maternal deaths. 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.[13] So this study was aimed to assess the level of knowledge and practices regarding prevention of puerperal sepsis among postpartum women attending a private hospital in Bangladesh.

## METHODS

A total of 150 postpartum mothers who attended Ibn Sina Medical College Hospital (ISMCH) Bangladesh, during the period of this study (August to December 2017) were selected using purposive sampling technique. A descriptive cross-sectional study was conducted among the postpartum mothers and the study participants that met the inclusion criteria were included i.e. who were available and willing to participate during the period of study. The study participants who were seriously sick were excluded.

A set of semi-structured questionnaire was used in this study to collect the information. The questionnaire was divided into three categories: socio-demographic characteristics i.e. age, marital status, income, residence, religion, education and occupation of the study participants. Another part composed of a knowledge regarding prevention of puerperal sepsis related questions and the last part of it contained the practices regarding prevention of puerperal sepsis related questions as well.

### *Statistical analysis*

Data was collected using pre-tested semi-structured questionnaire by face to face interview after taking verbal consent for participation from the postpartum mothers. All the collected information was coded numerically and entered into the SPSS 22.0 version for the analysis. The descriptive analysis of data was presented as tables and some analysis using Pearson Chi-square test was also done, a p-value of less than or 0.05 was considered statistically significant.

An official letter of request for access to official information was sent from Department of Public Health, Daffodil International University to the Management of Ibn Sina Medical College and Hospital, Dhaka Bangladesh. This made it possible to collect the necessary data and information. Oral request was made to the study participants in order to have their consent of participation. The study was approved by Faculty of Allied Health Sciences Ethics Committee, Daffodil International University Dhaka Bangladesh.

## RESULTS

### *Socio-demographic characteristics of the respondents*

Table 1 shows that slightly above half (50.7) of the study participants were in the age group 19-29 years, followed by age group 30-40 years (36.7%) and the mean age of the participants was 29.6±15.9 years. About 73.3% of the study participants were Muslims and the remaining were non-Muslims. The majority (24.7%) of the study participants had senior secondary certificate, followed by higher secondary certificate (22.0%). About 20.7% of the study participants had no formal education and 18.7% of them had bachelor's degree and above level of education.

The remaining (14.0%) had primary level of education. Most of the study participants (62%) were living in urban areas, followed by about 24% who were living in slum area and the rest were living in rural area (14.0%). Above three-fifths (61.3%) were housewives; followed by service holders (18.7%), daily laborers (11.3%), and the remaining were doing business (8.7%).

More than half (57.3%) of the study participant's family monthly income was <10000 taka per month, followed by 24% those that were earning 10000-20000 taka and the rest were earning more than 20000 taka per month. About 60.7% of the respondents were from nuclear family and the rest were from joint family (39.3%). Above half (58.7%) of the respondents had 1-2 child, followed by 3-4 (38%) and the rest had above 4 children (3.3%).

**Table 1: Socio-demographic characteristics of the respondents.**

| Variables | Frequency | Percentage |
|---|---|---|
| **Age (years)** | | |
| ≤18 | 5 | 3.3 |
| 19-29 | 76 | 50.7 |
| 30-40 | 55 | 36.7 |
| 41 and above | 14 | 9.3 |
| Mean±SD | 29.6±15.9 | |
| **Religion** | | |
| Muslim | 110 | 73.3 |
| Non-Muslim | 40 | 26.7 |
| **Educational level** | | |
| No formal education | 31 | 20.7 |
| Primary | 21 | 14.0 |
| SSC | 37 | 24.7 |
| HSC | 33 | 22.0 |
| Bachelor and above | 28 | 18.7 |
| **Residence** | | |
| Urban | 93 | 62.0 |
| Rural | 21 | 14.0 |
| Slum | 36 | 24.0 |
| Occupation | | |
| Housewife | 92 | 61.3 |
| Service holder | 28 | 18.7 |
| Business | 13 | 8.7 |
| Daily labor | 17 | 11.3 |
| **Income (taka)** | | |
| <10,000 | 86 | 57.3 |
| 10,000-20,000 | 36 | 24.0 |
| >20,000 | 28 | 18.7 |
| Family type | | |
| Joint family | 59 | 39.3 |
| Nuclear family | 91 | 60.7 |
| **Number of children** | | |
| 1-2 | 88 | 58.7 |
| 3-4 | 57 | 38.0 |
| Above 4 | 5 | 3.3 |

***Knowledge regarding prevention of puerperal sepsis***

Table 2 showed that about 39.3% of the study participants think that they have sufficient knowledge regarding prevention of puerperal sepsis and about 70% mentioned that maintain a healthy hemoglobin preferably above 11gm prevents puerperal sepsis.

**Table 2: Knowledge regarding prevention of puerperal sepsis (n=150).**

| Variables | F | % |
|---|---|---|
| Sufficient knowledge regarding puerperal sepsis | | |
| Yes | 59 | 39.3 |
| No | 91 | 60.7 |
| Maintain a healthy hemoglobin level, preferably above 11gm | | |
| Yes | 45 | 30.0 |
| No | 105 | 70.0 |
| Get immediate medical care for any wounds or even seasonal diseases | | |
| Yes | 117 | 78.0 |
| No | 33 | 22.0 |
| Ensure balance diet can prevents puerperal sepsis | | |
| Yes | 50 | 33.3 |
| No | 100 | 66.7 |
| Have plenty of fluid intake can prevent puerperal sepsis | | |
| Yes | 43 | 28.7 |
| No | 107 | 71.3 |
| Avoid sexual intercourse during last 2 months of pregnancy | | |
| Yes | 49 | 32.7 |
| No | 101 | 67.3 |
| Keep body resistance high – by eating well and treating all ailments | | |
| Yes | 111 | 74.0 |
| No | 39 | 26.0 |
| Maintain proper hygiene especially around perineum | | |
| Yes | 139 | 92.7 |
| No | 11 | 7.3 |
| Keep the area dry, ventilated and clean | | |
| Yes | 123 | 82.0 |
| No | 27 | 18.0 |
| Monitor vital parameters such as pulse and body temperature | | |
| Yes | 105 | 70.0 |
| No | 45 | 30.0 |
| The environment should be free of dust, by frequent mopping and restricting visitors | | |
| Yes | 114 | 76.0 |
| No | 36 | 24.0 |
| During periods, use soft sanitary napkins. Change it frequently and maintain hygiene | | |
| Yes | 130 | 86.7 |
| No | 20 | 13.3 |

About 78% of the study participants mentioned that getting immediate medical care for any wounds or even seasonal diseases prevents puerperal sepsis and two-third

(66.7%) of the study participants don't know that ensuring balanced diet can prevents puerperal sepsis. close to three-tenths (28.7%) knew that having plenty of fluid intake can prevent puerperal sepsis and only 32.7% knew that avoiding sexual intercourse during last 2 months of pregnancy can prevent puerperal sepsis. About 74% mentioned that keep body resistance high by eating well and treating all ailments and above nine-tenth (92.7%) of the respondents knew that maintaining proper hygiene especially around perineum prevents puerperal sepsis. Slightly above eight-tenth (82%) knew that keeping the area dry, ventilated and clean prevents puerperal sepsis and about 70% knew that monitoring vital parameters such as pulse and body temperature prevents puerperal sepsis. more than seven-tenths (76%) knew that the environment should be free of dust by frequent mopping and restricting visitors prevent puerperal sepsis and more than eight-tenth (86.7%) knew that during periods, use soft sanitary napkins, change it frequently and maintain hygiene prevents puerperal sepsis.

***Practice regarding prevention of puerperal sepsis***

Table 3 shows that about 47.3% of the study participants had neutral opinion about maintaining a healthy hemoglobin level, preferably above 11gm and 76.7% agreed to get immediate medical care for any wounds or even seasonal diseases.

**Table 3: Practice regarding prevention of puerperal sepsis (n=150).**

| Items | Disagree N (%) | Neutral N (%) | Agree N (%) |
|---|---|---|---|
| I maintain a healthy hemoglobin level, preferably above 11gm | 17 (11.3) | 71 (47.3) | 62 (41.3) |
| I get immediate medical care for any wounds or even seasonal diseases | 17 (11.3) | 18 (12.0) | 115 (76.7) |
| I ensure balanced diet-consult doctor and discuss any conditions | 31 (20.7) | 21 (14.0) | 98 (65.3) |
| I have plenty of fluid intake | 25 (16.6) | 40 (26.7) | 85 (56.7) |
| I avoid sexual intercourse during last 2 months of pregnancy | 56 (37.4) | 45 (30.0) | 49 (32.7) |
| I avoid appearances in crowded and unhygienic places, this will prevent me from catching respiratory diseases | 40 (26.6) | 33 (22.0) | 77 (51.3) |
| I Keep body resistance high - by eating well and treating all ailments | 22 (14.7) | 48 (32.0) | 80 (53.4) |
| I maintain proper hygiene especially around perineum | 20 (13.3) | 12 (8.0) | 118 (78.7) |
| I Keep the area dry, ventilated and clean | -- | 15 (10.0) | 135 (90.0) |
| I monitor vital parameters such as pulse and body temperature | 68 (45.4) | 22 (14.7) | 60 (40.0) |
| I keep the environment free of dust, by frequent mopping and restricting visitors | 15 (10.0) | 15 (10.0) | 120 (80.0) |
| I use soft sanitary napkins. During periods, I Change it frequently and maintain hygiene | -- | 15 (10.0) | 135 (90.0) |

About 65.3% of the study participants were agreed to ensure balanced diet consult doctor and discuss any conditions and little above half (56.7%) were agreed to have plenty of fluid intake. Little above three-fifths (37.4%) disagreed to avoid sexual intercourse during last 2 months of pregnancy prevents puerperal sepsis and about 51.3% were agreed to avoid appearances in crowded and unhygienic places, this will prevent me from catching respiratory diseases. About 53.4% were agreed to keep body resistance high by eating well and treating all ailments and about 78.7% of the study participants were agreed to maintain proper hygiene especially around perineum. Nine-tenths (90.0%) also agreed to keep the area dry, ventilated and clean and above four- tenths (45.4%) disagreed to monitor vital parameters such as pulse and body temperature. Four-fifths (80.0%) agreed to keep the environment free of dust by frequent mopping and restricting visitors and 90.0% were also agreed to use soft sanitary napkins, during periods and change it frequently and maintain hygiene.

***Average knowledge and practice scores***

Table 4 showed that the study participants had poor level of knowledge regarding prevention of puerperal sepsis because only 38.7% have answered correctly and most of the study participants had satisfactory practice level because about 43.3% have answered correctly.

**Table 4: Average knowledge and practice scores.**

| Score | Knowledge level n (%) | Practice level n (%) |
|---|---|---|
| Correct (Yes) | 58 (38.7) | 65 (43.3) |
| Incorrect (No) | 92 (61.3) | 85 (56.7) |
| Total | 150 (100.0) | 150 (100.0) |

***Association between level of knowledge and socio-demographic characteristics***

Table 5 showed that most of the study participants that answered correctly had bachelor degree and above and it has been found that educational level was statistically significant (P <0.001) with knowledge about prevention of puerperal sepsis. The age of the study participants also was found to be statistically significant (P <0.001) with knowledge about prevention of puerperal sepsis. However, the residence of the respondents was not statistically significant (P >0.001) with knowledge about prevention of puerperal sepsis.

**Table 5: Association between level of knowledge and socio-demographic characteristics.**

| Variables | Level of knowledge | | | Chi-square | p-value |
|---|---|---|---|---|---|
| | Correct (Yes) | Incorrect (No) | Total | | |
| **Educational level** | | | | | |
| No formal education | 2 | 29 | 31 | | |
| Primary education | 5 | 16 | 21 | 64.084 | 0.000 |
| SSC | 10 | 27 | 37 | | |
| HSC | 14 | 19 | 33 | | |
| Bachelor and above | 27 | 9 | 36 | | |
| **Age (years)** | | | | | |
| ≤18 | 4 | 1 | 5 | | |
| 19-29 | 12 | 64 | 76 | 43.569 | 0.000 |
| 30-40 | 32 | 23 | 55 | | |
| 41 and above | 10 | 4 | 14 | | |
| **Residence** | | | | | |
| Urban | 30 | 63 | 93 | | |
| Rural | 11 | 10 | 21 | 8.350 | 0.080 |
| Slum | 17 | 19 | 36 | | |
| Total | 58 | 92 | 150 | | |

## DISCUSSION

In this study above half (50.7) of the study participants were in the age group 19-29 years and the mean age of the participants was 29.6±15.9 years. This is inconsistent to the finding of another study on puerperal sepsis.[14] The majority (24.7%) of the study participants had senior secondary certificate and more than half (57.3%) of the study participant's family monthly income was <10000 taka per month. A study conducted in Zambia identified that low socio-economic status is a risk factor for developing puerperal sepsis.[15]

About two-third (66.7%) of the study participants don't know that ensuring balanced diet can prevents puerperal sepsis. A study reported that health and nutrition education intervention enable the women take away some of the unhealthy traditional postpartum practices.[16] More than seven-tenths (76%) knew that the environment should be free of dust by frequent mopping and restricting visitors prevent puerperal sepsis and more than eight-tenth (86.7%) knew that during periods, use soft sanitary napkins, change it frequently and maintain hygiene prevents puerperal sepsis. One of the predisposing conditions usually leading to puerperal sepsis is the home delivery in unhygienic conditions.[17]

About 78.7% of the study participants were agreed to maintain proper hygiene especially around perineum. A study reported that puerperal women should practice strict hygiene in her postpartum period.[18]

Most of the study participants that gave answer correctly about knowledge on prevention of puerperal sepsis had bachelor degree and above and it has been found that educational level was statistically significant (P <0.001) with knowledge about prevention of puerperal sepsis. This reason proved the findings in the study which revealed that 96 percent women were uneducated and only the rest had below primary level of education who developed puerperal sepsis.[19] The residence of the study participants was not statistically significant (P >0.001) with knowledge about prevention of puerperal sepsis. A study from Pakistan identified that 86 percent puerperal sepsis cases were from the rural areas compared to 13 percent from the urban areas.[6]

## CONCLUSION

The findings reported that most of the study participants had poor level of knowledge regarding prevention of puerperal sepsis. However, the study participants had satisfactory practice level about prevention of puerperal

sepsis. It further reveals that educational level and age of the study participants was found statistically significant with knowledge about prevention of puerperal sepsis. However the residence of the respondents was found to be not significantly associated with level of knowledge about prevention of puerperal sepsis.

***Recommendations***

There is need for awareness creation on Puerperal Sepsis. Community health workers and Health care staff should be holding frequent educational camps. There is a need to enlighten the community on the need for ANC attendance, skilled attendant at delivery and hospital delivery under aseptic conditions and also maintaining high hygiene after delivery.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee of Allied Health Sciences, Daffodil International University, Dhaka, Bangladesh*

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**Cite this article as:** Sultana S, Methe FZ, Muhammad F, Chowdhury ABM. Knowledge and practice regarding prevention of puerperal sepsis among postpartum women attending a private hospital in Bangladesh. Int J Res Med Sci 2018;6:3264-9.