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ORIGINAL ARTICLE

Knowledge on preconception care among pregnant women at a hospital in Liberia

Conocimiento sobre el cuidado preconcepcional entre mujeres embarazadas en un hospital en Liberia

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ABSTRACT
While preconception care is standard practice in high-income countries, it is an unused or even unrecognized service in low-income countries. The purpose of this study is to determine the knowledge of pregnant women about preconception care in a hospital in Liberia. This study used the descriptive and cross-sectional research design. The population of this study included all pregnant women who attended antenatal care at a hospital in Liberia from July 15 to December 15, 2023. The final sample consisted of 190 pregnant women. Data were collected face-to-face using a personal information form and the preconception care improvement scale. Data was analyzed using descriptive statistics and the chi-square test. Results: In this study, most of the pregnant women are single (72.6%), Christian, and rural dwellers. More than half of pregnant women (57.9%) have primary education, and 74.2% of the pregnant women have unplanned pregnancies. This study found that 77.4% of the pregnant women had low knowledge of preconception care, whereas 22.6% had good knowledge of preconception care. It was found that there is a statistically significant difference between marital status, area of residence, level of education, the number of live births, planned or unplanned pregnancies, age range, and level of knowledge on the preconception care improvement scale ($p<0.001$). The knowledge of preconception care among pregnant women at a hospital in Liberia is low. It is recommended that antenatal care services be added to preconception care of primary and secondary healthcare services as routine care.

Keywords: Preconception care; Maternal health; Pregnant women; Health knowledge, Antenatal care.

RESUMEN
Mientras que la atención preconcepcional es una práctica estándar en los países de altos ingresos, en los países de bajos ingresos es un servicio poco utilizado o incluso no reconocido. El objetivo de este estudio fue determinar el nivel de conocimiento de las mujeres embarazadas sobre la atención preconcepcional en un hospital de Liberia. Este estudio utilizó un diseño de investigación descriptivo y transversal. La población incluyó a todas las mujeres embarazadas que asistieron a atención prenatal en un hospital de Liberia entre el 15 de julio y el 15 de diciembre de 2023, con una muestra total de 190 participantes. Los datos se recopilaron mediante entrevistas cara a cara utilizando un formulario de información personal y la escala de mejora de la atención preconcepcional, y se analizaron mediante estadísticas descriptivas y la prueba de chi-cuadrado. La mayoría de las participantes eran solteras (72,6%), cristianas y residentes en zonas rurales. Más de la mitad (57,9%) tenía educación primaria y el 74,2% presentaba embarazos no planificados. Se encontró que el 77,4% tenía un bajo nivel de conocimiento sobre la atención preconcepcional, mientras que el 22,6% tenía un buen nivel. Se observaron diferencias estadísticamente significativas entre el estado civil, el lugar de residencia, el nivel educativo, el número de hijos vivos, la planificación del embarazo, el rango de edad y el nivel de conocimiento ($p<0,001$). El nivel de conocimiento es bajo y se recomienda integrar la atención preconcepcional como parte rutinaria de los servicios de atención primaria y secundaria.

Palabras clave: Atención preconcepcional; Salud materna; Mujeres embarazadas; Conocimientos en salud; Atención prenatal.

INTRODUCTION

There is a very high incidence of maternal mortality in Sub-Saharan Africa. Seventy percent of all maternal deaths (200 000) occurred in Sub-Saharan Africa, while just about sixteen percent occurred in Southern Asia (47 000) (World Health Organization [WHO], 2023). Notwithstanding its significance, this rate is just approximately a third of the 6.4% annual rate required to reach the goal of 70 maternal deaths per 100,000 live births by 2030 (Sexual and Reproductive Health and Research [SRH], 2023). Although there has been some progress in Sub-Saharan Africa, significant gaps in the distribution of essential maternity and newborn care remain (Ruktanonchai et al., 2018).

One of these gaps is the low awareness of the importance of preconception care services (Woldeyohannes et al., 2023). In Liberia, a Sub-Saharan African country characterized by high maternal mortality rates (Liberia Institute of Statistics and Geo-Information Services et al., 2021), existing research on maternal health has predominantly concentrated on intrapartum and postpartum care (Blizzard et al., 2023). Consequently, the pre-pregnancy stage remains substantially underexplored, resulting in a notable gap in literature.

According to the WHO (2013), preconception care refers to the provision of interventions in the areas of biomedicine, behavioral health, and social health to women and couples prior to the occurrence of human conception. The preconception care's goal is to increase mother and child health and decrease the risk factors that threaten it (Center for Diseases Control [CDC], 2023). It has been noted that pre-pregnancy care is one of the maternal health services in developed countries (Abekah-Nkrumah, 2019). While preconception care is standard practice in high-income countries, it is an unused or even unrecognized service in low-income countries (Shadab et al., 2017).

In Liberia, there is a significant gap in the provision of high-quality antenatal care services. Concerning the usage of antenatal care services in Liberia, there are discrepancies that exist at both the county and regional levels. Women living in rural areas are less likely to attend at least four antenatal care visits. In spite of the fact that there has been considerable progress made in antenatal care, a significant number of women continue to be denied access to this potentially life-saving medical therapy. Therefore, it is important to evaluate preconceptional care as part of antenatal care in Liberia (Blackstone, 2019; Luginaah et al., 2016; Ekholuenetale et al., 2022; Yaya et al., 2019).

In literature, although there are some studies showing that women's knowledge about pre-pregnancy care is low (Alemu et al., 2021; Lemma et al., 2022; Woldeyohannes et al., 2023), there are also studies showing that it is moderate (Giri & Gautam, 2018). Studies have found that receiving preconceptional care and the level of knowledge about this care are associated with many sociocultural factors (Alemu et al., 2021; Amaje et al., 2022; Beyuo et al., 2021; Giri & Gautam, 2018; Mwase-Musicha et al., 2022; Woldeyohannes et al., 2023).

Preconception care involves many health professionals. In preconception care, the nurse has many educational, counselling, and caring roles in promoting health, assessing risk, and managing pre-existing conditions (CDC, 2023; Close et al., 2023; Royal Australian and New Zealand College of Obstetricians and Gynaecologists [RANZCOG], 2017; National Institute for Health and Care Excellence [NICE], 2023). This study raises awareness about the importance of preconception care and the active role of nurses in providing such care. Accordingly, the results of this study may inform policy actions aimed at promoting preconception care education and support. Furthermore, this study will benefit women in the study area in that the result of the study will be used by the government or organizations to organize programs that are beneficial to help them understand more fully the importance of preconception care as a standard of care in primary health care in Liberia. In addition, the results of this study may contribute to the research gap on this topic.

The purpose of this study is to determine the knowledge of pregnant women about preconception care at Ganta United Methodist Hospital in Liberia. In line with this objective, the study addresses the following research questions: What is the level of knowledge of preconception care among pregnant women? Is there a significant relationship between preconception care knowledge and socio-demographic variables?

METHODOLOGY

Research design

This study used descriptive and cross-sectional research design.

Population & The Sample

The population of this study consists of pregnant women who came to the obstetrics clinic of Ganta United Methodist Hospital in Liberia. Ganta United Methodist Hospital is situated in Ganta, Northeast Liberia. Ganta United Methodist Hospital provides medical care for about 450,000 people from Liberia, Guinea, and Ivory Coast each year. Because of the location of this hospital in Ganta, which is one of the largest cities in Liberia, serving people from neighboring countries, and the huge population it served, this hospital was chosen.

In this study, a non-probability consecutive sampling method was used. The study included all pregnant women who received prenatal care at Ganta United Methodist Hospital between July 15 and December 15, 2023, met the inclusion criteria, and voluntarily agreed to participate. The final sample consisted of n = 190

participants. No additional sampling procedure was applied beyond the eligibility assessment; all eligible pregnant women who attended antenatal care during the study period and voluntarily agreed to participate were included.

Inclusion Criteria

Participants were eligible for inclusion if they:

- were pregnant women attending antenatal care at Ganta United Methodist Hospital.
- were aged 18 years or older.
- provided informed consent to participate in the study.
- were present during the data collection period.
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Exclusion Criteria

Participants were excluded if they:

- were younger than 18 years of age.
- had communication difficulties that could impair their ability to respond to the questionnaire.

Data collection tools and procedures

The data collection tools that were used are the participant information form and the Preconception Care Improvement Scale (PCIS). The first entry of the participant information form includes the informed consent form of the participants before participating in the study. The information form is made up of socio-demographic variables (question number=8). Individual questions include their age, marital status, area of residence, level of education, religion, occupation, live birth, and a question asking whether the pregnancy was planned or unplanned.

The Preconception Care Improvement Scale (PCIS) was developed by Teshome et al. in 2022. The PCIS has 17 items loaded into six factors. It has a 3-points Likert scale ranging from 'Yes', 'No' to 'Don't know'. The internal consistency (Cronbach's alpha) of the scale was 0.776. The knowledge score for 17 questions ranged from 0 to 17. Each question will receive 1 for yes and 0 for no and I don't know. 17 indicates all questions were answered correctly. Women who scored more than 50% (≥ 9 correct responses to the 17 items) were recognized as 'women with good knowledge of preconception care, whereas those who scored below 50% (≤ 8 incorrect responses to the 17 items) were considered as 'women who had poor knowledge of preconception care (Teshome et al., 2020).

Data were collected face-to-face by two registered nurses with a master's degree in nursing, as they are hospital-trained data collectors. Women were recruited when they went to the hospital for antenatal care. The questionnaire took almost 15 minutes.

Data analysis

The data collected was analyzed using the Statistical Package (SPSS) 26.0 software. Descriptive statistics were used to analyze the demographic aspects of the questionnaire by calculating frequencies and percentages. The level of knowledge was categorized as good or low based on a 50% cut-off point; participants who scored below 50% were classified as having low knowledge, while those who scored 50% and above were classified as having good knowledge. To examine the relationship between knowledge level (good/low) and socio-demographic variables, the Chi-square test was used for categorical variables such as gender and pregnancy status (planned/unplanned). For associations between knowledge level and socio-demographic variables with more than two categories, the Chi-square test for r × c (RxC) tables were applied.

Ethical aspect of the study

Ethical approval for the study was obtained from the Near East University Ethics Committee on June 21, 2023. NEU/2023/115-1747). A permission letter was given by the Ganta United Methodist Hospital, where the research was conducted. Permission to use the PCIS for this study was obtained from Dr. Teshome. In accordance with the "Helsinki Declaration of Human Rights," the participants who voluntarily participated in the study were informed about the purpose, importance, and process of the research through the informed consent form. All information gathered for this research was held in confidence.

RESULTS

The demographic profile of the participants (Table 1) reflects a predominantly young, rural, and socio-economically vulnerable population. The pregnant women had a mean age of 25.5 ± 4.89 years (range=18–42). A significant majority were single (72.6%) and resided in rural areas (26.3% urban vs. 73.7% rural), which may indicate potential barriers to healthcare access. Educational and occupational backgrounds further highlight this vulnerability, with over half (57.9%) having only a primary education and a substantial portion (32.1%)

being housewives. Regarding obstetric history, most participants had fewer than two live births; however, a critical finding is that nearly three-quarters (74.2%) of the pregnancies were unplanned.

Table 1. Characteristics of the pregnant women (n=190).

Variable	Categories	Frequency	Percentage
Marital Status	Single	138	72.6
	Married	52	27.4
Area of Residence	Rural	140	73.7
	Urban	50	26.3
Level of Education	Primary education	110	57.9
	Secondary and above	41	21.6
	No formal education	39	20.5
Religion	Christianity	137	72.1
	Muslim	43	22.6
	African traditionalist	10	5.3
Occupation	Farmer	19	10.0
	Housewife	61	32.1
	Merchant	27	14.2
	Other*	83	43.7
Livebirth	1	93	48.9
	2	75	39.5
	3 or more	22	11.6
Pregnancy	Unplanned	141	74.2
	Planned	49	25.8

*Other: Working in different forms of offices

The findings from the 'Substance-related Behaviors' subscale (Table 2) reveal a concerning deficit in knowledge and proactive health behaviors among the participants. A significant proportion of the pregnant women demonstrated a lack of commitment to avoiding or ceasing harmful substances; for instance, less than a quarter (22.6%) reported avoiding cigarettes, while the majority (58.5%) did not. Furthermore, the responses regarding alcohol, khat, and cannabis use were characterized by high levels of 'no' or 'don't know' answers, with over half of the respondents (55.8%) not actively avoiding alcohol or khat. These results suggest limited awareness of the health risks associated with substance use during the preconception period and indicate the need for targeted health education interventions.

Table 2. Questions on pregnant women's knowledge of preconception care (n=190).

Variable	Categories	Frequency	Percentage
Substance-related Behaviors Subscale			
Avoiding or cessation of cigarettes	Yes	43	22.6
	No	111	58.5
	Don't Know	36	18.9
Avoiding or cessation of alcohol	Yes	41	21.6
	No	106	55.8
	Don't Know	43	22.6
Avoid or cessation of chewing khat	Yes	38	20.0
	No	106	55.8
	Don't Know	46	24.2
Avoiding or cessation of using cannabis	Yes	42	22.1
	No	91	47.9
	Don't Know	57	30.0

Variable	Categories	Frequency	Percentage
Screening for Common non-communicable & Infectious Diseases Subscale			
Screening for diabetes mellitus	Yes	47	24.7
	No	99	52.1
	Don't Know	44	23.2
Screening for blood group	Yes	45	23.7
	No	104	54.7
	Don't Know	41	21.6
Screening for hypertension	Yes	48	25.3
	No	95	50.0
	Don't Know	47	24.7
Screening for Hepatitis B	Yes	46	24.2
	No	100	52.6
	Don't Know	44	23.2
Micronutrient Supplementation & Vaccination subscale			
Taking iron or ferrous	Yes	46	24.2
	No	101	53.2
	Don't Know	43	22.6
Taking folic acid	Yes	45	23.7
	No	98	51.6
	Don't Know	47	24.7
Taking the tetanus vaccine	Yes	44	23.1
	No	98	51.6
	Don't Know	48	25.3
Seeking Advice Subscale			
Consulting health workers for advice	Yes	52	27.4
	No	99	52.1
	Don't Know	39	20.5
	Yes	49	25.8
Having good nutrition and diet	No	102	53.7
	Don't Know	39	20.5
Decision & Readiness for Conception Subscale			
Stop or remove family planning	Yes	50	26.3
	No	97	51.1
	Don't Know	43	22.6
Discussion with husband when to have becoming pregnant	Yes	41	21.6
	No	111	58.4
	Don't Know	38	20.0
Screening for Sexually Transmitted Diseases Subscale			
Screening for HIV/AIDS for the sake of becoming pregnant	Yes	56	29.5
	No	97	51.0
	Don't Know	37	19.5
Screening for sexually transmitted disease	Yes	53	27.9
	No	100	52.6
	Don't Know	37	19.5

Table 2 presents pregnant women's knowledge of preconception care. Findings from the Substance-related Behaviors subscale indicate a consistently low level of awareness and preventive behavior. Across all substances, the proportion of women reporting avoidance or cessation remained low, while a considerable percentage either continued use or lacked knowledge. Notably, more than half of the participants did not avoid cigarettes (58.5%) or alcohol and khat (both 55.8%), and substantial proportions also reported uncertainty, particularly regarding cannabis use (30.0%) and khat (24.2%). This pattern suggests both limited awareness of substance-related risks and insufficient engagement in protective health behaviors.

Similarly, the subscale assessing screening for common non-communicable and infectious diseases reveals inadequate preconception health practices. Screening rates for key conditions—including diabetes mellitus, hypertension, Hepatitis B, and blood group—remained consistently low (approximately one-quarter of participants), whereas over half of the respondents reported not undergoing such screenings (Table 2). This indicates a significant gap in preventive healthcare utilization prior to pregnancy.

The 'Micronutrient Supplementation and Vaccination' subscale (Table 2) reveals a critical deficit in preventive health measures essential for healthy pregnancy outcomes. Knowledge and uptake of iron or ferrous supplements were notably low, with only 24.2% of participants reporting usage. More alarmingly, over half of the respondents (51.6%) were not taking folic acid or the tetanus vaccine, while approximately one-quarter expressed total uncertainty ('don't know') regarding these interventions. This low level of folic acid use and awareness—despite its importance in preventing neural tube defects—highlights a gap in preconception health education and the need to strengthen counselling before pregnancy.

The findings across the 'Seeking Advice,' 'Decision & Readiness,' and 'STD Screening' subscales (Table 2) consistently highlight a profound disconnect between the participants and preconception health services. Professional consultation and nutritional preparedness remained low, with over half of the women (53.7%) not maintaining a structured diet or seeking medical advice prior to pregnancy. Furthermore, the 'Decision & Readiness' subscale underscores a significant lack of reproductive autonomy and interpersonal communication; notably, 58.4% of the respondents did not discuss the timing of pregnancy with their husbands, and a majority (51.1%) did not actively manage the cessation of family planning. This lack of preparation extends to infectious disease prevention, where more than 50% of the participants failed to undergo screening for HIV/AIDS or other STDs specifically for the purpose of pregnancy. Collectively, these results suggest that conception in this cohort often occurs in a vacuum of professional guidance and preventative screening, significantly increasing the risk for both maternal and neonatal complications.

An overall assessment of the pre-pregnancy knowledge subscales indicates a profound systemic deficiency; only one in four women demonstrated adequate knowledge across the various components of preconception care. The overwhelming majority's lack of awareness or total uncertainty suggests that the current healthcare model in Liberia is almost exclusively reactive—focusing on the period after conception—rather than proactive. This widespread knowledge gap represents a missed clinical opportunity to mitigate preventable risks, such as micronutrient deficiencies and infectious diseases, well before they escalate into maternal and neonatal complications.

In Table 3, the categorization of pregnant women's knowledge of preconception care is given. A vast majority of the pregnant women (77.4%) demonstrated a low level of knowledge, while only a small minority (22.6%) were classified as having good knowledge. This skewed distribution suggests that preconception health information is not reaching more than three-quarters of the target group, pointing toward a significant systemic gap in maternal health education and early-stage preventive interventions in the region.

Table 3. Total Score of Pregnant Women's Knowledge of Preconception Care Scale (n=190).

Variable	Categories	Frequency	Percentage
Knowledge of Preconception Care	Low	147	77.4
	Good	43	22.6

This study found that married women had more knowledge (53.8%) as compared to single women (x2 (1, n = 190) = 39.84, p < 0.001). Women who are from Urban areas have more knowledge (42.0%) as compared to women from rural areas (15.7%) (x2 (1, n = 190) = 14.538, p < 0.001). Women who had secondary & above education had more knowledge (56.1%) as compared to those with lower education (x2 (2, n = 190) = 34.432, p < 0.001). Women who had 3 or more live births had more knowledge (40.9%) than those with 1 or 2 live births (x2 (2, n = 190) = 11.148, p< 0 .05). Women who had planned pregnancies had more knowledge of preconception care (65.3%) than those who had unplanned pregnancy (7.8%), and women who were in the age range of 35 -49 (44.4%) had more knowledge of preconception care than those who had lower ages (x2 (2, 190) = 68.674, p < .001).

This study found that occupation and religion were not associated with pregnant women's knowledge of preconception care (x^2 (2, n = 190) = 0.891, p > 0.05). When examined, the relationship between Women's knowledge of Preconception care and occupation is not statistically significant (x^2 (2, n = 190) = 6.554, p > 0.05).

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DISCUSSION

This study found that knowledge of pregnant women regarding preconception care is low (Table 3). Most of the women (77.4%) had low knowledge of preconception care, whereas 22.6% had good knowledge of preconception care. Many women in the study area live far from the hospital, and poor road conditions may further limit their access to preconception care services. When many women think about the distance to the nearest hospital and the many difficulties they will encounter, they are reluctant to seek preconception care.

Limited access to mass media and modern communication technologies in rural areas may contribute to lower awareness of preconception care; however, this factor was not directly assessed in the present study. According to the Liberia Demographic and Health Survey (LDHS, 2021), limited access to radio and digital communication in remote regions significantly restricts the dissemination of maternal health information. This lack of information infrastructure likely contributes to the high prevalence (77.4%) of low preconception knowledge among rural dwellers in this study.

In the second reason, there was a gap in the continuum of care, which is related to the fact that the majority of women do not receive care prior to becoming pregnant. According to the available evidence (Gryseels et al., 2022; Teshome et al., 2020), fewer than one-third of women of reproductive age visited health facilities and had conversations with health care providers before becoming pregnant regarding their current state of health and the potential impact it could have on the result of their pregnancy (Frederiksen et al., 2021; Tasneem & Ozdal, 2023).

This study agrees with a study conducted by Shibata et al. (2023) among 13 and 232 rural Japanese women who were both interviewed and surveyed. The study found that the majority of them lack knowledge of preconception care, most especially those who have their first pregnancy. In another study conducted by Munthali et al. (2021) in Mzuzu City, Malawi among 253 women of reproductive age, 42.3% of respondents had inadequate knowledge about preconception care, whereas approximately 57.7% of respondents displayed a strong level of knowledge concerning preconception care.

This finding is partially consistent with previous research conducted among rural populations, where women face similar barriers to accessing preconception care. However, the higher level of knowledge reported in that study may be related to differences in sample size and study setting. These contextual differences could explain the lower knowledge levels observed in the present study.

Evidence from previous studies across different settings consistently indicates generally low to moderate levels of knowledge regarding preconception care among women of reproductive age. Studies conducted in Ethiopia, China, and Nigeria have reported low levels of knowledge, particularly among women residing in rural areas and those with lower educational attainment (Ayalew et al., 2017; Li et al., 2019; Umar et al., 2019).

These findings are in line with the results of the present study, suggesting that limited awareness of preconception care may be a widespread issue across similar socio-demographic contexts. Although some studies have reported slightly higher or moderate levels of knowledge, such as in Jinka town (Fikadu et al., 2022), these differences may be attributed to variations in study populations, sampling methods, and contextual factors including healthcare access and service availability. Overall, the evidence suggests that knowledge of preconception care remains suboptimal in most low-resource and rural settings, highlighting persistent gaps in reproductive health awareness.

The findings reported by Umar et al. (2019) are consistent with the results of the present study, both indicating insufficient knowledge of preconception care among women of reproductive age. This persistent knowledge gap may have implications for the continuity and quality of antenatal care, as awareness of preconception health is closely linked to early engagement with maternal health services. The observed deficiency may reflect broader systemic challenges, including limited dissemination of preconception health information and inadequate emphasis on this topic within routine healthcare provision. Overall, the evidence suggests that gaps in knowledge are not only individual level but may also be influenced by health system and service delivery factors within similar populations.

Evidence from studies conducted in Nigeria, India, and Iran shows considerable variation in the level of knowledge regarding preconception care among women of reproductive age. While some studies report moderate levels of knowledge with poor translation into practice (Kachiro et al., 2022), others indicate relatively higher levels of awareness (Khanal, 2020; Jafari & Rashidi, 2017). Overall, these findings suggest that although awareness of preconception care may range from moderate to high in certain settings, this knowledge does not consistently translate into adequate preconception care practices.

The variation in findings across studies may be attributed to contextual differences, including urban–rural residence, access to maternal health information, and the integration of preconception care education into routine antenatal services. In particular, settings with stronger health education programs and better access to healthcare providers appear to demonstrate higher levels of knowledge. In contrast, lower knowledge levels may reflect gaps in health system delivery and limited exposure to structured preconception care information.

In this study, it was observed that approximately one in every four women was aware of the items, while the majority were unaware or had no idea about all subcomponents of preconception care. The most known components of preconception care among pregnant women included screening for sexually transmitted diseases, decision and readiness for conception, and seeking advice, while the least known were micronutrient supplementation and vaccination (Table 2). It is thought that the level of awareness and knowledge about less common applications may be lower. The fact that women's pre-pregnancy knowledge levels are so low may also negatively affect their health management during pregnancy.

Studies have found that receiving preconception care and the level of knowledge about this care are associated with multiple factors. These include socio-demographic factors such as education level, age, income, marital status, and area of residence, as well as reproductive factors such as parity, number of children, and pregnancy planning status. In addition, access to information, exposure to preconception care messages, cultural and religious beliefs, family planning use, interpregnancy spacing, and women's decision-making autonomy have also been identified as important determinants (Alemu et al., 2021; Amaje et al., 2022; Beyuo et al., 2021; Giri & Gautam, 2018; Mwase-Musicha et al., 2022; Woldeyohannes et al., 2023). In the present study, there was a statistically significant association between marital status, area of residence, level of education, number of live births, pregnancy planning status, age, and knowledge level on the preconception care improvement scale ($p<0.001$), consistent with previous findings reported in the literature.

This study has several limitations. First, the inclusion of only pregnant women attending prenatal care services at Ganta United Methodist Hospital during the data collection period may have introduced selection bias and limits the generalizability of the findings. Women who did not access prenatal care or sought services elsewhere were not represented. Additionally, the exclusion of participants under 18 years of age may have led to the underrepresentation of adolescent pregnancies, a group that may differ in their level of knowledge. Second, the single-center design further limits generalizability. Third, the cross-sectional nature of the study precludes causal inferences. Finally, voluntary participation may have introduced self-selection bias, and the reliance on self-reported data raises the possibility of recall bias.

CONCLUSIONS

It is recommended that antenatal care services be added to the preconception care of primary and secondary healthcare services as routine care and be shared with Liberia, the government or organizations to demonstrate the importance of this care. Lastly, future studies should include a larger sample size and a longer time frame for data collection to get more pregnant women involved. It was found that approximately 8 out of every 10 pregnant women had low knowledge regarding preconception care in the study setting, indicating a substantial gap in awareness among women of reproductive age. Based on this finding, it is recommended that nurses provide structured and continuous education and counselling programs covering all dimensions of preconception care for women of reproductive age in the hospital setting.

This highlights the need for strengthening the role of nursing practice in preventive maternal health services. Furthermore, the findings suggest that preconception care should be formally integrated into routine primary and secondary healthcare services in Liberia as part of maternal health policy. Dissemination of these findings to relevant governmental and health authorities may contribute to increasing recognition of preconception care as a public health priority and supporting evidence-based policy development. Finally, future studies are recommended to include larger and more diverse samples across multiple settings and extended data collection periods, to improve generalizability and strengthen the robustness of the evidence.

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The authors were responsible for all aspects of the study, including conceptualization, methodology, analysis, and writing.

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