KNOWLEDGE AND UTILIZATION OF PRECONCEPTION CARE SERVICES AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT THE KORLE BU TEACHING HOSPITAL

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Abstract

Objectives: Our study explores the knowledge, perceived importance, utilization, and barriers to preconception care services among pregnant women attending antenatal care in Accra, Ghana.

Design: This is a descriptive cross-sectional survey design.

Patients and Methods: Participants are pregnant women receiving antenatal care at the Korle-Bu Teaching Hospital in Accra, Ghana.

Interventions and Outcome Measures: Participants completed a questionnaire on demographics and their knowledge, perceived importance, utilization, and barriers to preconception care services.

Results: Of 120 participants, 71.7% (n=86) had not heard of preconception care, 76.7% (n=92) did not know any elements involved in preconception care, and 27.5% (n=33) were able to select the appropriate definition. One third of participants (39.2%, n=47) viewed preconception care as important. Only 15.8% (n=19) had personally utilized preconception care; most common components received were folic acid supplementation and management of anaemia. Of those who utilized preconception care, 100% felt the care was beneficial. 21.1% faced a barrier in accessing care, including cultural beliefs, religious beliefs, and lack of time. The majority of all participants (n=75, 62.5%) felt that public education about preconception care could help overcome the barriers.

Conclusions: We demonstrate a significant gap in knowledge and awareness of preconception care among pregnant women in Ghana. Women who do receive preconception care have good knowledge about the importance of the care, and universally feel that the care was beneficial. This highlights the importance of public education and healthcare provider counselling on the role, components, and benefits of preconception care.

Key Words: *Preconception care, pregnancy, Ghana, maternal health, LMIC*

Introduction

Pregnancy-related morbidity and mortality remains high globally, particularly in Low and Middle Income Countries (LMIC)[1]. Many aetiologies of maternal and neonatal morbidity are modifiable if identified and managed prior to conception, including tobacco use, intimate partner violence, maternal undernutrition, infectious diseases, and iron-deficiency anaemia[2]. Optimizing health and healthcare behaviours prior to the first prenatal visit is an important window of opportunity to promote healthy pregnancies[3].

Preconception care is defined by the World Health Organization (WHO) as the provision of biomedical, behavioural and social health interventions to women and couples before conception occurs[4]. Preconception care addresses a range of key areas including nutritional health, genetic conditions, mental health, environmental hazards, vaccine-preventable diseases, and substance abuse[4]. Preconception care aims to improve maternal and child health by reducing unintended pregnancies, optimizing management of maternal chronic disease, preventing birth defects, and minimizing neonatal infections including vertical transmission of Human Immunodeficiency Virus (HIV)[5].

In spite of the numerous benefits that preconception care offers, challenges to utilization of preconception counselling exist in LMIC, such as Ghana[6]. Our study explores the knowledge, perceived importance, utilization, and barriers to preconception care services among pregnant women attending antenatal care at the Korle-Bu Teaching Hospital in Ghana. Understanding patients' perspectives on preconception care can inform public educational interventions and healthcare policies surrounding preconception care services.

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Materials and Methods:

This is a descriptive cross-sectional study performed at the Korle-Bu Teaching Hospital (KBTH) in Accra, Ghana. KBTH is the third largest hospital in Africa and is the leading national referral centre in

Ghana. Institutional review board approval was obtained (UGMS-CHDRC-167/2020).

Participants were pregnant women, with age greater than or equal to 18 years, who received care at the antenatal clinic at KBTH. Purposive non-probability sampling was used, by recruiting sequential women presenting for antenatal care. Data collection was carried out from 3RD August, 2020 to 28TH August, 2020. Written informed consent was obtained from all participants. Questions were verbally administered to participants in English or Twi, according to their preference.

Participants completed a five-part questionnaire, consisting of multiple-choice questions with categorical responses. Section 1 focused on demographics, including age, educational level, employment status, and parity. Section 2 focused on knowledge about preconception care. Participants were asked if they had heard of preconception care, and if so, where they were first exposed. Factual questions were then asked on the definition, components, and benefits of preconception care, as well as specific questions on knowledge about harms of alcohol and exposure to cat litter during pregnancy. In Section 3, participants indicated whether they thought preconception care was important. Those who responded "no", were asked to indicate their reason. In Section 4, participants were asked whether they had personally utilized preconception care. Those who responded "yes" were asked about specific components received, and whether they felt that their preconception care was beneficial. Finally, Section 5 focused on barriers to utilization of preconception care. Participants who received preconception care were asked if they faced barriers obtaining care, and which specific barriers were encountered. All participants were asked whether they believed public education on preconception care would overcome these barriers.

Data was collected on paper questionnaires and uploaded into Statistical Package for Social Sciences (SPSS version 20) for analysis. Descriptive statistics were calculated using frequencies (proportions) for all categorical responses.

Results

A total of 120 pregnant women participated in this study. The majority of respondents (n=86, 71.7%) were between the ages of 20-35 years. All levels of education were represented, with 38.3% (n=46) having completed tertiary education. The majority of participants were employed (n=103, 85.8%). 27.5% (n=33) of participants were nulliparous, 60.8% (n=73) had a planned pregnancy, and 14.2% (n=17) underwent fertility treatment.

The majority of participants (n=86, 71.7%) had not heard of preconception care. Out of the 34 respondents (28%) who had heard of preconception care, 13 learned about it from a health facility, 7 from family/friends, and 11 from the media. Regarding the definition of preconception care, 33 respondents (27.5%) selected the appropriate definition. 33 of 34 participants (97.1%) who had heard of preconception care selected the correct definition. Most of the respondents (n=92, 76.7%) did not know any elements involved in preconception care. Screening / management of hypertension, screening / management of diabetes, cessation of smoking, and regular exercise was correctly identified as components of preconception care by 19.2%, 16.7%, 13.3%, and 11.7% respectively. Similarly, the majority of respondents (n=88, 73.3%) did not have knowledge about the benefits of preconception care. When queried about specific exposure in pregnancy, 93.3% (n=112) correctly identified alcohol as a risk, however only 33.3% (n=40) identified cat litter as a risk.

Regarding attitudes toward preconception care, 39.2% (n=47) view preconception care as important. Of the one participant (0.8%) who believed preconception care is not important, the selected reason was that the outcome of a pregnancy is determined by God. Among all participants, 15.8% (n=19) had personally utilized preconception care. Of those who utilized preconception care, the most common components were folic acid supplementation and management of anaemia. 100% of participants who utilized preconception care felt that this care was beneficial. Of those who utilized preconception care, 21.1% (n=4) felt that they faced a barrier in accessing the care, which included cultural beliefs, religious beliefs, and lack of time. The majority of all participants (n=75, 62.5%) felt that public education about preconception care could help overcome the barriers.

Table 1: Demographic Characteristics

Characteristic		**Frequency (Proportion)**
Age (years)	< 19	1 (0.8%)
	20-35	86 (71.7%)
	> 35	33 (27.5%)
Education	No formal education	7 (5.8%)
	Primary	5 (4.2%)
	Junior high school	27 (22.5%)
	Senior high school	35 (29.2%)
	Tertiary	46 (38.3%)
Ethnicity	Akan	61 (50.8%)
	Ga	26 (21.7%)
	Ewe	18 (15.0%)
	Dagomba	7 (5.8%)
	Other	8 (6.7%)
Employment Status	Employed	103 (85.8%)
	Unemployed	17 (14.2%)
Religion	Christianity	102 (85.0%)
	Islam	18 (15.0%)
	African Traditional	0 (0.0%)
Gravidity	1	26 (21.7%)
	2	30 (25.0%)
	3	33 (27.5%)
	4	19 (15.8%)
	>4	12 (10.0%)
Parity	0	33 (27.5%)
	1	35 (29.2%)
	2	34 (28.3%)
	3	10 (8.3%)
	>3	8 (6.7%)
Gestational Age at Recruitment	1-13 weeks	6 (5.0%)
	14-27 weeks	31 (25.8%)
	28-40 weeks	80 (66.7%)
	> 40 weeks	3 (2.5%)
Whether Pregnancy was Planned	Planned	73 (60/8%)
	Unplanned	47 (39.2%)
Underwent Fertility Treatment	Yes	17 (14.2%)
	No	103 (85.8%)

Table 2: Knowledge About Preconception Care

	Frequency (Proportion)
Heard of Preconception Care	
Yes	34 (28.3%)
No	86 (71.7%)
Source of Hearing About Preconception Care (n=34)	
Health facility	13 (38.2%)
Family or friends	7 (20.6%)
Media	11 (32.4%)
Other	3 (8.8%)
Definition of Preconception Care	
Care given to a woman before pregnancy to prepare them for a healthy pregnancy	33 (27.5%)
Care given to children	0 (0%)
I don't know	87 (72.5%)
Knowledge of Elements Included in Preconception Care	
Screening / management of hypertension	23 (19.2%)
Screening / management of diabetes	20 (16.7%)
Cessation of smoking	16 (13.3%)
Regular exercise	14 (11.7%)
I don't know	92 (76.7%)
Knowledge of Benefits of Preconception Care	
Prevention of birth defects	23 (19.2%)
Prevention of transmission of HIV/AIDS	26 (21.7%)
Prevention of complications during pregnancy and delivery	28 23.3%)
Prevention of death of mother or baby	18 (15.0%)
I don't know	88 (73.3%)
Can Alcohol Intake During Pregnancy Affect the Unborn Baby?	
Yes	112 (93.3%)
No	2 (1.7%)
I don't know	6 (5.0%)
Can Exposure to Cat Litter During Pregnancy Affect the Unborn Baby?	
Yes	
No	40 (33.3%)
I don't know	19 (15.8%)
	61 (50.8%)

Table 3: Attitudes and Utilization of Preconception Care

	Frequency (Proportion)
Preconception Care Perceived as Important	
Yes	47 (39.2%)
No	1 (0.8%)
I don't know	72 (60.0%)
Reasons why preconception care is not perceived as important (n=1)	
Some women have safe pregnancies without preconception care	0 (0.0%)
Outcome of pregnancy is determined by God	1 (100%)
Other	0 (0.0%)
Utilization of Preconception Care	
Yes	19 (15.8%)
No	101 (84.2%)
Elements of Preconception Care Received (n=19)	
Screening/management of hypertension	7 (36.8%)
Screening/management of diabetes	7 (36.8%)
Management of anemia	9 (47.4%)
Folic acid supplementation	13 (68.4%)
Weight management and exercise	3 (15.8%)
Perception that Preconception Care was Beneficial (n=120)	
Yes	19 (15.8%)
No	0 (0.0%)
I don't know	101 (84.2%)
Faced Barrier while Getting Preconception Care (n=19)	
Yes	4 (21.1%)
No	15 (78.9%)
Barriers Faced to Utilization of Preconception Care (n=4)	
Lack of time	2 (50.0%)
Husband refusing care	1 (25.0%)
Cultural beliefs	1 (25.0%)
Financial	0 (0.0%)
Religious beliefs	0 (0.0%)
Negative attitudes of healthcare providers	0 (0.0%)
Belief that Public Education Could Help Overcome Barriers	
Yes	75 (62.5%)
No	0 (0.0%)
I don't know	45 (37.5%)

Discussion:

We demonstrate that knowledge about preconception care services is low among women receiving antenatal care at KBTH, with only 28.3% of participants having heard of preconception care. Our findings are consistent with studies done in Ethiopia[7], Sudan[8], and Nepal[9] which demonstrated 28%, 11%, and 16% of respondents knew about preconception care respectively[10]. Interestingly, awareness of preconception care is higher in Nigeria, where 78% of participants reported awareness, although 66% did not know that preconception care was available in Nigeria [11]. This may be explained by a more educated study population with 80% having completed tertiary education. Additionally, a main source of exposure in Nigeria was the media, which suggests a role of the media in increasing public awareness of preconception care. As expected, awareness of preconception care is greater in high-income countries such as the United States, where 48% of men and 57% of women had heard of preconception care[12]. In our study, only 27.5% of participants were able to select the appropriate definition of preconception care, and specific knowledge about components and benefits of preconception care were low. This contrasts with 71% of Nigerian women correctly defining preconception care, among a population where awareness of preconception care is higher [11]. Other studies demonstrate that an increased awareness of preconception care is associated with higher completed education, older age, and use of family planning methods.[7]

Regarding the importance of preconception care, only 39.2% of women in our study considered it important. This finding is unsatisfactory but expected given low awareness in our population. This contracts with a study done in Malaysia that found 90% of participants agreed that preconception care is important for reproductive age women[13]. Importantly, all participants in our study who received preconception care unanimously agreed that it was beneficial. This highlights the importance of increasing initial access and awareness to preconception care, which may facilitate continued utilization throughout reproductive years.

We found low utilization, with only 19 of 120 participants (16%) having received preconception care. It is also important to note that although 28% of women had heard of preconception care, only 16% utilized it. This discordance between the level of awareness and utilization of preconception care may be attributed to a lack of comprehensive explanation of the components and benefits of care. This suggests that simple awareness of preconception care is not enough to promote utilization, and more detailed education is necessary. Regarding specific elements of preconception care, 11% received folic acid supplementation, which is less than the 30% in Malaysia[13] and 26% in Nigeria[11]. Folic acid helps in the formation of new red blood cells and reduces fetal neural tube defects such as spina bifida[14]. Regarding optimization of chronic maternal conditions, 6% of participants had screening and management of diabetes and hypertension. Poorly controlled diabetes and hypertension can lead to abnormal fetal growth, stillbirth, increased risk of caesarean delivery, diabetic ketoacidosis, and preeclampsia [15,16]. Only 7.5% of participants received treatment for maternal anaemia. Anaemia increases the risk of maternal death, low birthweight and preterm labor[17]. Finally, only 2.5% received weight management and exercise as a form of preconception care, compared to 11.7% in Nigeria[11]. Undernutrition or obesity can lead to poor fetal growth, increased risk of caesarean delivery, gestational diabetes, and preeclampsia[18].

Among participants who had received preconception care, 21% reported that they experienced barriers to their utilization of that care. Cited barriers included a lack of time, religious beliefs, and cultural beliefs. It is notable that medical appointments at KBTH often require long travel times and long waiting times before being seen by a provider. Cultural beliefs were also reported as a barrier to care in Nigeria[6,19]. In the literature, barriers to preconception care also include poverty[11,19], the husbands' acceptance of the maternal healthcare services, language barriers, and attitudes of healthcare providers[6]. These range of barriers highlight the importance of understanding local religious and cultural beliefs and their role in impacting acceptance of preconception care. Importantly, 63% of participants in our study believed that the education of the public on preconception care and its importance could help overcome some of the barriers. The perspectives and attitudes of reproductive age women are important to incorporate in these public health messages.

This study fills a gap in the literature by evaluating knowledge, utilization and barriers to preconception care in a LMIC setting where preconception care is available. There was a high participation rate of 100%, which limits potential response bias. Importantly, only women receiving antenatal care were eligible for participation. We anticipate that women who do not receive antenatal care are both at higher risk of maternal and neonatal morbidity, and also less likely to have awareness or utilization of preconception care. This study was done at a single tertiary care hospital, in an urban capital city. In this population, one-third of women had completed tertiary education and the vast majority were employed. This may limit generalizability to women living in peri-urban and rural areas. Our participants do demonstrate a range of education levels, religions, and ethnicities, which helps support a diversity of responses. Notably, Ghana has robust postgraduate residency training programs for Obstetrician/Gynaecologists who are trained to provide or supervise preconception care. Thus, experiences of

pregnant women in Ghana may not be generalizable to other LMIC where preconception care is less accessible. Finally, participants in our study were limited to categorical responses. Additional qualitative research is needed to more fully explore topics addressed in the survey.

Conclusion

We demonstrate a significant gap in knowledge and awareness of preconception care among pregnant women in Ghana. This has far-reaching health implications for this at-risk population. Women who do receive preconception care have good knowledge about the importance of the care, and universally feel that the care was beneficial. This highlights the importance of public education and healthcare provider counselling on the role, components, and benefits of preconception care in low-resource settings.

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