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Assessment of Proportion and Determinant Factors of Preconceptional Care Utilization Among Pregnant Mothers Attending Antenatal Care In Governmental Hospitals of Bahirdar, Northwest Ethiopia, Facility Based Cross Sectional Study

Abiy, Gebeyehu

BAHIR DAR UNIVERSITYCOLLEGE OF MEDICINE AND HEALTH SCIENCES SCHOOL OF MEDICINE

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BY ABIY GEBEYEHU (MD, FINAL YEAR OBSTETRICS AND GYNECOLOGY RESIDENT)

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BYABIY GEBEYEHU (MD, FINAL YEAR OBSTETRICS AND GYNECOLOGY RESIDENT)

E-mail: abiyg20@gmail.com

ADVISORS: DrKASSAHUN ALAMREW(ASSISTANT PROFESSOR OF OBSTETRICS AND GYNECOLOGY)

E-mail: kassahun1964@gmail.com

DrAMSALU WORKU(ASSISTANT PROFESSOR OF OBSTETRICS AND GYNECOLOGY

E-mail: amsalework4@gmail.com

OCTOBER, 2020

BAHIR DAR, ETHIOPIA

DECLARATION

This is to certify that the thesis entitled ASSESSMENT OF PROPORTION AND DETERMINANT FACTORS OF PRECONCEPTIONAL CARE UTILIZATION AMONG PREGNANT MOTHERS ATTENDING ANTENATAL CARE IN GOVERNMENTAL HOSPITALS OF BAHIRDAR, NORTHWEST ETHIOPIAsubmitted to obstetrics and gynecology department, college of medicine and health sciences, bahirdar university in partial fulfillment of the requirements for speciality certificate in obstetrics and gynecology , is a record of original work carried out by me and has never been submitted to this or any other institution to get any other degree or certificates. The assistance and help I received during the course of this investigation have been duly acknowledged.

Name of the candidate	Date	Place

BAHIR DAR UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCES SCHOOL OF MEDICINE

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Approval for defense

I hereby certify that I have supervised, read, and evaluated this thesis/dissertation entitled "ASSESSMENT OF PROPORTION AND DETERMINANT FACTORS OF PRECONCEPTIONAL CARE UTILIZATION AMONG PREGNANT MOTHERS ATTENDING ANTENATAL CARE IN GOVERNMENTAL HOSPITALS OF BAHIRDAR, NORTHWEST ETHIOPIA" by ABIY GEBEYEHU prepared under my guidance. I recommend the thesis/dissertation be submitted for oral defense .

1.---------- ---------- ----------

2,_____ _____ _____

Advisor's name Signature Date

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DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Approval for defense result

We hereby certify that we have examined this dissertation/thesis entitled "ASSESSMENT OF PROPORTION AND DETERMINANT FACTORS OF PRECONCEPTIONAL CARE UTILIZATION AMONG PREGNANT MOTHERS ATTENDING ANTENATAL CARE IN GOVERNMENTAL HOSPITALS OF BAHIRDAR, NORTHWEST ETHIOPIA by ABIY GEBEYEHU " . We recommend and approve the dissertation/thesisFOR PARTIAL FULFILMENT OF THE REQUIRMENTS FOR SPECIALTY CERTIFICATE IN GYNECOLOGY AND OBSTETRICS

Board of Examiners

External examiner's name	Signature	Date
Internal examiner's name	Signature	Date
Chair person's name	Signature	Date

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ABSTRACT

Background: Preconception care is a critical component of health which includes the provision of biomedical, behavioral, and social health interventions to women of reproductive age and couples before they conceive. As of 2011 sub-Saharan Africa report on maternal health shows that in sub-Saharan Africa there is a poor preconception care practice and this is due to low economic status, lack of health care providers, being illiterate and poor awareness about maternal health including preconception care. Preconception care (PCC) is the most important maternal health care service to reduce maternal and child mortality and morbidity by identifying and treating any risks early, promoting health, and preventing disease.

Objective: To assess the proportion and determinant factors of preconception care among pregnant mothers attending ANC in three governmental hospitals,Ethiopia from April to July 2020

Methods: a facility-based cross-sectional study was done on 276 pregnant mothers attending ANC in three governmental hospitals in, Bahirdar, Ethiopia. Sample sizes for each hospital were assigned proportionally based on the previous months'report of each hospital. Data were collected through structured questionnaires. Crude and adjusted odds ratios with 95% CI were calculated. P-value < 0.05 was considered statistically significant.

Results: This study revealed that utilization of preconception care is 20.8%,the educational status of high school (AOR=6.82 95% CI =1.69-27.55), educational status of college and above (AOR=9.8 95% CI=2.67-36.5), place of residence,(AOR=3.69,95%CI=1.26-10.78),women who had delivered 2-4 times(AOR=1.74,95%CI=0.61-4.93),women who had delivered >4 times (AOR=9.3, 95%CI =2.15-40.50),Bad obstetric history (AOR=10.15, 95% CI =4.05-25.43)and Chronic medical illness (AOR=5.81 95% CI =1.49-22.63) were found determining factors

Conclusion: This study confirmed that the utilization of preconception care was found to below. Women's educational status, place of residence, number of delivery, bad obstetric history, and chronic medical illness were found to be factors affecting the utilization of preconception care.

Keywords:preconception care, governmental hospitals, pregnant women, Bahirdar

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ACRONYMS AND ABBREVATONS

AH	Adisalem Hospital
AOR	Adjusted Odds Ratio
ACOG	American College of Obstetrician and Gynecologists
ANC	Antenatal Care
CI	Confidence Interval
FHCSH	FelegeHiwot Comprehensive and Specialized Hospital
IRB	Institutional Review Board
NTD	Neural Tube Defect
OR	Odds Ratio
PCC	Pre Conception Care
PRAMS	Pregnancy Risk Assessment Monitoring System
SDG	Sustainable Development Goal
SPSS	Statistical Package for Social Sciences
TGSH	TibebeGhion Specialized Hospital
WHO	World Health Organization

1. INTRODUCTION

1.1 Background

Preconception care (PCC) is the provision of biomedical, behavioral and social health interventions to women and couples before the occurrence of conception and aims at improving their health status, and reducing behaviors and individual and environmental factors that contribute to poor maternal and child health outcomes(1).

Preconception care is a critical component of health which includes theprovision of biomedical, behavioral and social health interventions to women of reproductive age and couples before they conceive(2).

As of 2011 sub-Saharan Africa report on maternal health shows that in sub-Saharan Africa there is a poor preconception care practice and this is due to low economic status, lack of health care providers, being illiterate and poor awareness about maternal health including preconception care. Preconception care (PCC) is the most important maternal health care service to reduce maternal and child mortality and morbidity by identifying and treating any risks early, promoting health, and preventing disease. In addition to this, PCC highly associated with increase antenatal care, delivery care and post natal care service utilizations which are the corner store to improve maternal and child health(3).

Despite the evidence linking preconception care to improved maternal and perinatal outcomes, preconceptioncare remains fragmented and inconsistent, difficult to access, and poorly understood by many women. In theearly 20th century, improvements in public health and a focus on prenatal care led to major gains in reducing maternal and fetal morbidity and mortality(4).

Preconception care has a positive impact on reduction in mortality and decrease therisk of adverse health effects for the woman, fetus, and neonatebyoptimizingthewoman's health and knowledge before planning and conceiving a pregnancy(2).

1.2 Statement of the problem

Preconception care is any intervention provided to women and couples of reproductive age, regardless of pregnancy status or desire, before pregnancy, to improve health outcomes for women, newborns and children. In 2012, WHO(World Health Organization) has organized a meeting to develop a global consensus on preconception care to reduce maternal and childhood mortality and morbidity.According to the review, lists of programmes included in preconceptions are Tobacco use prevention and cessation, Nutrition, Vaccine, Fertility and infertility, Female genital mutilation, HIV testing and counseling, Mental health, Substance use, Intimate partner and sexual violence, Premarital counseling, Genetic counseling, Maternal and child health, Adolescent-friendly services, and Occupational health(5).

Preconception care has a positive impact on reduction in mortality and decrease the risk of adverse health effects for the woman, fetus, and neonatebyoptimizingthewoman's health and knowledge before planning and conceiving a pregnancy(6).PCC is cardinal to alleviate diferent risk behaviours, exposures that afects conception, fetaldevelopment, and ultimately reduce subsequent adverseoutcomes(7)

Even if preconception care aims primarily at improving maternal and child health, it brings health benefits to the adolescents, women and men, irrespective of their plans to become parents.WHO recently stated that globally four out of 10 women report that their pregnancies were unplanned. As a result, 40% of pregnancies miss the essential health interventions (8)

According to Pregnancy Risk Assessment Monitoring System (PRAMS) report 2004–2008 in Utah, only 32% of the 30,481 reproductive aged individuals reported they had received preconception counseling, with significantly low rates among those with unintended pregnancy required prior to pregnancy Preconception care utilization in developing countries like Sudan, Brazil and Sri Lanka is 9% , 15.9% and 27.2% respectively. While utilization of preconception care is slightly higher in developed countries like China, London, Saudi Arabia, and Maryland which is 20.6% , 27% , 29.3% and 32% respectively(5)

According to findings from different articles utilization of preconception care is affected by age, educational status, ethnicity, employment status, marital status, history of family planning use, having a previous miscarriage, stillbirth or termination due to fetal abnormality, pregnancy

intention, parity, gravidity, knowledge of preconception care, availability and accessibility of the services(5).

1.3 Significance of the study

The result of this study will help policy makers, program planners, governmental and non-governmental organization implementers and maternal health service providers/practitioners to provide evidence based interventions to improve pregnancy outcomes.

Most importantly, since there is limited research evidences in the study area despite its low coverage this study will serve as a baseline work for other researchers interested to work on further researches in this topic.

1.4. OBJECTIVES OF THE STUDY

1.4.1 General objective

To assess the proportion and factors associated with preconception care utilization among pregnant mothers attending ANC in three governmental hospital, Bahirdar, Ethiopia from April to July 2020

1.4.2 Specific objectives

1. To determine proportion of preconception care utilizationamong pregnant mothers attending ANC in three governmental hospitals hospital, Bahirdar, Ethiopia from April to July 2020
2. To identify factorsassociated with preconception careutilization among pregnant mothers attending ANC in three governmental hospitals hospital, Bahirdar, Ethiopia from April to July 2020

1.5 Conceptual framework

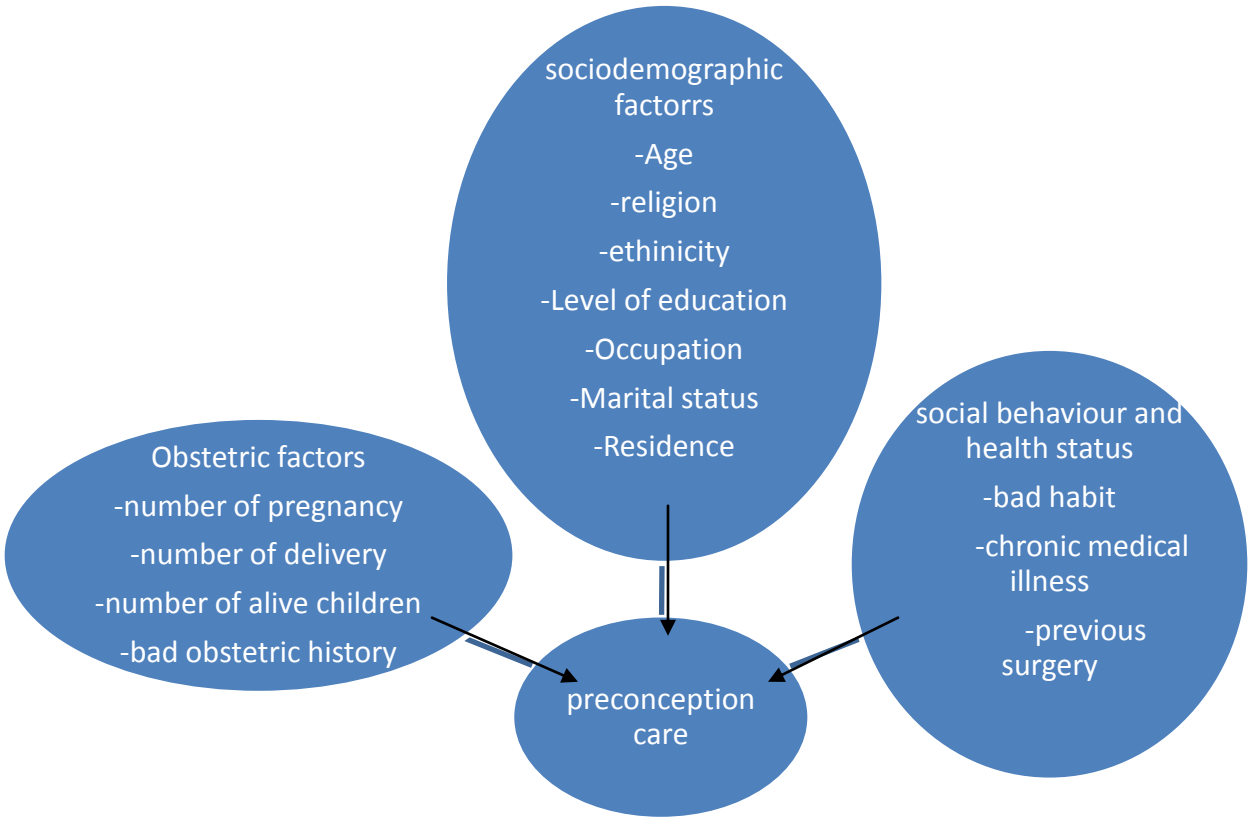

Figure 1: conceptual framework that shows association of factors with preconception care utilization among pregnant mothers attending ANC in three governmental hospitals hospital, Bahirdar, Ethiopia 2020

2.LITRATURE REVIEW

2.1 Proportion of preconception care

A study that was conducted based on simple stratified random quota sampling on women who gave birth in hospitals of Isfahan (Iran) from April to June in 2016.the prevalence of receiving preconception care, its relation with recipients' individuality, fertility, and determining the reason for lack of checkup was determined..The results showed that 47.7% of participants had received preconception care. There was a significant relationship between educational levels, income, wanted pregnancy, number of pregnancies, and previous individual delivery with preconception care . The main reason for the lack of preconception care was unplanned pregnancy (10).

A survey was conducted at a teaching hospital in Nigeria. Interviewer-administered questionnaires were used to extract information. A total of 450 participants responded; 44.2% (190/450) were aware, 31.7% (143/450) had good knowledge, while only 10.3% (46/450) received PCC.There was statistically significant correlation between awareness and participants' level of education ($p < .001$) and residence ($p < .001$), as well as between utilisation and education ($p < .001$)(15).

A Study conducted amongrecently delivered mothers in Mekelle City, Northern Ethiopia. 102(18.2%) of the mothers had utilized preconception care. Mothers' knowledge on preconception care prior experience of adverse birth outcomes (history of chronic health problems husband's support , and challenges in accessing a health facility were significantly associated with preconception care service utilization(2).

In Debrebirhan A mixed method of community based cross-sectional study was employed from March 1st to 30; 2017.Systematic sampling technique was used to select a total of 424 reproductive age women. The data were collected using pre-tested and structured questionnaire and eight in-depth interviews were done using an interview guide .A total of 410 subjects were participated with a response rate of 96.7%. The overall utilization of Preconception care was 13.4%. Woman's age, marital status, knowledge and availability of unit for preconception care

were significantly associated with utilization of preconception care .. A woman's age, marital status, educational status, knowledge about preconception care services and availability of unit for preconception care were factors affecting utilization of preconception care. Therefore, establishing preconception care strategies which can address all the components of the care will be essential when designing effective implementation strategies for improving the uptake of preconception care(5).

2.2 Factors associated with preconception care

A study conducted from 10th July to 13th August 2012 in the Antenatal Clinics of the Academic Obstetrics and Gynaecology Unit at Teaching Hospital, Mahamodara, Galle to study the level of preconception preparedness of pregnant women, and factors influencing it, in order to identify possible strategies to improve PCC. The conclusion is PCC of women is suboptimal and needs more attention. The primary health care team, general practitioners and specialist obstetricians should be motivated and trained to provide preconception health education and PCC to late adolescents and young women in Southern Sri Lanka(12).

Responses from the 2010 and 2012 Los Angeles Mommy and Baby Surveys were analyzed.Weighted multivariate logistic regression was employed to identify significant associations between having had a previous AIO (preterm delivery, low birth weight infant, stillbirth, or major birth defect) and receipt of preconception care prior to the most recent pregnancy. After controlling for covariates, having had a previous AIO was associated with an increased odds of having utilized preconception care in the most recent pregnancy(26)

In Netherlands, determinants of participation inpreconception counseling among women with low health literacy were explored. In the interviews we explored preconception counselingawareness, knowledge, considerations, subjective norms, self-efficacy, attitude, and intention. the conclusion of the study was Women with low health literacy were generally unaware of the concept and provision ofpreconception counseling, but seemed to be interested in participation(17).

A community based cross-sectional design was conducted among 564 recently delivered mothers inMekelle City, Northern Ethiopia. A multi stage cluster sampling technique was employed.Mothers' utilization of preconception care is low. the results were Mothers knowledge on preconception care, experienceof adverse birth outcome, having chronic health problems and husband support increases utilization of preconception care(2).

A systematic review was carried out to evaluate the effectiveness and safety of preconception care in improving maternal and fetal outcomes for women with preexisting diabetes mellitus.
Meta-analysis suggested that preconception care is effective in reducing congenital malformation, preterm delivery, NNT and perinatal mortality. Preconception care lowers HbA1c in the first trimester of pregnancy by an average of 2.43. Women who received preconception care booked earlier for antenatal care by an average of 1.32 weeks (20).

3. METHODS

3.1 study design

Facility based cross -sectional study design was implemented.

3.2 study area and period

3.2.1study area

The study was conducted at FHCSH, TGSH and Addisalem primary hospital in Bahir Dar Amhara Regional state ,North West ,Ethiopia. Bahir Dar is the capital city of Amhara National Regional State, located 565 km Northwest of Addis Ababa with an altitude of 1799 meters above sea level with warm and temperate climate with estimated population of 168,899 as per 2020 world population review. The city has three governmental hospitals. Two specialized hospitals and one primary hospital. TGSH is a specialized and teaching university hospital which gives service for more than 5 million populations.in this hospital there are 60 maternity beds and 10 beds in labor ward with 63 midwives,32 residents and 15 obstetricians. FelegehiwotComprehensive specialized hospital is another hospital in the city which belongs to Amhara National and Regional state and it services for more than 5 million populations. The Hospital has 77 maternity beds and 8 beds in labor ward with 50 midwives and 5 obstetricians. Thethird hospital is Adisalem primary hospital which also belongs to Amhara National and Regional State that gives service to 100,000 populations. This Hospital has 14 maternity beds and 8 beds in labor ward with 15 midwives, 4 IESO and one obstetrician.

3.2.2 study period

The study wasconducted from April 1, 2020 to July 30, 2020 GC,

3.3 Source population

Pregnant women who visited FHCSH, Adisalem primary hospital andTGSH for ANC service

3.4 Study population

Pregnant women who visited FHCSH, Adisalem primary hospital and TGSH for ANC servicesfulfils inclusion criteria.

3.5 study unit

The Selected pregnant mother.

3.6 Inclusion and exclusion criteria

3.6.1Inclusion criteria

Pregnant women who visitedFHCSH, Adissalemhospitaland TGSH for ANC services in the study area

3.6.2 Exclusion criteria

Women who visited FHCSH, adisalemand TGSH for ANC services and have severe illness

3.7Sample size determination

Sample size was determined using single population proportional formula. The total sample size was calculated using the following assumption to come up with final sample size.

Confidence level =95%

Margin of error (precision) = 4%

PCC utilization =13.4%, as study done in DebreBirhan town, north shewa

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

- Where n = sample size, p= 0.134, d = 0.04(4 % error of margin), z= 1.96 (standard normal probability for 95% CI)with a 10% non-respondent included, sample size was 279.

3.8Sampling technique

Systematic sampling methodwasbe used, sampling fraction is 1/5 and every fifth client were involved after the first were decided with lottery method.

The share of each hospital was determined based on the number of clients from the previous three months report. The calculated share was as follows: FHCSH = 92 , Addis Alem hospital = 75 ,TGSH=112

3.9Data collection tools and procedure

The data was collected using structured questionnaire prepared by reviewing different studies.The questionnaire contained three parts, socio-demographic factors, obstetric history factors and social behaviorandhealth status factors. The designed questionnaires were translated from

English to Amharic (local language) and back-translated to English to keep the consistency of the questionnaire. Data was collected by four trained midwives and two first year residents and supervised by one senior resident.

3.9.1Data quality control

The pre-test was done on 5% of the total sample size that is 14 at FHCSH and required corrections were made on the questionnaire. A one-day training was given for data collectors about the purpose of the study and how to interview as well as fill the questionnaire properly.

3.10 study variables

3.10.1 Dependent variable

Utilization of preconception care

3.10.2 Independent variable

Sociodemographic characteristics

age, educational status,ethnicity, religion, marital status, occupation, place of residence and distance from home to health institution.

Obstetric history factors

Number of pregnancies, number of alive children, number of deliveries, bad obstetric history

History of medical illness and history of surgeries

Medical illness, previous surgeries and bad habit

3.11Operational definitions

Preconception care: Any interventions either advice or treatment, and lifestyle modification women received regarding components of preconception care before being pregnant. (Preconception care components in this study are HIV testing and counseling, Nutrition,screening for medical disorders, Advice on cessation of alcohol, Advice on cessation of cigarette smoking).

Preconception care utilization: If women received any interventions either advice or treatment, and lifestyle modification regarding components of preconception care at least once before being pregnant.

severe illness-. A condition that carries a high risk of mortality, negatively impacts quality of life and daily function, and/or is burdensome in symptoms, treatments, or caregiver stress.

Bad obstetric history;occurrence of any of the following events in her past obstetric history:consecutive spontaneous abortion,early neonatal death,stillbirth,intrauterine fetal death

Bad habit;action which causes problems for our health,income or carrier egsmoking,drinking

Chronic medical illness;illnessthat last one year or more and require ongoing medical attention or limit activities of daily livingor both

Previous surgeries;any kind of operation that a woman had prior to her pregnancy(obstetric or non obstetric)

3.12Data processing and analysis

The data were checked for completeness and inconsistencies and then entered using Epi-data version 4.4.1 and were exported and analyzed with SPSS version 23. Descriptive statistics were used to describe the study population in relation to relevant variables. Crude and adjusted odds ratio with 95% CI were calculated to determine the strength of association between dependent and independent variables. The bivariable binary logistic regression model was used to select candidate variables with a P-value ≤0.25 significant level to incorporate in the multivariable binary logistic regression model. Multivariable binary logistic regression analysis was done to identify factors associated with utilization of preconception care.P-value < 0.05 was considered statistically significant for all independent variables at the multivariable binary logistic

regression model to identify the independent effects of the different factors for the utilization of pre conception care. Figures, tables and charts were used to present findings.

3.13Ethical clearance

Ethical clearance was obtained from the Bahir Dar University College of Medicine and Health Sciences institutional review board (IRB). Formal letter of cooperation was also written from the University of Bahir Dar College of Medicine and Health Sciences ethical clearance committee to FHCSH, TGSH and AH.

Informed oral consent was taken from each study participant women after the provision of information about the purpose and benefit of the study, and they were notified that they had the right to refuse or terminate at any point of the interview. They were told about their right not to participate. Confidentiality of the information was maintained throughout the study period using nameless identifiers, keeping the participant mother's privacy by interviewing them individually in separate place.

4.RESULTS

4.1 Descriptivestatistics

A total of 279 womenwere included with an overall response rate of 98.9%.

4.1.1Descriptive statistics of Socio-demographic factors for utilization of preconception care

The study showed that more than half 189(68.5%) of women were between the age of 20-34 and 5(1.8%) were at the age>40 years. Concerningthe marital status majority of 266(96.4%)weremarried.More than half of the study participant women160(58%) were found living in urban residences. Over two-thirds of the women 235(85.1%)were orthodox Christians.Concerning ethnicity 255(92.4%) were found to be Amhara. Regarding educational status 92(33.3%) werefound illiterate and 64(23.2%)had an educational level of college and above.More than half of the women 153(55.4) were housewives.

Table 4.1: Description of socio-demographic factors for utilization of preconception care among pregnant mothers attending antenatal care in governmental hospitals of Bahirdar, Northwest Ethiopia,2020

Variables		frequency	percent
Age	15-19	29	10.5
	20-34	189	68.5
	35-40	53	19.2
	>40	5	1.8
Marital status	Single	3	1.1
	Married	266	96.4
	Divorced	7	2.5
Religion	Orthodox	235	85.1
	Muslim	35	12.7
	Protestant	5	1.8
	Others	1	0.4
Ethnicity	Amhara	255	92.4
	Agew	7	2.5
	Oromo	14	5.1
Residence	Urban	160	58
	Rural	116	42
Educational status	Illiterate	92	33.3
	Can read and write	39	14.1
	Primary school	37	13.4
	High school	44	15.9
	College and above	64	23.2

Occupation	Housewife	153	55.4
	Merchant	43	15.6
	Private employee	15	9.8
	Government employee	21	12.7
	Student	10	3.6
	Daily laborer	8	2.9
Distance from home to a health institution in km	<10km	188	68.1
	>10km	88	31.9

4.1.2Descriptive statistics of Obstetric history factors for utilization of preconception care

Among the women who participated in the study 133(48.2%) have a history of 2-4 number of pregnancies and also 101(36.6%) of them are primigravid. Regarding the number of deliveries,119 (43.1%) have no history of delivery. and 27(9.8%) had >4 deliveries. regarding the number of alive children,129(46.7%) of women have no alive children. Concerningbad obstetric history, 41(14.9%) of women were found to havebad obstetric history.

Table 4.2: Description of obstetric factors for the study of utilization of preconception care among pregnant mothers attending antenatal care in governmental hospitals of Bahirdar, Northwest Ethiopia,2020

Variables		frequency	Percent
Number of pregnancies	1	101	36.6
	2-4	133	48.2
	>4	42	15.2
Number of deliveries	0	119	43.1
	1	62	22.5
	2-4	68	24.6
	>4	27	9.8
Number of alive children	0	129	46.7
	1	62	22.5
	2-3	61	22.1
	4-5	21	7.6
	>5	3	1.1
Bad obstetric history	yes	41	14.9
	No	235	85.1

4.1.3Descriptive statistics of Health Status and Social Behavior factors for utilization of preconception care

In study 20 (7.2%) of women were found to have a history of medical illness. Regarding the History of previous surgeries, 14(5.1%) of women who participated in the study were found to have a history of previous surgeries. Among the women who participated in study 4(1.4%) of them were found to have a bad habit.

Table 4.3: Description of health status and social behavior factors for utilization of preconception care among pregnant mothers attending antenatal care in governmental hospitals of Bahirdar, Northwest Ethiopia,2020

Variables		Frequency	Percent
History of medical illness	Yes	20	7.2
	No	256	92.8
History of previous surgeries	Yes	12	5.1
	No	264	94.9
History of a bad habit	Yes	4	1.4
	No	272	98.6

4.2 Utilization of preconception care

Among the 276 participants, 56(20.28%) of the mothers had utilized at least one component of the World Health Organization package of PCC services before their last pregnancy.

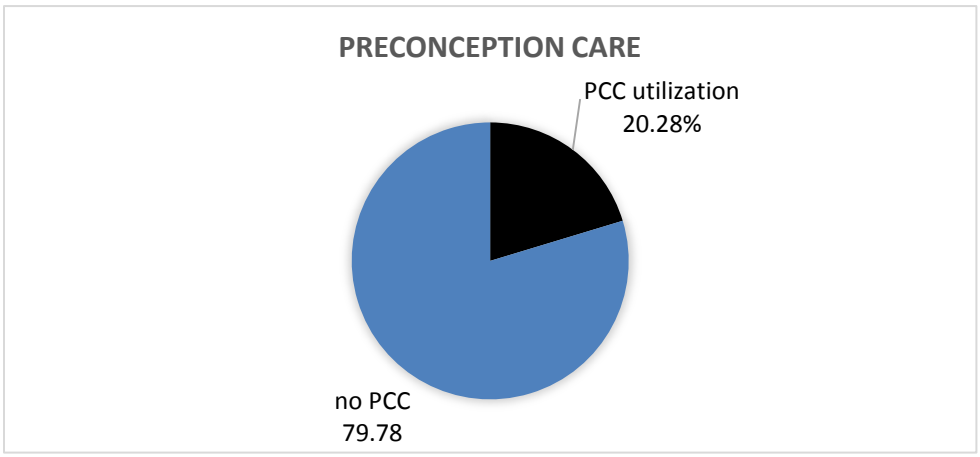

Figure 2:Utilization of preconception careamong pregnant mothers attending antenatal care in governmental hospitals of Bahirdar, Northwest Ethiopia,2020

The most commonly utilized component of PCC which was included in this study was HIV AIDScounseling and testing which was found to be 55(98.2%). Whereas the least utilized was a cessation of alcohol drinking and cigarette smoking which was 38(67.8%).

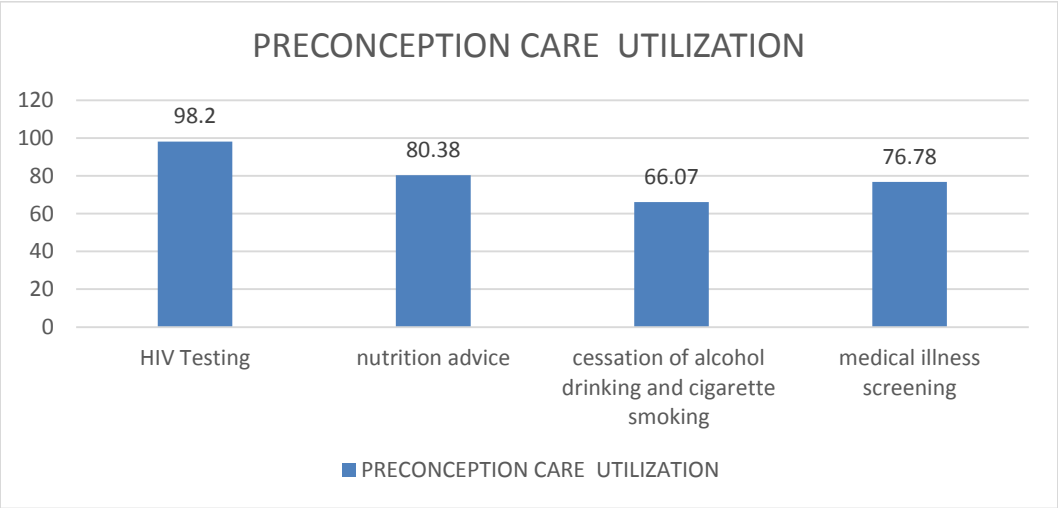

Figure 3: Proportion of components of preconception care among pregnant mothers attending antenatal care in governmental hospitals of Bahirdar, Northwest Ethiopia,2020

4.3Factors associated with utilization of preconception care

Bivariable binary logistic regression analyses were done between each variable and the utilization of preconception care. Among the socio-demographic factors, age, educational status, occupation, and place of residence were identified as candidate variables and were taken for multivariable regression analysis. Among obstetric history factors previousnumber delivery, pregnancy number,the number of alive children, and bad obstetric historywere selected. Among health status and social behavior factors presence of medical illness and history of previous surgerywere identified as candidate variables and were taken for multivariable regression analysis.

Among sociodemographic characteristics, maternal education was found to be a significant risk factor for the utilization of preconception care at multivariable regression. Women with the educational status of high school were 6.8 times more likely to use preconception care than illiterate women (AOR=6.82 95% CI =1.69-27.55). similarly, women with educational status of college and above were found to utilize preconception care 9.8 times more likely compared to

illiterate women(AOR=9.8 95% CI=2.67-36.5). The other sociodemographic variable which was found to be a significant factor for the utilization of preconception care was the place of residence, women who live in urban residence were found 3.6times more likely to use preconception care than women whose residence was rural(AOR=3.69 95% CI =1.26-10.78).

Among the obstetric history factors,the number of previous deliveries was found associated withthe utilization of preconception care. women who had delivered 2-4 times were 1.7 times more likely to utilize preconception care than women had no history of delivery.(AOR=1.74 ,95%CI=0.61-4.93).Also, women who had delivered >4 times were found to use preconception care 9.3 times more likely than women who had no history of delivery (AOR=9.3,95%CI =2.15-40.50). Bad obstetric history was also found associated with the utilization of preconception care, women with bad obstetric history werefound 10 times more likely to utilize preconception care than women with no bad obstetric history(AOR=10.15, 95% CI =4.05-25.43).

Among the health status and social behavior factors, medical illness was also found significantly associated with the utilization of preconception care. Women with medical illnesses were found to be 5.8 times more likely to use preconception care(AOR=5.81 95% CI =1.49-22.63).

Table 4.4: Multivariable logistic regression analysis result for the study ofutilization of preconception care among pregnant mothers attending antenatal care in governmental hospitals of Bahirdar, Northwest Ethiopia,2020

Variables	**Responses**	yes	**No**	COR with 95%CI	AOR with 95%CI
		Count (%)	**Count (%)**		
Maternal age	15-19 years	2(6.9)	27(93.1)	1	
	20-34 years	38(20.1)	151(79.9)	3.39(0.77-14.9)	
	35-40 years	15(28.3)	38(71.7)	5.32(1.12-25.25	
	>40 years	1(20)	4(80)	3.37(0.24-46.3)	
Maternal education	illiterate	6(6.5)	86(93.5	1	
	Can read and write	2(5.1)	37(94.9)	0.77(0.14-4.01)	0.39(0.04-3.56)
	Primary school (1-8)	5(13.5)	32(86.5)	2.24(0.63-7.85)	2.02 (0.39-10.3)
	Secondary school (9-12	17(38.6)	27(61.4)	9.02(3.23-25.1)	6.82(1.69-27.55) *
	Diploma and above	26(40.6)	38(59.4)	9.8(3.73-25.7)	9.89 (2.675-36.59) *
Maternal occupation	Housewife	16(10.5)	137(89.5)	1	
	Merchant	11(25.6)	32(74.4)	2.9(1.24-6.94)	
	Private employee	12(44.4)	15(55.6)	6.8(2.73-17.1)	
	governmental employee	14(40)	21(60)	5.7(2.43-13.3)	
	student	2(20)	8(80)	2.1(0.48-10.96)	
	Daily laborer	1(12.5)	7(87.5)	1.2(0.14-10.58	
Residence	Urban	48(30)	112(70)	5.78(2.61-	3.69(1.26-10.78) *

				12.79)	
	Rural	8(6.9)	108(93.1)	1	1
Pregnancy number	1	9(8.9)	92(91.1)	1	
	2-4	36(27.1)	97(72.9)	3.79(1.73-8.31)	
	>4	11(26.2)	31(73.8)	3.62(1.37-9.57)	
Previous delivery	0	20(16.8)	99(83.2)	1	1
	1	11(17.7)	51(82.3)	1.06(0.47-2.39)	0.96(0.35-2.62)
	2-4	15(22.1)	53(77.9)	1.4(0.66-2.96)	1.74(0.61-4.93)
	>4	10(37.0)	17(63.0)	2.91(1.16-7.28)	9.33(2.15-40.5) *
Number of alive children	0	28(21.7)	101(78.3)	1	
	1	15(24.2)	47(75.8)	1.51(0.56-2.35)	
	2-3	8(13.1)	53(86.9)	0.54(0.23-1.27)	
	4-5	3(14.3)	18(85.7)	0.6(0.16-2.18)	
	>5	2(66.7)	1(33.3)	7.21(0.16-2.18)	
Bad obstetric history	Yes	22	19	6.84(3.35-13.9)	10.15 (4.05-25.43) **
	No	34	201	1	1
Medical illness	Yes	13	7	9.19(3.46-24.4)	5.81 (1.49-22.63) *
	No	43	213	1	1
Previous surgery	yes	5	7	2.98(0.91-9.78)	
	No	51	213	1	

Key: **=p-value<0.001, *=p-value<0.05

5.DISCUSSION

This facility-based cross-sectionalstudy assessed the proportion of preconception care utilization and identified factors associated with preconception care in governmental hospitals found in Bahirdar, to generate important information and create an overall image for preconception care utilization and factors affecting it. Variablesincludingeducationalstatus,place of residence, number of deliveries, badobstetric history, andmedicalillnesswere found to be associated with preconception care.

The findings of this study showed that 20.8% of mothers had utilized PCCS services. This is higher than the previous findings done in Mekelle(18.2%)(22)DebreBerhan(13.4%)(5)and Adet town(9.6%)(23). But it is lower than previous findings in north shoa(5).This variability may be related to differences in the study settings and the increasing awareness of women about PCC and attention given by governments towards preconception care in recent years. This variability may be related to differences in the study population's level of education, culture,sample size and the study setting.it can also be explained by .poor policies and guidelines for preconception care in Ethiopia.

Regarding the associated factors, this study indicated that a significant association wasnoted between women's education and utilization of preconception care. This result is congruent with a study done in,Adet town(23), and DebreBerhan town (5). As the findings indicate,educational status positively affects the utilization of preconception care and the association could be explained by the fact that educated mothers can easily read andunderstand information regardingPCC and be able to understand the purpose and importanceof PCC and become knowledgeable about the existing services.additionally educated mothers may spend their leisure time by reading different megazines and books and get information regarding preconception care.This result is also in line with the studies done in Sri Lanka(24),and Nigeria(15).

Women's place of residence was found to be associated with the utilization of PCC,in which the study indicated that women living in urban residences were more likely to use PCC service than women living in rural residences..This finding is congruent with a study done in Hawassa(25).The possible explanation for this could be because residents living in an urban area

might have better and easy access to health institution and media .residents living in urban area may also have good level of knowledge on preconception care than rural residents.

Bad obstetric history was also found to be a significant factor for the utilization of preconception care in the current study, women who had bad obstetric history were more likely to utilize PCC services than women with no bad obstetric history.This finding is in line with a study done in Mekelle town (22).The possible explanation for this could be mothers who had an experience of adverse birth outcomes were more conscious and their health-seeking behavior may increase as a result they may become more eager and have the interest to utilize PCCin their subsequent pregnancies.A study done in Los Angeles(26)has also shown a similar result.

Another important predictor for the utilization of preconception care is women's parity.specifically women with greater than four delivery were found to have an association with utilization of preconception care.This finding is supported by a study done in Mekelle(22),and Adet(23).This association may be because women who are in multiparous may be more likelytohave frequent exposure tohealth institutions and may get information regardingpreconception care.

This study also shows a significant association between chronic medical illnessandutilization of preconception care.Women who have chronic medical illness were more likely to utilize preconception care than those without chronic medical illness.This finding is supported by a study done in Mekele town(22).this could be due to the fact that women are informed and are familiarized about theirhealth status, ways of disease prevention and health promotion, and birth preparedness and complication readiness during their medical follow up.

6 .CONCLUSION ,FUTURE DIRECTION AND IMPLICATION

The finding of this study showed that among women who came for ANC visit to the three governmental hospitals found in Bahirdar the proportion of preconception care utilizationwas found to be 20.28%. Sociodemographic factors (women's educational status,place of residence),obstetric history factors(number of deliveries, and bad obstetric history)among health status and socialbehavior(medical history) were found statistically associated with the utilization of preconception care.

Based on the findings of this study, the following recommendations are suggested, to different stakeholders

For health workers

Health providers should make preconception care a standard of care and provide it routinely to increase the utilization and to have good maternal and fetal outcomes.

For the health bureau,FHSCH, TGSH, and AH

These stakeholders should assimilate a preconception care service with integrated and sustainable supplies encouraging health care providers to properly deliver the service and better incorporate programs that could encourage women to attend preconception care. Strengthening the provision of health information on the advantage of utilizing preconception care in different media outlets and sensitizing the community ought to be done. they should also increase their support towards maternal education.

For the Researcher

Researcher who are interested inresearch on preconception care should better include women in the community .

REFERENCES

1. de Weerd S, van der Bij AK, Cikot RJ, Braspenning JC, Braat DD, Steegers EA. Preconception care: a screening tool for health assessment and risk detection. Preventive medicine. 2002;34(5):505-11.
2. Asresu TT, Hailu D, Girmay B, Abrha MW, Weldearegay HG. Mothers' utilization and associated factors in preconception care in northern Ethiopia: a community based cross sectional study. BMC pregnancy and childbirth. 2019;19(1):347.
3. Ayalew Y, Mulat A, Dile M, Simegn A. Women's knowledge and associated factors in preconception care in adet, west gojjam, northwest Ethiopia: a community based cross sectional study. Reproductive health. 2017;14(1):15.
4. Coffey K, Shorten A. The challenge of preconception counseling: Using reproductive life planning in primary care. Journal of the American Association of Nurse Practitioners. 2014;26(5):255-62.
5. Demisse TL, Aliyu SA, Kitila SB, Tafesse TT, Gelaw KA, Zerihun MS. Utilization of preconception care and associated factors among reproductive age group women in Debre Birhan town, North Shewa, Ethiopia. Reproductive health. 2019;16(1):96.
6. Asresu TT, Hailu D, Girmay B, Abrha MW, Weldearegay HG. Mothers' utilization and associated factors in preconception care in northern Ethiopia: a community based cross sectional study. BMC pregnancy and childbirth. 2019;19(1).
7. Kassa A, Yohannes Z. Women's knowledge and associated factors on preconception care at Public Health Institution in Hawassa City, South Ethiopia. BMC Research Notes. 2018;11(1).
8. Organization WH. Preconception care: maximizing the gains for maternal and child health. Geneva: World Health Organization. 2013.
9. Morgan MA, Hawks D, Zinberg S, Schulkin J. What obstetrician-gynecologists think of preconception care. Maternal and child health journal. 2006;10(1):59-65.
10. Shadab P, Nekuei N, Yadegarfar G. The prevalence of preconception care, its relation with recipients' individuality, fertility, and the causes of lack of checkup in women who gave birth in Isfahan hospitals in 2016. Journal of education and health promotion. 2017;6.
11. Zhao X, Jiang X, Zhu J, Li G, He X, Ma F, et al. Factors influencing the quality of preconception healthcare in China: applying a preconceptional instrument to assess healthcare needs. BMC pregnancy and childbirth. 2014;14(1):360.
12. Patabendige M, Goonewardene I. Preconception care received by women attending antenatal clinics at a Teaching Hospital in Southern Sri Lanka. Sri Lanka Journal of Obstetrics and Gynaecology. 2013;35(1).
13. Kamalifard M, Ebrahim H, Rahmat M. The Scope of Pre-Pregnancy Care Conducted at Health Centers of Tabriz, Iran: Women's Viewpoints. Journal of caring sciences. 2013;2(2):165.
14. Batra P, Higgins C, Chao SM. Previous adverse infant outcomes as predictors of preconception care use: an analysis of the 2010 and 2012 Los Angeles mommy and baby (LAMB) surveys. Maternal and child health journal. 2016;20(6):1170-7.
15. Ekem NN, Lawani LO, Onoh RC, Iyoke CA, Ajah LO, Onwe EO, et al. Utilisation of preconception care services and determinants of poor uptake among a cohort of women in Abakaliki Southeast Nigeria. Journal of Obstetrics and Gynaecology. 2018;38(6):739-44.
16. Paradis S, Ego A, Bosson J-L. Preconception care among low-risk mothers in a French perinatal network: Frequency of utilization and factors associated. Journal of Gynecology Obstetrics and Human Reproduction. 2017;46(7):591-6.
17. Fransen MP, Hopman ME, Murugesu L, Rosman AN, Smith SK. Preconception counselling for low health literate women: an exploration of determinants in the Netherlands. Reproductive health. 2018;15(1):192.

18. Welderufael AL, Berihu BA, Berhe Y, Magana T, Asfaw S, Gebreselassie K, et al. Nutritional status among women whose pregnancy outcome was afflicted with neural tube defects in Tigray region of Ethiopia. Brain and Development. 2019;41(5):406-12.
19. Kassa A, Human SP, Gemeda H. Knowledge of preconception care among healthcare providers working in public health institutions in Hawassa, Ethiopia. PloS one. 2018;13(10):e0204415.
20. Wahabi HA, Alzeidan RA, Bawazeer GA, Alansari LA, Esmaeil SA. Preconception care for diabetic women for improving maternal and fetal outcomes: a systematic review and meta-analysis. BMC pregnancy and childbirth. 2010;10(1):63.
21. Paradis S, Ego A, Bosson JL. Preconception care among low-risk mothers in a French perinatal network: Frequency of utilization and factors associated. Journal of Gynecology Obstetrics and Human Reproduction. 2017;46(7):591-6.
22. Asresu TT, Hailu D, Girmay B, Abrha MW, Weldearegay HG. Mothers' utilization and associated factors in preconception care in northern Ethiopia: a community based cross sectional study. BMC Pregnancy Childbirth. 2019;19(1):347-.
23. Goshu YA, Liyeh TM, Simegn Ayele A. Preconception Care Utilization and its Associated Factors among Pregnant Women in Adet, North-Western Ethiopia (Implication of Reproductive Health). Journal of Women's Health Care. 2018;07(05).
24. Patabendige MaG, I.M.R., 2013. Preconception care received by women attending antenatal clinics at a Teaching Hospital in Southern Sri Lanka. Sri Lanka Journal of Obstetrics and Gynaecology, 35(1), pp.3–9. DOI: http://doi.org/10.4038/sljog.v35i1.5996.
25. Kassa A, Yohannes Z. Women's knowledge and associated factors on preconception care at Public Health Institution in Hawassa City, South Ethiopia. BMC Res Notes. 2018;11(1):841-.
26. Batra P, Higgins C, Chao SM. Previous Adverse Infant Outcomes as Predictors of Preconception Care Use: An Analysis of the 2010 and 2012 Los Angeles Mommy and Baby (LAMB) Surveys. Maternal and child health journal. 2016;20(6):1170-7. Epub 2015/12/19.