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Knowledge, Attitude and Practice on Maternal Sepsis Among Mothers in Kuantan, Pahang, Malaysia

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Abstract

Maternal sepsis is one of the main contributors to maternal mortality worldwide. Malaysia has the least number of cases associated with maternal sepsis in 2015. However, the number of cases has increase by eight cases in 2017 as stated by the Family Health Development Division Ministry of Health Malaysia. Hence, this study aimed to investigate the knowledge, attitude and practice on maternal sepsis and its associated factors among mothers in Kuantan,Pahang. A cross sectional study design with convenience sampling were applied to 100 respondents among mothers based on specific criteria. From the findings, the majority of the mothers in Kuantan has good level of knowledge (52%), whereas the level of attitude was moderate (85%). In addition, the finding shows that the level of practice among mothers in Kuantan was excellent (76%). Maternal knowledge significantly associated with the age of the mother with p = 0.007. There was a significant correlation between knowledge and attitude (r = 0.433, p = less than 0.001) and knowledge with practice (r = 0.236, p = 0.018). While attitude and practice (r = 0.194, p = 0.053) showed no significant correlation. This study shows that the mothers in Kuantan, Pahang had good level of knowledge, moderate attitude towards maternal sepsis and excellent practice in preventing maternal sepsis. Continues education on maternal sepsis and other risk factors of maternal mortality should be done especially to young mothers in order to control and reduce the the rates of maternal mortality. Furthermore, this can be a benchmark initiative to achieve the targets in reducing maternal mortality rate in Malaysia as outlined under sustainable development goals 3 (SDG3).

Keywords: Maternal Sepsis, Pregnancy, Pregnancy complication

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Introduction

Maternal sepsis is a life-threatening condition resulting in malfunctioning of an organ caused by infection during pregnancy, childbirth, post-abortion, or postpartum period [22]. It is responsible for the most postpartum deaths worldwide and remains to be the third most direct cause of maternal mortality accounting for 11 % of pregnancy-related cases [6]. Maternal sepsis is a leading cause of maternal mortality which accounts for 28% and 15% of maternal death and maternal admission to the Intensive Care Unit (ICU) in the United State [2].

The potential risk factors that lead to maternal sepsis includes pregnancy characteristics, the mode of delivery, and chronic disease experienced by the mothers [10]. The low and middle-income countries are more prone to have maternal sepsis [15]. The most important obstetric risk factor of maternal sepsis is operative intervention and caesarean delivery associated with the increase of infectious fatalities for about 5-20 % compared to vaginal birth [3]. The other risk factor of maternal sepsis is due to spontaneous condition during labor and childbirth which includes multiple pregnancies, preterm premature rupture of the membrane, prolonged rupture of the membrane, and retained products of conception [21,3].

The major common causes of sepsis are chorioamnionitis, endometritis, and pneumonia with 59% of the cases involving pregnant and postpartum women hospitalized in the hospital [5]. The existence of chorioamnionitis would increase the incidence of unexpected outcomes by 11.6 double to normal pregnancy without chorioamnionitis [7]. This comparison is due to the extended exposure that could raise the chances of infection. The intrauterine infection can cause maternal sepsis from the lower genital tract and urinary tract infection [3]. During pregnancy, smooth muscle relaxation and ureter obstruction cause renal collection systems to dilate, thus urinary tract are more prone to infection resulting in pyelonephritis [13].

Diagnosing sepsis during pregnancy and postpartum period would be difficult due to physiological changes in pregnancy that can imitate symptoms of sepsis. The inability to perceive sepsis early is a huge reason for preventable bleakness that brings about deferred treatment and heightened care to prolong the mothers' life [3]. Nevertheless, the successful treatment and prompt care for patients with sepsis can improve the outcome of the sepsis. The Surviving Sepsis Campaign (SSC) and early goal-directed therapy (EGDT) act as guidelines to manage the sepsis from worsening [14]. The initial appropriate antibiotic therapy is crucial determinant for the survival of sepsis and septic shock [2]. It is further emphasized that the initiation of antibiotics within 1 hour following the onset of hypotension was associated with a 79.9% survival rate to hospital discharge while the delay in every hour in the first six hours will reduce 7.6% of survival rate.

The study regarding knowledge, attitude, and practice (KAP) associated with maternal sepsis in Bangladesh and India was considered poor [17,4]. Nevertheless, the level of KAP of maternal sepsis in Malaysia has not yet been studied. It can relate to the increasing cases of maternal sepsis in Malaysia year by year. Thus, this study was conducted to construct and validate the questionnaire as research tools in the study in order to evaluate the level of KAP regarding maternal sepsis among mothers in Kuantan, Pahang. Moreover, the study aims to determine the factors that are associated with KAP. The correlation between knowledge, attitude, and practice could be identified through this study. The information of the study will be used as a benchmark to upgrade and develop health education among mothers and improve their knowledge towards maternal sepsis.

Methodology

Study Ethics

The ethical approval was obtained from International Islamic University Malaysia Research Ethical Committee (IREC), [IIUM/504/14/112/REC-2020-BS (KAHS)] to conduct this study.

Study Design and Subject Recruitment

The study was conducted in Kuantan, Pahang. Cross-sectional study design was applied in this study. The sample of the study was selected using convenience sampling. The targeted respondent was selected based on the inclusion and exclusion criteria. The inclusion criteria involved the women who were between 18 to 40 years old and had experience in pregnancy or delivery at least once. The women who were not residents of Kuantan and were involuntary to participate in the study were excluded. Sample size was calculated by using an estimation table for a population with absolute precision, the sample size was calculated by using the formula below.

$$n = \frac{Z^2 p(1-p)}{d^2}$$

n = Sample size
Z = Majority of the studies, significant value of p: p <0.05, hence 1.96 is used in the formula
P = Expected proportion in population from previous study
d = Precision decided which is 0.05
P = 0.06, n = 87

This study involved participation in filling a survey form, and it was estimated that 15% of the participant dropped out of this study which was approximately 13 participants. Thus, the total number of participants that was employed for this study was 100 respondents.

Study Tools

The self-administrated questionnaire was outlined based on a summated rating scale which consists of five point Likert scale involving strongly disagree, disagree, undecided, agree, and strongly agreed. The first section was about the socio-demographic data followed by attitude and practice on maternal sepsis. Each of the knowledge, attitude and practice questionnaires comprised of ten questions regarding maternal sepsis. The content validity was accessed by five experts and face validity was applied to validate a questionnaire. The validity and reliability of the questionnaire was calculated by using Cronbach's alpha. Then, pilot study was conducted among 15 participants before actual data was collected.

Data Collection

Data collection was conducted within four months starting from December 2019 to March 2020. The participants were required to fill in the consent form before participating in the study to prove that they had agreed to participate in the study. In the written consent, it was explicitly stated that all the data obtained by participant in the study would be kept private and confidential.

Data Analysis

The categorized level of KAP based on the total score of KAP obtained by the respondent that was modified from Bloom's cut-off point [12]. The good score was between 80-100% (40-50 score), moderate score was between 60-79% (30-39 score) and poor if the score was between below than 60% (≤ 29 score) [12]. Statistical Package for Social Sciences (SPSS) version 12.0.1 was used to interpret the data. Descriptive statistic was used to analyze the socio-demographic characteristic of the respondents. It was analyzed by using frequency and percentage (%) format. Independent t-test and one-way ANOVA were used. The test was applied to determine the socio-demographic factors that associate with KAP. Meanwhile, the Pearson correlation test was used to calculate the correlation between KAP among mothers.

Results

The result of the reliability of the questionnaire obtained from Cronbach's alpha coefficient for section knowledge was 0.896, attitude was 0.840 and practice was 0.894 indicates that the questionnaire is in reliable measure. Table 1 illustrates the summary of the socio-demographic and pregnancy related characteristics of respondent participation in this study. The mean of the respondent was 31 years old. The highest participation of respondents was between the age of 30-34 years old with 44 % (n=44) and the lowest participation was between the age of 35-40 years old with 17% (n=17). Majority of the respondent had a Bachelor's degree as their level of study which was about 39 % (n=39). Majority were housewife with 31% (n=31), who gain monthly salary in between RM 1,000 to RM 3,900 per month 43% (n=43) and have one to two children 56% (n=56). The study was done to observe how many of the respondents skipped the antenatal check-up after delivering a baby. Out of 100, 84% (n=84) of the respondents had given full attendants for antenatal check-up meanwhile 10 % (n=10) of the respondents had skipped the antenatal check-up for more than five times.

Table 1 The socio-demographic and pregnancy related characteristics of respondent (n=100)

Characteristic	Frequency (n)	Percentage (%)
Maternal Age		
18-29	39	39
30-34	44	44
35-40	17	17
Level of Education		
Primary school	2	2
Secondary school	24	24
STPM/STAM/Diploma/Certificate/Foundation	31	31
Bachelors	39	39
PhD	4	4
Occupation		
Government servant	30	30
Self-employed/business	18	18
Civil Servant	21	21
Housewife	31	31
Monthly Income		
< RM 1000	39	39
RM 1,000 - RM 3,900	43	43
RM 4,000 - RM 7,900	16	16
RM 8,000 - RM 20,000	2	2
Number of Children		
1-2 children	59	59
3-4 children	35	35
5-6 children	6	6
Frequency Missed of Antenatal check-up		
1-2 times	3	3
3-4 times	3	3
More than five	10	10
None	84	84

Table 2 shows the score of the respondents on questionnaires and the level of knowledge, attitude, and practice on maternal sepsis. Based on that, half of the respondents, 52 (52%) had good knowledge of maternal sepsis followed by 47 (47%) who had moderate knowledge and only 1 (1%) had poor knowledge of maternal sepsis. Meanwhile, the majority of the respondents, 85 (85%) had moderate attitude and there were 5 (5 %) of the respondents who had a good attitude and 10 (10%) of respondents who had a poor attitude towards maternal sepsis. As for practices score, majority of the respondents 76 (76%) had a good practice on maternal sepsis. However, there were 24 (24%) of the respondents who had moderate practices on maternal sepsis.

Table 2 Score and level of knowledge, attitude, and practice on maternal sepsis (n=100)

Level	Frequency	Percentage
Knowledge		
Good (40-50)	**52**	**52**
Moderate (30-39)	47	47
Poor (≤29)	1	1
Attitude		
Good (40-50)	5	5
Moderate (30-39)	**85**	**85**
Poor (≤29)	10	10
Practice		
Good (40-50)	**76**	**76**
Moderate (30-39)	24	24
Poor (≤29)	0	0

Note: The total of highest frequency from each category are highlighted in bold.

Parametric test was used to assess the association of socio-demographic factors with the score of KAP. The factors that were assessed were maternal age, level of education, occupation, monthly income, number of the children and frequency missed of antenatal check-up. Based on the finding, maternal age showed a significant association with the score of knowledge on maternal sepsis with $p = 0.007$ while the other factors showed no significant association with the score of KAP on maternal sepsis which ranged from $p = 0.057$ to 0.994 as p-value was more than 0.05.

The relationship between knowledge, attitude and practice score was investigated using Pearson product-moment correlation coefficient because the data was approximately normally distributed. Based on Table 3, there was fair correlation between the knowledge and attitude score as the value of correlation coefficients $r = 0.433$. However, the correlation between knowledge with practice score and correlation between attitude score and practice score showed little correlation of r value, $r = 0.236$ and r = 0.194, respectively. Based on the finding, knowledge with attitude score and knowledge and practices score of the respondents were statistically significant while attitude with practice score showed the opposite.

Table 3 The correlation of knowledge, attitude, and practice on maternal sepsis

Variable	Correlation Coefficients, *r*	*p*-value
Knowledge score - Attitude score	0.433	> 0.001
Knowledge score - Practice score	0.236	0.018
Attitude score - Practice score	0.194	0.053

Discussion

The study presents a comprehensive picture delineating knowledge, attitude, and practice on maternal sepsis among mothers in Kuantan, Pahang. This study is aligned with the fifth aim of Millennium Development Goal of the Union Nations (MDG) to reduce maternal death mortality and improve the need for access to great quality reproductive medicinal services and powerful interventions [22]. In Malaysia, the number of maternal deaths due to sepsis has risen significantly with eight cases in 2017 compared to none in 2015 [8]. The preventive measure that can be approached was the implementation of hygienic practice in routine health as the study done proved that high maternal mortality due to the lack of handwashing technique and perinatal hygiene by uncertified midwife led to the progress of sepsis associated in 60 % of home delivery [9]. The recognition of the symptoms, risks, and prevention of maternal sepsis is crucial to prevent the delay in treatment that might lead to the risk of mortality due to maternal sepsis.

The study found that 52% of the mothers in Kuantan had good knowledge of maternal sepsis compared to the population studied in India where 36.33% had a good level of knowledge on maternal sepsis [16]. Another study in Bangladesh showed low knowledge on maternal sepsis as there was only 38.7% of participants who answered the questionnaire correctly [17]. Malaysia has made remarkable steps in reducing maternal death. The outstanding reduction of maternal death is due to multiple advancement strategies in health care services to accomplish goals to achieve regenerative wellbeing by 2015 [1]. Moreover, it is also highlighted that the health services in Malaysia also covers the rural area to optimize the health care of the mother. Thus, it was recommended that the knowledge toward safety in delivery could be emphasized, and the negative thought and practice about maternal care could be avoided.

The finding revealed the level of attitude and practice toward maternal sepsis among mothers in Kuantan. It shows that the mother had a moderate attitude toward maternal sepsis (85%) as this finding examined the attitude of the mother towards the identification of symptoms, risks, and management of maternal sepsis while the majority of the respondents contributing 76 percent had good practice towards maternal sepsis. This study was not consistent with

by Sarkar et al., (2019), as their finding showed poor practices toward maternal sepsis. This difference could be related to the difference in study participants where the participation in the study was not generalizing on the postnatal mothers attending the hospital [16,17]. Moreover, the other possible factor would be due to the lack of postnatal care among the mothers as the study found that most of the mothers had not been aware of the prevention of maternal sepsis [16]. Thus, it is crucially important to spread the appropriate attitude and practice on the prevention of maternal sepsis in order to sustain the mother's health during pregnancy and the postnatal period.

Besides that, the finding found that maternal age was significantly associated with the knowledge of the maternal sepsis. The mothers within the age group of 30-34 years old had a higher average on knowledge, attitude, and practice as compared to other groups. It was suggested that the possible explanation could be that this age group would have a better understanding and practice of maternal sepsis. This association was consistent with the study done in Bangladesh and India [17,11]. In contrast, their study also shows that the education level was associated with knowledge and practice where the finding of this study was literally the opposite to this study. According to a study done by Taskin et al., (2016), they found that lower socioeconomic status was significantly higher among mothers in Bangladesh. They identified that 97.1% of cases of maternal sepsis involved mothers coming from lower socioeconomic. However, this study showed no significant difference in the socioeconomic income of the mother. A possible discrepancy and justification for this finding might be due to the distinction in socio-segment states of the respondents in the study region as most of the women in Bangladesh were burdened by monetary and social condition as well as having restricted access to sufficient health care services compared to Malaysia [18]. The author also mentioned that the study carried out in Zambia found that low socioeconomic status was a risk factor for the development of maternal sepsis. It was further verified by Say et al., (2014), that one in ten maternal deaths was associated with maternal sepsis occurring in low and middle-income country. Therefore, it was suggested that the socio-economic factors might influence individual's knowledge, attitude, and practice.

The study showed that there was a significant correlation between knowledge with attitude of maternal sepsis and practices with attitude of maternal sepsis as *p*-value was less than 0.05. Meanwhile, the correlation between attitude and practice of maternal sepsis did not show a significant correlation towards maternal sepsis. The correlation was moderately correlated with knowledge and attitude (r = 0.433, p = less than 0.001) as shown in Table 3. Hence, it proved that the knowledge does correlate with attitude and practice. Furthermore, low relationship between knowledge with practice (r = 0.236, p = 0.018) and attitude and practice (r = 0.194, p = 0.053) was portrayed in Table 3, correspondingly. Another study likewise demonstrated a practically comparable pattern where most of the mothers will have inspirational mentalities when they have better information relating to this issue [19]. Based on this finding, this would give the meaning that the knowledge, attitude, and practice influenced each other. It can be proposed that the higher level of knowledge would give a great impact on the attitude and practice of the respondents. Thus, it was suggested the awareness campaign might contribute to the improvement of the mother's knowledge to embrace prevention measures, discover the risks of infection complications, and even drive changes in clinical practices [5]. Through awareness campaigns, it would promote the quality of maternal life through the education of maternal care during pregnancy and antennal care. Other than that, it would bring advantages especially for the first-timer mothers.

Conclusion

Despite of acceptable level of knowledge, attitude and practice on maternal sepsis in Kuantan Pahang, it is still remains among the major causes to maternal mortality in our countries. Continuous education especially to young mothers should be done as an initiative to prevent maternal sepsis and treat is as a serious maternal condition.

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References

1. Achanna, S., Krishnaswamy, G., Ponnampalam, P., & Bondhu, A. (2018). Maternal Mortality in Malaysia: Progress Made Towards Millennium Development Goal (MDG) 5 – An Analysis of Published Data. Knowledge Enterprises Incorporated Journals, 6(2), 1–14. Retrieved from http://journals.ke-i.org/index.php/mra
2. Albright, C. M., Mehta, N. D., Rouse, D. J., & Hughes, B. L. (2016). Sepsis in Pregnancy. The Journal of Perinatal & Neonatal Nursing, 30(2), 95-105. doi:10.1097/jpn.0000000000000159
3. Ali, A., & Lamont, R. F. (2019). Recent advances in the diagnosis and management of sepsis in pregnancy. F1000Research, 8, 1546. doi:10.12688/f1000research.18736.1
4. Amrita, & Roy, R. B. (2015). Integrating knowledge, attitude and practice in decision model for maternity care in emerging economy. 2015 IEEE Global Humanitarian Technology Conference (GHTC). doi:10.1109/ghtc.2015.7343957

5. Bauer, M. E., Housey, M., Bauer, S. T., Behrmann, S., Chau, A., Clancy, C., … Bateman, B. T. (2018). Risk Factors, Etiologies, and Screening Tools for Sepsis in Pregnant Women. Anesthesia & Analgesia, 1. doi:10.1213/ane.0000000000003709
6. Bonet, M., Souza, J. P., Abalos, E., Fawole, B., Knight, M., Kouanda, S., … Metin Gülmezoglu, A. (2018). The global maternal sepsis study and awareness campaign (GLOSS): study protocol. Reproductive Health, 15(1). doi:10.1186/s12978-017-0437-8
7. Endale, T. (2016). Maternal and fetal outcomes in term premature rupture of membrane. World Journal of Emergency Medicine, 7(2), 147. https://doi.org/10.5847/wjem.j.1920-8642.2016.02.011
8. Family Health Development Division Ministry of Health Malaysia. (2017). Brief info on Maternal Death in Malaysia 2017. Retrieved from fh.moh.gov.my/v3/index.php/component/jdownloads/send/18-sektor-kesihatan-ibu/576-bulletin-cemd-2017?Itemid=0
9. Greer, O., Shah, N. M., & Johnson, M. R. (2019). Maternal sepsis update: Current management and controversies. The Obstetrician & Gynaecologist, 22(1), 45-55. https://doi.org/10.1111/tog.12623
10. Knowles, S., O'Sullivan, N., Meenan, A., Hanniffy, R., & Robson, M. (2015). Maternal sepsis incidence, aetiology and outcome for mother and fetus: a prospective study. BJOG: An International Journal of Obstetrics & Gynaecology, 122(5), 663-671. doi:10.1111/1471-0528.12892
11. Lalitha, H. (2016). A study to assess the knowledge and practice of postnatal mothers on prevention of selected puerperal infections in a selected maternity hospital. International Journal of Medical and Health Research, 2(2), 1–3.
12. Mahdaviazad, H., Keshtkar, V., & Emami, M. J. (2018). Osteoporosis guideline awareness among Iranian family physicians: Results of a knowledge, attitudes, and practices survey. Primary Health Care Research & Development, 19(5), 485-491. https://doi.org/10.1017/s1463423618000014
13. Olvera, L., & Dutra, D. (2016). Early Recognition and Management of Maternal Sepsis. Nursing for Women's Health, 20(2), 182-196. doi: 10.1016/j.nwh.2016.02.003
14. Oud, L. (2014). Pregnancy-Associated Severe Sepsis: Contemporary State and Future Challenges. Infectious Diseases and Therapy, 3(2), 175-189. doi:10.1007/s40121-014-0037-7
15. Say L, Chou D, Gemmill A, et al. (2014). Global causes of maternal death: a WHO systematic analysis. The Lancet Global health; 2(6): e323-33.
16. Sarkar, R., Ahalawat, S., & Kumari, M. (2019). A descriptive study to assess the knowledge and practices regarding prevention of puerperal infection among postnatal mothers in civil hospital, Panipat, Haryana. International Journal of Nursing Education, 11(4), 102. https://doi.org/10.5958/0974-9357.2019.00098.9
17. Sultana, S., Methe, F. Z., Muhammad, F., & Chowdhury, A. A. (2018). Knowledge and practice regarding prevention of puerperal sepsis among postpartum women attending a private hospital in Bangladesh. International Journal of Research in Medical Sciences, 6(10), 3264. doi:10.18203/2320-6012.ijrms20184029
18. Taskin, T., Sultana, M., Islam, T., Khan, N., & Chowdhury, S. (2016). Socio-demographic factors and puerperal sepsis: Experiences from two tertiary level hospitals in Bangladesh. International Journal of Community & Family Medicine, 1(2). https://doi.org/10.15344/2456-3498/2016/113
19. Tan, Y. Y., Hesham, R., & Qodriyah, H. M. S. (2010). Knowledge and attitude of university students in health sciences on the prevention of cervical cancer. Medical Journal of Malaysia, 65(1), 53–57.
20. World Health Organization [WHO]. (2018). Maternal sepsis. Retrieved from https://www.who.int/reproductivehealth/maternal-sepsis/en/
21. World Health Organization [WHO]. (2016). WHO Recommendations for Prevention and Treatment of Maternal Peripartum Infections. Geneva, Switzerland: Author.
22. World Health Organization [WHO]. (2018, February 19). Millennium development goals (MDGs). WHO | World Health Organization. https://www.who.int/news-room/fact-sheets/detail/millennium-development-goals-(mdgs)