Research Article ISSN 2639-9474

Nursing & Primary Care

Assessing the Level of Awareness and Utilization of Preconception Care among Saudi Women in Al Ahsa, Saudi Arabia

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Received: 29 November 2021; **Accepted:** 22 December 2021

Citation: Mousa O, Alfadhel RA, Almubarak HA, et al. Assessing the Level of Awareness and Utilization of Preconception Care among Saudi Women in Al Ahsa, Saudi Arabia. Nur Primary Care. 2021; 5(6): 1-6.

ABSTRACT

About 810 women died every day in 2017 from preventable causes related to pregnancy and childbirth. To reduce the risks of maternal and fetal complications during pregnancy, knowledge about preconception care must be increased. Preconception care is closely linked to maternal and infant health. This study aimed to examine the level of knowledge, attitudes, and utilization of preconception care among women in Al Ahsa, Saudi Arabia. A cross-sectional study was conducted between June 27 and September 30, 2021, in three governmental hospitals and three private hospitals from the outpatient department of Al Ahsa, Saudi Arabia. In this study, the participants were recruited using a simple randomization technique. The estimated sample size is 386. Data were collected by using a modified structured questionnaire adapted from similar studies. The questionnaire contains three sections. The validity and reliability of the tool were accomplished. This study was approved by the Institutional Review Board (IRB) of the KFHH, and a letter of informed participation, along with the purposes of the study, was provided with the administered questionnaire. Near to half of the study participants, 166 (43%) had good knowledge, and 186 (48.2%) had fair knowledge on preconception care whereas 34 (8.8%) had poor knowledge on preconception care. Regarding the utilization, most participants 170 (44%) did not receive complete preconception care. The majority of participants (73.6%) said that women don't undertake complete preconception care due to a lack of knowledge. The level of education of participants is strongly correlated with preconception care awareness. The findings concluded that fewer than half of Saudi women in Al Ahsa were aware about preconception care. In general, responders do not use preconception care services due to a lack of knowledge about how these services may affect maternal and neonatal health.

Keywords

Preconception Care, Woman, Knowledge of Preconception Care, Utilization of Preconception Care.

Introduction

Developing a nation is largely dependent on the health and creativity of its youth. Women's health, which is improved and enhanced through preconception health services, contributes to the well-being of future generations. Also, health is the most important factor for a woman and her partner prior to pregnancy [1,2]. Preconception care (PCC) is defined as "biomedical, behavioral and social health interventions provided to women and couples before conception occurs which are designed to improve their health status, reduce harmful behaviors, and reduce individual and environmental factors that could influence poor maternal and child health" [3,4]. The PCC program is the primary prevention for the

future baby as well as the secondary prevention for the prospective mother [5].

The evidence supporting the beneficial role of preconception care interventions are expanding, including prevention of adolescent pregnancy, encouraging the use of contraceptives, promoting a good nutritional status of mothers, maintaining a healthy weight, and preventing infectious diseases and controlling chronic diseases [6]. Among these interventions are the prevention and reduction of fetal malformation, the promotion of healthy lifestyles, as well as the improvement of the readiness of women in reproductive age to become pregnant. In addition, preconception care can reduce pregnancy and postnatal complications [7]. As early as 30 years ago, PCC was a concept reflected in universal recommendations pertaining to women's health and child survival, which showed a long-term appreciation of the importance of such interventions for improving pregnancy outcomes [8].

PCC is closely linked to maternal and infant health. There are many factors that may be modifiable prior to pregnancy that can affect pregnancy outcomes [3,9]. Although prenatal care is usually not initiated early enough in most women to prevent serious maternal and child health complications [8]. As a result of pregnancy and childbirth, many women around the world died and many others experienced long-term disabilities in 2010 [6]. Through its three main components, risk assessment, health promotion, and intervention, these outcomes can be achieved [5].

Health care for women and children must include preconception care, a neglected but important component [10]. Consequently, the level of knowledge and practice of preconception care among women in developing countries is low [11].

About 810 women died every day in 2017 from preventable causes related to pregnancy and childbirth [12]. To reduce the risks of maternal and fetal complications during pregnancy, knowledge about preconception care must be increased. As far as we know, no preconception health studies have been conducted in Al Ahsa. The results of this study will broaden our understanding of this subject and provide a general sense of the level of awareness of preconception health care in Al Ahsa. The study will also play a major role in evaluating the preconception care in this area and identifying the implications needed in the future for strengthening preconception care. This study aimed to examine the level of knowledge, attitudes, and utilization of preconception care among women in Al Ahsa, Saudi Arabia.

Specific Objectives

1. To address the knowledge level regarding preconception care among reproductive age group women.
2. To determine utilization of preconception care services
3. To assess attitude toward utilization of preconception care

Materials and Methods

Study Area/Setting

The study was conducted between June 27 and September 30, 2021, in three governmental hospitals and three private hospitals from the outpatient department in Al Ahsa, Saudi Arabia.

Study Subjects

The sample was recruited from the previously mentioned setting according to the following criteria: The study was included women aged 18 years and above who are living in Al- Ahsa city.

Study Design

A cross-sectional study was conducted to assess the level of awareness, attitude, and utilization of preconception care among women in Al Ahsa, Saudi Arabia.

Sample Size and Sampling Technique

According to the last census, the number of women living in Al-Ahsa was estimated to be 429911. the sample size determined by using sample size calculator. The researchers calculated the sample size by assuming that the proportion of women aged 18 years and older is 50%, the nonresponse precision is 10%, and the margin of error is 5%. (Sample Size Calculator: Understanding Sample Sizes| SurveyMonkey, 2021). In this study, the participants were recruited using a simple randomization technique. The estimated sample size is 386.

These governmental and private hospitals are the largest hospital in Al Ahsa with more than 300 beds. The outpatient department (OPD) consists of more than 20 rooms and inpatient service which consisted of the main departments. The average number of patient flow at the OPD was more than 200 persons per day for all hospitals. These hospitals gave the essential obstetric care in the city. Whereas the study populations were those who attend the clinics during the study period at these health institutions. The samples were taken proportionate to the number of expected attendances from each selected hospital. All participants included in the study were all consented to participate willfully in the study.

Data Collection methods, instruments used, and measurements

Definitions of Operational Terms/

Preconception care: involves providing women and couples with biological, behavioral, social and health interventions to women and couples prior to conception takes place.

Knowledge: Level of women's knowledge of preconception care was measured based on correct response to the questions.

In this study, the data was collected by using a modified structured questionnaire adapted from similar studies [1,13]. The reliability of the tool was accomplished to measure the internal consistency of their items by using Alpha Cronbach test. The survey was translated to the local area language (Arabic) and reviewed by three experts to ensure consistency and accuracy.

A pilot study was conducted on 30 women (were excluded from the study sample from the previously mentioned settings) to evaluate

the clarity and applicability of the study tools. The data obtained from the pilot study were analyzed, and the final form of tools was reconstructed and ready for us. The pilot study was used first to give feedback about the clarity of Arabic version of the questions, so that reliability of the questionnaire was ensured. A structured face to face interview done with all women included to the study by researchers.

The questionnaire contains three sections. **The first section** is about demographics data including age, marital status, and education status. **The second section** contains questions aimed to assess knowledge related to preconception care with total items of 8 questions. **The last section** contains questions about the utilization of preconception care with total items of 3 questions.

Preconception care knowledge is scored as follows: Each correct answer was graded with two points, while each incorrect or negative response was graded with zero points. For the calculation of the total score, 8 questions were graded, and it was presented on a percentage basis. Good knowledge of preconception care: the knowledge index was constructed using responses to 8 questions about nutrition, family planning, pregnancy spacing, and folic acid supplementation. Based on the answers to these questions, the index was rated as had good knowledge (scoring between 6 and 8). The second level of knowledge was fair to participants who have scored between (4-5). Those whose proportion was below 50% (score less than 4) were considered have poor knowledge.

Ethical Considerations

The Institutional Review Board (IRB) of the KFHH No. 13-EP-2021 approved this study in June 2021. A letter of informed participation, outlining the objectives and purposes of the project, was given along with the administered questionnaire. Participants were given the option to participate or not in this study. confidentiality agreement and an anonymity policy ensured that participants' privacy and confidentiality were protected.

Data Management and Analysis Plan

All obtained data was organized and analyzed by using the statistical package for social sciences (SPSS). Data were described using range (minimum and maximum), mean, standard deviation. Significance of the obtained results was judged at the 5% level.

Results

In this study, all participants replied to the survey. The given table depicts the sociodemographic data of participants. According to what is shown in table 1, 158(40.9%) of the 386 responders were between the ages of 18 and 24. Two hundred ninety-four (76.2%) of the study participants were married. In relation to educational level, 233 (60.4%) were educated to the university level or higher.

Table 1: Demographic characters of participants.

Percent	Number	Data
		Age groups
40.9%	158	18- 24 years
14.5%	56	25- 29 years
13.7%	53	30- 34 years
30.8%	119	35- 49 years
		Marital Status
22.5%	87	Single
76.2%	294	Married
0.5%	2	Divorced
0.8%	3	Widow
		Educational Status of responds:
0.3%	1	Illiterate
1.6%	6	Primary
37.8%	146	Secondary Level
60.4%	233	Bachelor level and above

Table 2: Study participants' knowledge of preconception care.

Percent	Number	Data
		The meaning of preconception care
26.4%	102	• Care received by woman before pregnancy for health promotion.
2.3%	9	• Risk factor assessment to women's health and future pregnancy.
67.6%	261	• All the Above
3.6%	14	• I do not know.
		Preconception care importance
3.9%	15	• To prepare for pregnancy by improving health of couple prior to conception.
0.5%	2	• To have safe pregnancy, delivery, and healthy newborn.
24.1%	93	• To reduce intrauterine fetal abnormalities.
69.9%	270	• All the above
1.6%	6	• I do not know
		The meaning of preconception period
0.5%	2	• Period before marriage
13.2%	51	• Period after marriage
85.5%	330	• Period between planning and onset of pregnancy (around 3 months)
0.8%	3	• Period after pregnancy
		The sources of information about preconception care
15%	58	• Internet
16.1%	62	• Health care worker (nurse, physician. etc.)
12.2%	47	• Friends/family
0.3%	1	• Courses
56.5%	218	• Multiple sources
		Which factors should be assessed and Investigate prior to conception?
12.4%	48	• Folic acid, calcium and vit D supplementation prior to 3 months of pregnancy.
6%	23	• Complete Blood analysis.
0.3%	1	• Immunization to (flu, dTpa, and hepatitis B).
2.8%	11	• Stop oral contraception prior to 3 months of pregnancy.
1.3%	5	• Test for STI and chronic diseases.
2.1%	8	• Previous obstetrics history i.e., LSCS (Lower segment Cesarian section), IUFD (intrauterine fetal death), premature baby, twin pregnancy.
75.1%	290	• All the above
		Why folic acid is important to take prior to pregnancy?
85.2%	329	• To prevent congenital abnormalities and neural tube defect to baby.
0.5%	2	• To increase weight
8.3%	32	• To prevent anemia.
6%	23	• Do not know.
		The risks of preconception nutritional deficiency to baby:
6.5%	25	• Neural tube defects and other anomalies.
14.5%	56	• Low birth weight.
2.8%	11	• Preterm birth.
6.5%	25	• Delay physical growth.
66.6%	257	• All the above
		Avoid cleaning cat litter trays to avoid exposure to:
45.9%	177	• Toxoplasmosis.
10.1%	39	• toxemia.
3.1%	12	• Rubella.
40.9%	158	• I do not know

	Total Knowledge score
2-16	Range
11.9 ± 3.06	Mean ± SD

Table 2 illustrates study participants' knowledge of preconception care. Responses were assessed based on eight dichotomous questions, the mean score of the participants was 11.9 with SD ± 3.06. There were no participants who scored zero. 261 (67.6%) of the participants know the meaning of preconception care while 270 (69.9%) know its importance. For the preconception care period 329 (85.5%) were aware of its meaning. On the other hand, it is obvious that nowadays women become more knowledgeable as they know what should be assessed and investigated before the conception as 290 (75.1%) got the correct answer. 218 (56.5%) of participant tended to get their knowledge from multiple sources while the second favorite source was the health care worker. The importance of the Folic acid for the pregnancy was known by 329 (85.2%). Majority of the participants 257 (66.6%) got the idea of the preconception nutritional deficiency. In addition, 177 (45.9%) correctly answered that cleaning cat litter trays exposes them to infection.

Table 3: Preconception Knowledge Level.

Percent	Number	Knowledge score
8.8%	34	Poor
48.2%	186	Fair
43%	166	Good

Table 3 represents the level of participants' knowledge on preconception care. The knowledge score of the participants varies between 2 and 16. Near to half of the study participants 166 (43%) had good knowledge and 186 (48.2%) had fair knowledge on preconception care whereas the remaining 34 (8.8%) had poor knowledge on preconception care.

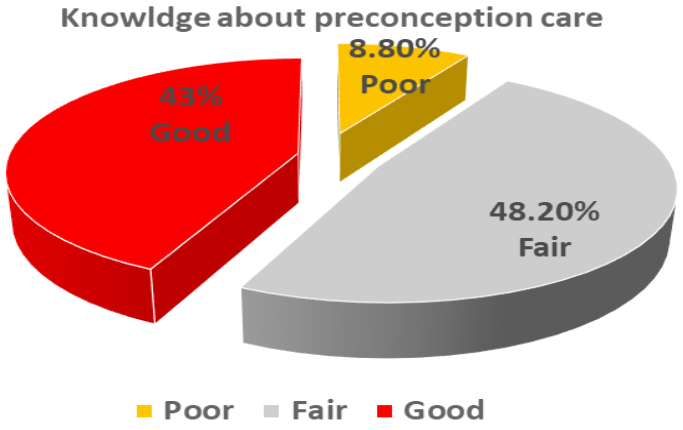

Table 4: Distribution of the studied participants regards utilization and perception of preconception care: (no=386).

Percent	Number	Utilization of preconception care
		Did you take complete preconception care?
24.6%	95	• Yes
44%	170	• No
31.4%	121	• Not applicable
		Type of preconception care has been received
58.9%	56	• Folic acid, calcium and vit D supplementation prior to 3 months of pregnancy.
		• Complete Blood analysis.
9.5%	9	• Immunization to (flu, dTpa, and hepatitis B).
2.1%	2	• Stop oral contraception prior to 3 months of pregnancy.
11.6%	11	• Test for STI and chronic diseases.
2.1%	2	• Previous obstetrics history i.e., LSCS (Lower segment Cesarian section), IUFD (intrauterine fetal death), premature baby, twin pregnancy.
15.8%	15	
		In your opinion why women do not take complete preconception care?
73.6%	282	• Due to lack of knowledge on how the service benefits couples.
10.8%	42	
13.4%	52	• Due to less time management.
10.3%	40	• services were too expensive /financial problem.
9.6%	35	• Due to Long duration between appointments.
		• None of the above (not applicable).

Table 4 shows the percentage of studied participants regarding utilization and attitude toward preconception care. It appears that the majority of the participants did not take complete preconception care with a percentage of (44%) 170, whereas less than half took complete preconception care. A number of 121 (31.4%) from the participants chose not applicable. Regarding the types of preconception care received the most by the participants were supplemental folic acid, calcium, and vitamin D during the first three months of pregnancy. 282 (73.6%) of participants believed that women don't undertake complete preconception care due to lack of knowledge. Other reason has chosen by the participants with a percentage of (10.3%) 40 was long intervals between appointments, which causes women not to complete preconception care.

Table 5 shows the association between demographics of the study participants and knowledge of preconception care. In this study, age did not significantly relate to awareness of preconception care. In addition, marital status had no significant effect on awareness of preconception care. However, education of participants appears to have a strong positive correlation with preconception care awareness. As the level of education increases, this awareness seems to increase. As well, this study found a significant positive association between maternal knowledge about PCC and PCC services utilization.

Table 5: Association between demographics of the studied participants and knowledge of preconception care.

Knowledge score			Data
p	Mean ± SD	Range	
			Age groups
	11.8 ± 2.9	4-16	18- 24 years
0.4	12.5 ± 2.5	6-16	25- 29 years
	11.6 ± 3.6	4-16	30- 34 years
	11.8 ± 3.6	2-16	35- 49 years
			Marital Status
	11.4 ± 3.06	4-16	Single
0.1	12.04 ± 3.03	2-16	Married
	11 ± 7.07	6-16	Divorced
	14.6 ± 2.3	12-16	Widow

0.0001*	4.9 ± 2.4 9.3 ± 3.2 11.09 ± 3.6 12.4 ± 2.4	2-6 4-14 2-16 4-16	**Educational Status of responds:** Illiterate Primary Secondary Level Bachelor level and above
0.0001*	12.6 ± 2.2 4.9 ± 2.4	12-16 2-16	**Utilization of preconception care** Yes No

Discussion

There is no doubt that preconception care plays a significant role in reducing the maternal and neonatal, morbidity and mortality rate. The aim of the current study is to assess the level of awareness, attitude, and utilization of preconception care among women in Al Ahsa.

The socio-demographic characteristics of participants are reveals that majority of the respondents are between age group 18-24 years accounts for (40.9%), whereas the largest age group in Khanal L [13] study is between 25 to 29 years comprises of (35%) on the other hand, the age group (35-49) ranks in the second place in the present study.

Participant education status in the current study reveals that, those who studied above secondary level (60.4%) is by far the highest among other categories. In addition, the Habte A, study demonstrated that nearly half of participants reached a higher level of education or secondary school (44.8%) [14]. Educational status is a factor highly likely to influence the overall result and public awareness of the study.

Regarding preconception knowledge, the results indicate that 43% of our participants have good preconception knowledge, while (8.8%) only have poor knowledge. This is huge contrary to the study done by Umar et al, [15] in Nigeria which stated that only 20.61% were aware of the preconception care. It is possible that this study's participants have the most knowledge because of their different cultures and large and representative sample size. Despite that, it is still much lower than the results of Akinajo et al. who declared that (80%) of the participants had enough knowledge about preconception care [16]. It's in the line with another study done in Nigeria stated that most of the respondents were knowledgeable about preconception care [17].

Regarding the utilization and perception of preconception care. In present study, it appears that half of the respondents do not take complete preconception care with a percentage of (47.2%), whereas (21.5%) take complete preconception care which means that there is a large number of women who did not benefit from preconception care utilities. Study results in Ethiopia found that only (6.4%) of respondents received all the recommended preconception health services before their last pregnancy [14]. Thus, most participants in the study do not adhere to the elements of PCC outlined by WHO and CDC. A possible explanation for the lower use of PCC services is that PCC services are not given as much attention, and that our current focus is more on prenatal care and skilled delivery services. Moreover, a large number of mothers are not aware of PCC programs and services, which may have contributed to low utilization.

In the present study supplements for micronutrients are the most commonly received item (58.9%). However, the results of this study are lower than the results of a similar study conducted by Asresu TT [18], in Ethiopia, which found that micronutrients are used with a percentage of (86.3%). It is higher than another study conducted in western Ethiopia that found only 7.7% of the women took folic acid [19].

In the present study a significant association was found between respondents' educational level and knowledge of preconception care. Results may be explained by the fact that women with a higher level of education have access to more information about PCC and have stronger information-processing skills, therefore uptake of those recommended contents of care is higher. It seems that education increases mothers' health-seeking behaviors by increasing their independence, as well as their self-confidence and ability to make health-related decisions.

The current study also finds that PCC knowledge and PCC service utilization are significantly linked. The results of the study are consistent with those found in northern Ethiopia, China, and Saudi Arabia [20-22].

Conclusion

Our study found that less than half of Saudi women in Al Ahsa had good knowledge about preconception care. However, most responders didn't use preconception care services due to a lack of knowledge about how the provided services can affect maternal and neonatal health. A deeper study should be done to improve knowledge as well as utilization of PCC services. For this reason, health authorities must develop comprehensive policies for preconception care that must be followed by health institutions.

Acknowledgement

The authors would like to thank Ms. Zahra Mustafah Al-amer and Ms. Maryam Hijji Alshabib for their assistance in collecting data.

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