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Knowledge, Attitudes and Practice of Preconception Care among Women Attending Appointments at a Rural Clinic in Kelantan

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ABSTRACT

Introduction: Pregnancy is common among women in the reproductive age and is associated with several risks. Preconception care has thus been introduced to promote health before conception and to improve pregnancy-related outcomes. The aim of this study was to determine the level of knowledge, attitudes and practices regarding preconception care among women attending antenatal care appointments. **Methodology:** This was a cross-sectional study conducted from April to December 2012 at Klinik Kesihatan Bachok. A self-administered questionnaire was administered to 135 respondents from 18 to 45 years of age. The questionnaire consisted of four domains, assessing socio-demographic data and knowledge, attitudes and practice of preconception care. **Results:** The mean (SD) knowledge, attitude and practice scores were 11.37 (3.94), 15.39 (2.12) and 10.13 (2.30), respectively. In total, 98.5% of the respondents had good attitudes, 45.2% had good practices, and 51.9% had good knowledge of preconception care. **Conclusion:** Women in Bachok have fair knowledge of and good attitude towards preconception care. However, they have poor preconception care practices.

Keywords: *Knowledge, Attitude, Practise, Preconception care, Reproductive age*

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INTRODUCTION

Preconception care aims to promote health prior to conception and to improve pregnancy-related outcomes (1). Pregnancy is common among women in reproductive age. However, many of these women are unaware that they are pregnant until they miss their menstrual cycle, which can occur approximately six to eight weeks into their pregnancy; accordingly, these women have their first antenatal visit during or after this period (2). The first trimester is a crucial period for the development of important organs. Thus, many poor outcomes have already been determined prior to these women's first antenatal visit. Counselling and prevention efforts implemented after the organogenesis period therefore do not improve outcomes related to congenital malformations (2, 3).

Knowledge of preconception care can be acquired though experience or education. Education can be attained from multiple sources, e.g., books, newspapers, radio

channels, television, the Internet or medical staff consultations. Studies have shown that women who receive pre-pregnancy care have more knowledge and often show risk-reduction behaviours. The use of folic acid in the recommended period also increases among women who receive pre-pregnancy care (4). A previous study also showed that women who receive an intervention for preconception care have more knowledge of preconception care and that even brief counselling can improve their knowledge of general and personal preconception health risks (5).

Murphy et al. showed that the practice of preconception care before pregnancy was associated with improved pregnancy preparation and a reduced risk of adverse pregnancy outcomes. Their study was conducted among patients with Type 1 and Type 2 diabetes mellitus. Those who attended preconception care had better glycaemic control, consumed folic acid and scheduled early care appointments (6). Mazza and Chapman determined that women of reproductive age exhibited a lack of preconception care behaviour. Their practice of preconception care behaviour depended on their life stage and whether they were planning on having children. They perceived pregnancy as a normal process for human beings, and thus medical attention prior to pregnancy was not considered needed, and medical care was important only once they became pregnant (7).

Preconception counselling helps prevent poor pregnancy outcomes. Ideally all women of reproductive age should receive preconception counselling before becoming pregnant. This type of counselling should be offered to all women who attend visits for contraception, Pap smears or for follow-up for chronic diseases such as diabetes mellitus, hypertension and epilepsy. In Malaysia, not much is known about the knowledge, attitude and practices of preconception care, although these factors are known to contribute to good pregnancy outcomes. Thus, the objective of this study was to determine the knowledge, attitudes and practice of pregnant women attending antenatal care visits.

MATERIAL AND METHODS

This was a cross-sectional study of pregnant women attending appointments at Bachok Health Clinic, Bachok, Kelantan, from April to December 2012. The inclusion criteria were women attending antenatal appointments who were between 18 and 45 years of age. The exclusion criteria were health care workers and illiterate women.

Based on a study conducted by Rosnah and Wan Aishah, (8), a standard deviation of 3.8 was used for knowledge and a precision of 0.7 was applied after considering the time and resources needed to conduct this study. A sample size of 135 patients with a 20% response rate was thus needed.

Research Tool

The questionnaires consisted of two sections. Section A pertained to socio-demographic profiles, and Section B included the questionnaire used to assess knowledge, attitudes and practice.

The questionnaire was developed in several stages. The first stage involved a literature search on the knowledge, attitudes and practice of preconception care. This search was conducted to determine appropriate content for the questionnaire and the subdomains of knowledge, attitude and practice. After the literature search, a questionnaire by Rosnah and Wan Aishah were selected for the knowledge and practice components (8). This questionnaire was chosen because it was generated in the Malay language and was suitable for a community survey. Furthermore, the questionnaire was validated, with a Cronbach's alpha of 0.79. Permission was obtained from the author through email. For the attitude component, the content validity of the questions was determined by a group of experts, consisting of two family medicine specialists and a statistician. Then, a pilot

study was conducted to ensure the validity and reliability.

The questionnaire was self-rated. It consisted of four domains: socio-demographic data, knowledge, attitudes and practice. The first section of the questionnaire was on socio-demographic characteristics. The knowledge domain consisted of 21 items using a three-point Likert scale (Yes/No/Not sure). A score of "1" was provided for correct answers, and incorrect and not sure responses were scored "0". The questions asked were related to knowledge of high-risk pregnancies, birth spacing and the impact of poor spacing, anaemia, folic acid, harmful effects of smoking and healthy diets during pregnancy. The practice domain consisted of 16 items. A score of "1" was given for good practices and "0" for poor practices. The questions asked were related to medical check-ups, healthy diets and healthy lifestyles. All scores were calculated and summed for each domain of knowledge and practice. The total score was transformed into a percentage by dividing the score by the maximum possible score and multiplying by 100.

For the attitude component, a new questionnaire was developed by a group of experts that consisted of two family medicine specialists and a statistician. The attitude domain consisted of four items. The questions asked the respondents about their beliefs and perceptions of the importance and benefits of preconception care and the type of facility used to obtain preconception care advice. A 5-point Likert scale was used. Scores of "1", "2", "3", "4", and "5" were used for strongly disagree, disagree, neutral, agree, and strongly agree, respectively. All scores were summed. The total score was transformed into a percentage by dividing the score by the maximum possible score and multiplying the resulting value by 100. The face validity was then assessed by 10 pregnant women at Clinic Kesihatan Bachok; these women were not counted as part of the sample size. Finally, a few of the questionnaire sentences were adjusted.

Categorical responses (good/poor) were then generated for the knowledge, attitude and practice domains. The grading was determined according to the percentage of the total score for each domain:

0.0%–49.9% was poor, and

50%–100% was good.

For each domain, the researchers decided that the respondents had to obtain at least a 50% mark for their knowledge, attitude and practice to be considered good. Those who scored less than 50% in each domain were considered to have poor knowledge, negative attitudes and poor practices. The same categories were applied in the study conducted by Rosnah and Wan Aishah (8).

A pilot study was conducted at the Obstetrics and Gynaecology clinic, Hospital Universiti Sains Malaysia, during pregnant women's antenatal visits to determine the reliability and validity of the questionnaire and to estimate the time required to complete the questionnaire. A total of 30 participants answered the questionnaire. Item analysis was performed including estimates of the internal consistency reliability using Cronbach's alpha and corrected item-total correlations to assess construct validity. Problematic items were removed. The attitude component initially consisted of five questions but was reduced to four after eliminating a problematic item. The results were satisfactory, showing a Cronbach's alpha of 0.8. The final questionnaire consisted of 21 items for knowledge, 16 items for practice and 4 items for attitude.

Data Collection Procedure

Pregnant women who were attending their appointment at the clinic were approached using convenience sampling. They were informed about the research procedure, and the eligible respondents who fulfilled the inclusion and exclusion criteria were invited to participate in the study. The self-administered questionnaire was

administered, and the respondents were guided in answering the questionnaire. The respondents had to complete the entire questionnaire and return it to the researcher on the same day. The respondents were informed that the information provided was confidential and that they could withdraw from the study if they wished to.

The data collected were analysed using SPSS 19 (Statistical Program for Social Science Version 19). Descriptive analysis was used for this study. Numerical variables were expressed as the mean (SD), and categorical variables were expressed as the number and percentage.

The research study was approved by the Ethics Committee, School of Medicine, Health Campus, Universiti Sains Malaysia, on the 31st of January 2012. Ref: USMKK/PPP/JEPeM[24b.4.(1.8)]

RESULTS

A total of 492 women visited Bachok Health Clinic for an appointment during the study period. Of the attendees, 145 women attending an appointment were screened for eligibility; 10 women were not eligible, as three were health workers and seven refused to join the study. Therefore, 135 women consented to participate and completed the study, with a response rate of 100%.

Most of the respondents were Malay (99.3%). Their ages ranged from 18–45 years, with a mean age of 28.8 years. Many of the women were unemployed (63%). Only half of the respondents (52.6%) had an unplanned pregnancy. The majority of these women (80%) had no pregnancy-related complications during the study. Only 6.7% of them had a history of medical problems (Table 1).

The mean score for knowledge was 11.37 (3.94), with 51.9% of the respondents having good knowledge of preconception care. For the attitude and practice components, the mean scores were 15.39 (2.12) and 10.13 (2.30), respectively. As shown in Table 2, 98.5% of the respondents had good attitudes towards preconception care, and 45.2% had good preconception care practices.

Details of the respondents' responses on the knowledge, attitude and practice domains are shown in Tables 3, 4 and 5, respectively.

DISCUSSION

The mean age of the respondents in this study was 28.8 years. This age was comparable to similar studies, which have reported mean ages of 30.0 years, 29.5 years, 28.9 years and 27.4 years (5, 8, 9). The majority of our study respondents were Malay, comprising 99.3% of the total respondents, and 63% of the respondents were employed. A previous study showed that persons with a higher education had more positive attitudes towards preconception care than those with a lower education level (10). Employment does reflect the respondents' education level and could also affect the level of exposure and accessibility to health information. In a prior study, Herman et al. showed that a higher percentage of participants who were employed sought preconception care compared to unemployed women (11).

Approximately 47.4% of the respondents had planned their pregnancy. This result is similar to that of a study conducted by Frey et al. They noted that only 47.2% of the respondents had planned their pregnancy, and the majority were aware of the need to be in good health before getting pregnant (12). This result was reflected in the use of contraception. In our country, the contraception rate has been approximately 50% for the past three decades (13). Thus, the need to plan pregnancies is critical, especially in patients with comorbid illnesses such as diabetes mellitus and hypertension, as their risk of pregnancy is greater than that of women without comorbid illness. Spence et al. conducted a study on knowledge and attitudes toward preconception care among women with diabetes, and their results

Table 1: Socio-demographic characteristics of respondents

Variables	Mean (SD)*	n (%)
Age (years)	28.8 (6.06)	
Number of pregnancies	2.8 (1.85)	
Race		
Malay		134 (99.3)
Non-Malay		1 (0.7)
Employment		
Employed		85 (63)
Unemployed		50 (37)
Pregnancy		
Planned		63 (47.4)
Unplanned		72 (52.6)
Pregnancy-related complication		
Yes		27 (20.0)
No		108 (80.0)
Gynaecological history		
Yes		1 (0.7)
No		134 (99.3)
Medical history		
Yes		9 (6.7)
No		126 (93.3)

*Standard deviation

Table 2: Mean score for knowledge, attitudes and practices

Variable	Mean (SD)*	n (%)
Knowledge	11.37 (3.94)	70 (51.9)
Attitude	15.39 (2.12)	133 (98.5)
Practice	10.13 (2.30)	61 (45.2)

*Standard deviation

Table 3: Correct responses for knowledge of preconception care (n = 135)

Item	n	(%)
1. Risk for high-risk pregnancy		
a) Age below 18 years	72	(53.3)
b) Small body size	28	(20.7)
c) First pregnancy at age 35 years and above	90	(66.7)
d) Twin pregnancy	72	(53.3)
2. Risk of poor birth spacing		
a) Anaemia	99	(73.3)
b) Congenital malformation	29	(21.5)
c) Premature labour	63	(46.7)
d) Postpartum haemorrhage	65	(48.1)
3. Recommendation for good birth spacing practices		
a) One year	66	(48.9)
b) Between 2 to 4 years	124	(91.9)
c) More than 5 years	57	(42.2)
4. Knowledge of diet during pregnancy		
a) Eat a balanced diet but more frequently than non-pregnant women	3	(2.2)
b) Eat a diet with higher iron content	111	(82.2)
c) Eat a diet with higher calcium content	113	(83.7)
d) Eat less fat	98	(72.6)
5. Smoking causes harm to the baby	131	(97.0)
6. Folic acid supplementation and risk reduction of congenital malformation	112	(83.0)
7. Risk of maternal anaemia for baby		
a) Low birth weight	91	(67.4)
b) Pale	8	(5.90)
c) Good appetite	60	(44.0)
d) Increased blood pressure	43	(31.9)

Table 4: Responses for attitudes towards preconception care (n = 135)

Item	n	(%)
1. Preconception care is important during the reproductive age		
a) Strongly agree	42	(31.1)
b) Agree	79	(58.5)
c) Neutral	11	(8.1)
d) Disagree	1	(0.7)
e) Strongly disagree	2	(1.5)
2. Preconception care has implications for pregnancy and delivery		
a) Strongly agree	48	(35.6)
b) Agree	65	(48.1)
c) Neutral	11	(8.1)
d) Disagree	5	(3.7)
e) Strongly disagree	6	(4.4)
3. Government facilities are the best place to receive preconception care		
a) Strongly agree	66	(48.9)
b) Agree	58	(43.0)
c) Neutral	9	(6.7)
d) Disagree	0	(0.0)
e) Strongly disagree	2	(1.5)
4. Private health facilities are the best place to receive preconception care		
a) Strongly agree	6	(4.4)
b) Agree	28	(20.7)
c) Neutral	46	(34.1)
d) Disagree	40	(29.6)
e) Strongly disagree	15	(11.1)

Table 5: Responses for practices of preconception care (n = 135)

Item	n	(%)
1. Early preparation practices before pregnancy for women with a chronic medical illness (e.g., DM/HPT/Asthma)		
a) Attended early medical check-ups for pregnancy planning	121	(89.6)
b) Waited until confirmed pregnancy before going for medical check-ups at clinic	71	(52.6)
c) Planned to not get pregnant	62	(45.9)
d) Received advice from friends and family	69	(51.1)
2. Engages in exercise	58	(43.0)
3. Exercises less than 2 times per week	73	(54.1)
4. Consumed folic acid supplementation before pregnancy	40	(29.6)
5. Eats daily meals, eats extra vegetables	99	(73.3)
6. Practice on food taboo	47	(34.8)
7. Attended early antenatal care appointments (first 3 months)	125	(92.6)
8. Frequency of receiving health information per week		
a) More than once	65	(48.1)
b) Once	39	(28.9)
c) None	31	(23.0)
9. Frequency following all advice from the doctor		
a) Always	115	(85.2)
b) Never	0	(0)
c) Seldom	20	(14.8)
10. HIV screening completion		
a) Yes	101	(74.8)
b) Never	34	(25.2)
c) Don't know	0	(0)
11. Frequency of eating junk food while planning for pregnancy		
a) Never	35	(25.9)
b) Every day	47	(34.8)
c) Seldom	53	(39.3)
12. Consumed drugs without doctor's advice while planning for pregnancy		
a) Never	125	(92.6)
b) Yes	10	(7.4)
c) Don't know	0	(0)
d) Smoking	0	(0.0)

Note: Hypertension (HPT); Diabetes Mellitus (DM).

showed that most women were generally aware of the need to plan their pregnancy. However, the rationale for the need to plan their pregnancy was only understood by parous women or those seeking preconception care (14).

Knowledge of Preconception Care

The mean knowledge score was 11.37 ± 3.94. This finding is similar to that of a study conducted by Rosnah and Wan Aishah, in which the mean knowledge score was 11.7 ± 3.8. An overall evaluation revealed that 51.9% of the respondents had relatively fair knowledge. However, for the specific preconception health topics, the respondents' knowledge of the risk of poor spacing, recommendations for good birth spacing practices and the risk of maternal anaemia to the foetus was low. It is possible that information on the importance of pre-pregnancy care may not have been stressed during their prior clinic visits or even during health campaigns. Therefore, when they became pregnant, these women had little knowledge of pregnancy care; Rosnah and Wan Aishah also documented that many of their respondents had rarely heard about pre-pregnancy care throughout their life (8).

Although they answered correctly regarding birth spacing between two and four years (91.9%), half of them still answered incorrectly and were not sure of the adequacy of a spacing of one year and more than five years. This finding is greatly concerning because birth spacing of less than six months is associated with an increased risk of maternal mortality and morbidity as well as a risk of preterm birth and of infants who are small for gestational age and have a low birth weight (15). Therefore, education is important for preventing the complications related to poor birth spacing.

Overall, knowledge of the risk of maternal anaemia for the baby was low. Maternal anaemia can occur due to poor birth spacing. Conde-Agudelo et al., in their systematic review on the effects of birth spacing on maternal, perinatal, infant and child health, found that short intervals between pregnancies led to maternal nutritional depletion (16).

Knowledge of folic acid consumption in our study was higher, with 83% of respondents having adequate knowledge of the need for folic acid supplementation during the preconception period to prevent congenital anomalies. This result is slightly lower that of a study by Harelick et al. However, their study was conducted among men and women with a low socio-economic status in an urban city, and therefore financial considerations may explain part of the difference in results (9).

Practices of Preconception Care

The mean score for appropriate practices in this study was 10.13 ± 2.30 out of a total score of 16. This finding indicated that 45.2% of women in Bachok had poor preconception care practices. This is lower than the score reported by Rosnah and Wan Aishah, in which 70% of the respondents had high practice scores; this difference may be due to a lack of exposure and awareness of the availability of preconception care. There are no formal preconception clinics established in local settings. Currently, preconception care is introduced during consultations for contraception and follow-up for chronic illness such as diabetes and hypertension. Thus, women who do not encounter contraception clinics and who do not have a chronic illness may not be informed about preconception care.

As high as 89.6% of the respondents answered yes for attending early medical check-ups to plan their pregnancy. However, contradicting results were observed as further questions were asked; 47.4% of the respondents reported waiting after their pregnancy was confirmed before receiving medical care. However, the majority of respondents (92.6%) sought medical attention within the first three months.

Regarding healthy lifestyles, the present study showed that 43% of the respondents exercised as part of their healthy lifestyle, and 54.1% of the respondents exercised less than two times per week. Ribeiro and Milanez conducted a study on women's knowledge, attitudes and practices regarding exercise during pregnancy, and their results showed that approximately 20% of the studied population engaged in adequate exercise during pregnancy. Adequate exercise was defined as three or more times in one week. The reported reasons for inadequate exercise in their study were a lack of time, feeling very tired and feeling uncomfortable (17).

The majority of respondents did not consume folic acid during the preconception period. This vitamin has known benefits for reducing neural tube defects such as spinal bifida (18). Although their knowledge of folic acid was high, only 29.6% of the respondents took folic acid supplements. This finding indicated that the prevalence of this practice was low. The low uptake of supplements may have been due to the cost of the vitamins. Women were not willing to come to the clinic for folic acid supplements due to the waiting times, and therefore they bought it from their nearest pharmacy. Mazza and Chapman noted that confusion about the use, dose, duration, timing and efficacy of folic acid were a few of the barriers identified to folic acid supplementation during preconception (7).

In a different study, Harelick et al. also reported that only 42% of their studied population consumed multivitamins including folic acid as preconception supplementation (9). Chuang et al. noted that 42.6% of their sample population consumed folic acid during the preconception period, and the highest folic acid consumption was observed in the group who had planned for pregnancy for less than 12 months; the lowest consumption occurred in the group who had planned for pregnancy for more than 2 years (19).

Many of the respondents were more concerned about drug consumption during the preconception period. The majority of respondents consulted their doctors prior to consuming drugs. Only 7.4% of the respondents consumed drugs without their doctors' advice. This result may be due to their high awareness of the risk of drugs for their pregnancy.

Attitudes towards Preconception Care

The success of preconception care greatly depends on women's attitudes and their willingness to participate. The present study showed that the majority of women in Bachok possessed a good attitude (98.5%) towards preconception care, with only 1.5% having a poor attitude. A total of 89.6% of the respondents agreed and strongly agreed that preconception care is an important health issue during the reproductive age. As many as 83.7% of the respondents agreed and strongly agreed that preconception care was a priority before their pregnancy. However, this proportion is slightly lower than that identified by Frey and Files, as in their study, almost all respondents (98.6%) realised the importance of optimising their health prior to pregnancy (12). In our study, 10.4% of the respondents did not agree that preconception care is an important health issue during the reproductive age; the respondents in this disagreeing group were in younger age groups. Their disagreement could be due to their lack of knowledge of preconception care and their fewer encounters with health facilities.

The majority of respondents chose government facilities as the best place to receive preconception care advice. This location was selected because government health centres are easily accessible to the public. Furthermore, the services are also provided equally without bias. Based on our observations, the majority of the respondents were from low- and middle-income families. The low fees for receiving services at government facilities are

affordable for everyone, whereas the costs of private health facilities are more expensive.

This study was conducted in a homogenous community, where the majority was Malay. The findings are thus not representative of Malaysians, as Malaysia is a multiracial country. Due to the limited time of the study period, convenience sampling was used. This type of sampling has the potential for sampling bias. The sampling would have been strengthened if randomisation had been performed.

CONCLUSION

Women in Bachok have fair knowledge of and good attitudes towards preconception care. However, they have poor preconception care practices.

RECOMMENDATION

We recommend that pre-pregnancy care knowledge should be continually provided, starting as early as in school. Pre-pregnancy care information can be integrated into educational programmes, especially in secondary schools. This information should also be provided to all reproductive women who attend clinics for reasons other than pregnancy planning. The knowledge can be delivered through pamphlets and during health education sessions at health centres. We should recognise the role of men in preconception health and health care; through education, men will likely increase the awareness of these issues among married couples.

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