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Knowledge and Utilization of Preconception Care Among Pregnant Women Admitted in Antenatal Ward at Birat Medical College Teaching Hospital, Morang

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ABSTRACT

Introduction: Preconception care is the provision of biomedical, behavioral and social health interventions to women and couples before conception, thus improving health status and reducing behaviors along with individual and environmental factors that could contribute to poor maternal and child health outcomes.

Objectives: The objectives were to find out the prevalence of knowledge and utilization of preconception care and to find out the association between knowledge and utilization of preconception care with selected sociodemographic, personal and social factors of the pregnant women.

Methodology: An observational descriptive cross-sectional study was conducted among pregnant women in antenatal ward of Birat Medical College Teaching Hospital from August 2023 to February 2024. Data was collected using a semi-structured self-developed questionnaire and entered in MS Excel then transferred to SPSS version 23 for statistical analysis. Mean, standard deviation, range, percentage, proportion were calculated as the part of descriptive analysis. Test of association was done using Chi square.

Results: Among total 229 pregnant women, 160 (69.9%) belonged to age 20-29 years with the mean age of 25.82 years. Though, 58.5% of the women had moderate knowledge regarding preconception care, only 29.7% of them had utilized the services. There was significant association between knowledge and pregnant women's age (0.001). There was also significant association between service utilization and respondent's perception on its importance (0.027).

Conclusion: Pregnant women hadn't used the preconception care and counseling services adequately revealing a significant gap between knowledge and utilization of preconception care which would impact maternal and fetal outcome.

INTRODUCTION

The preconception period refers to a time span of anything from 3 months to 1 year before conception but ideally should include the time when both the oocyte and sperm mature, which is approximately 100 days before conception. There has been increasing recognition that a women's health status, lifestyle and history prior to conception strongly influence the achievement of a healthy pregnancy outcome. Once a pregnancy is confirmed interventions which could have influenced pregnancy outcome are either lost or ineffectual.[1]

Preconception care is the provision of biomedical, behavioral and social health interventions to women and couples before conception occurs. It aims at improving health status and reducing behaviors and individual and environmental factors that could contribute to poor maternal and child health outcomes. Its ultimate aim is to improved maternal and child health outcomes, in both the short and long term.[2]

The knowledge of preconception care is very crucial for determining the healthy maternal and fetal outcomes since the time of pregnancy is confirmed; much of the cell organization, differentiation and organogenesis has already taken place. Suboptimal conditions at this time can result in fetal damage and stunted growth.[1]

It is reported that 4 out of 10 women report that their pregnancies are unplanned. Perinatal deaths are 50% higher among babies born to adolescent mothers. There is growing experience in implementing preconception care initiatives: in high-income countries, such as Italy, the Netherlands and the United States and in low- and middle-income countries, such as Bangladesh, the Philippines and Sri Lanka.[2]

In Nepal overall, 14% of women age 15–19 have ever been pregnant, including 10% who have had a live birth, 2% who have had a pregnancy loss, and 4% who are currently pregnant.[3]

The Center for Disease Control (CDC) recommends risk identification and counseling for all women of reproductive age as part of primary health care visits to improve pregnancy outcomes.[4] However, unfortunately, lots of women in the world do not have access to preconception, pregnancy, health services, and childbirth with appropriate quality, especially poor, uneducated women or those in underprivileged areas.[5]

The prevalence of utilization of preconception in Nepal, China and Iran was 51%, 40.0% and 47% respectively.[6-8]

In Bhutan, 63.8% pregnant women had good knowledge on Preconception care but only 21.8% had good practice and the rest 78.2% had poor practice. Numerous factors are associated with utilization of Pre-conception care, including knowledge, attitude and practice on Preconception care by women. For successful implementation and uptake of Preconception care services, adequate level of knowledge and positive attitude of women are important.[9] The objectives of this study was to find out the prevalence of knowledge and utilization of preconception care, also to find out it's association with selected sociodemographic, personal-social factors of the pregnant women.

METHODOLOGY

It was an observational descriptive cross-sectional study conducted in the antenatal ward of Birat Medical College Teaching Hospital from August 2023 to February 2024. The study was reviewed and approved by Institutional Review Committee of Birat Medical College Teaching Hospital and the required sample size for this study was 229. The sample size was calculated using the formula for cross-sectional studies $n = Z_{1-\alpha/2}{}^2 P (1 - P)/d^2$,

$= 1.96^2 \times 0.173 (1–0.173)/0.05^2 = 228.9=229$

Where, $Z_{1-\alpha/2}$ = standard normal variate (at 5% type 1 error [P < 0.05], is 1.96), P= expected proportion in population based on previous study done in Debre Birhan Town is 17.3%.[10] d = absolute error or precision = 5%,

Data was obtained from the pregnant women after written and informed consent. The study included all the pregnant women irrespective of weeks of gestation. Those who were not willing to participate and from whom consent couldn't be obtained were not included in the study. Non-probability Convenience sampling technique was adopted to select the sample.

Pregnant women had been operationalized as those who have confirmed through medical testing or self-report that they are currently carrying a fetus in their uterus, regardless of the gestational age and parity. In this study, preconception care is any interventions either advice or treatment, and lifestyle modification women received regarding components of preconception care before being pregnant.[10] It included counseling regarding reproductive life plan and family planning, physical activity, immunizations, medical history, medication use, reproductive history, genetic screening and family history, parental exposure, psychosocial risks, psychiatric conditions, environmental exposure, nutrition, infectious diseases and special populations. If women received at least one type of intervention, either advice or treatment, and lifestyle modification care at least once before being pregnant will be considered as mother utilized Preconception Care.[5] Previous pregnancy experiences referred to any bad previous pregnancy history or any reproductive health issues. Family support meant the support of husband and family members.[5] Access to health services here means the availability of essential medication and laboratory services and distance of health centers from residence.[5]

Semi-structured, self-developed interview schedule was developed by the researcher herself to collect the data. The tool consist of two parts: Part I – consists of socio demographic data of the participants including age, ethnicity, education, occupation, monthly income, education level, marital status and the second part – consists of structured knowledge and utilization based questionnaire regarding preconception care. The questionnaire was finalized after consulting with the subject experts. It was translated in Nepali language with the help of language expert. Permission for data collection was obtained from hospital administration of Birat Medical College Teaching Hospital. Data was collected by interviewing the participants directly. Collected data were entered in MS Excel and transferred to SPSS version 23 for statistical analysis. For descriptive analysis mean, standard deviation, range, percentage, proportion were calculated. Analyzed data were presented in tabular form. Test of association was done using Chisquare test, and the level of significance set at P < 0.05.

RESULTS

Table 1: Socio-Demographic Characteristics of Respondents N=229

Characteristics	Category	Frequency	Percentage
Age in years	<20	14	6.1
	20-29	**160**	**69.9**
	>30	55	24.0
Mean±S.D (Range) = 25.82±4.37 (16-38)			
Ethnicity	Dalit	15	6.6
	Janajati	**95**	**41.5**
	Madhesi	37	16.2
	Muslim	7	3.1
	Brahmin/Chhetri	75	32.8
Education Level	Illiterate	5	2.2
	Primary School	3	1.3
	Middle School	57	24.9
	High School	61	26.6
	Intermediate/Diploma	**71**	**31.0**
	Graduate	30	13.1
	Professional Degree	2	0.9
Occupation	**Unemployed**	**159**	**69.4**
	Semiskilled worker	7	3.1
	Skilled worker	15	6.6
	Clerical/Shop/farm	17	7.4
	Semi Profession	13	5.7
	Professional	18	7.9
Income	<15,000	13	5.7
	15-30,000	105	45.9
	>30,000	**111**	**48.5**
Marital Status	**Married**	**226**	**98.7**
	Unmarried	3	1.3

Majority (69.9%) of the respondents were of age 20-29 years followed by >30 years (24%). The mean age was 25.82 years with the range of 16-38 years. Ninety five (41.5%) of them were Janajatis followed by Brahmin/Chhetri (32.8%) and Madhesi (16.2%). Seventy one (31.0%) of the respondents had the education upto Intermediate/Diploma level followed by high school (26.6%). More than half (69.4%) of them were unemployed. Near half (48.5 %) of the women had family income per month above 30000 and 45.9% of them had family income per month between 15000- 30000. Majority (98.7%) were married (Table 1).

Table 2: Distribution of the respondents according to the knowledge level of Preconception care. N=229

Variable	Frequency	Percentage (%)
Knowledge		
Insufficient (<75%)	42	18.3
Moderate (75-90%)	**134**	**58.5**
Sufficient (>90%)	53	23.1

Table 2 depicts that 58.5% of the respondents had moderate knowledge while 23.1% of them had sufficient knowledge and 18.3% had Insufficient knowledge.

Table 3: Distribution of the respondents according to the Utilization of Preconception care. N=229

Variable	Frequency	Percentage (%)
Utilization		
Yes	68	29.7
No	**161**	**70.3**

Table 3 depicts that only 29.7% of the respondents had utilized the Preconception care while 70.3 % of the respondents hadn't utilized the preconception care services.

Table 4: Association between the Knowledge level of Preconception care and selected Sociodemographic Characteristics of the respondents. N=229

Variables		Knowledge Level			Test of Significance X^2 (P-Value)
		Insufficient (<75%)	Moderate (75 90%)	Sufficient (>90%)	
Age	16-24.9 years	15(16.9%)	64(71.9%)	10(11.2%)	**13.55(0.001)*** **
	≥25 years	27(19.3%)	70(50.0%)	43(30.7%)	
Ethnicity	Janajati	16(16.8%)	49(51.6%)	30(31.6%)	**6.52(0.38)**
	Else	26(19.4%)	85(63.4%)	23(17.2%)	
Education	Intermediate/diploma	7(9.9%)	41(57.7%)	23(32.4%)	**7.85(0.20)**
	Else	35(22.2%)	93(58.9%)	30(19.0%)	
Occupation	Unemployed	27(17.0%)	101(63.5%)	31(19.5)	**5.74(0.57)**
	Else	15(21.4%)	33(47.1%)	22(31.4%)	
Income	≤30000	27(22.9%)	65(55.1%)	26(22.0%)	**3.35(0.187)**
	>30000	15(13.5%)	69(62.2%)	27(24.3%)	

Table 4 depicts that there was significant association only with knowledge level and age of the respondents among the selected sociodemographic characteristics.

Since the number of unmarried women were only 3, the group wasn't comparable so association of the marital status wasn't tested.

Table 5: Association between the Utilization of Preconception care and selected Sociodemographic Characteristics of the respondents. N=229

Variables		Utilization		Test of Significance X^2 (P-Value)
		Utilized	Not utilized	
Age	16-24.9 years	25(28.1%)	64(71.9%)	**0.18(0.672)**
	≥25 years	43(30.7%)	97(69.3%)	
Ethnicity	Janajati	23(24.2%)	72(75.8%)	**2.33(0.126)**
	Else	45(33.6%)	89(66.4%)	
Education	Intermediate/diploma	16(22.5%)	55(77.5%)	**2.52(0.112)**
	Else	52(32.9%)	106(67.1%)	
Occupation	Unemployed	44(27.7%)	115(72.3%)	**1.018(0.313)**
	Else	24(34.3%)	46(65.7%)	
Income	≤30000	30(25.4%)	88(74.6%)	**2.12(0.145)**
	>30000	38(34.2%)	73(65.8%)	

Table 5 depicts that there wasn't any significant association between any of the selected demographic characteristics and utilization of the preconception care.

Since the number of unmarried women were only 3, the group wasn't comparable so association of the marital status wasn't tested.

Table 6a: Association between the Utilization of Preconception care and selected Personal factors of the respondents. N=229

Variables		Utilization		Test of Significance X^2 (P-Value)
		Utilized	Not utilized	
Women's perception on importance of preconception care	Important	66(29.1%)	161(70.9%)	**4.89(0.027) ***
	Not important	2(100.0%)	0(0.0%)	
Trust in health care	Yes	68(30.1.2%)	158(69.9%)	**2.13(0.144)**
	No	0(0.0%)	3(100.0%)	

Table 6a depicts that there is association between the utilization of preconception care and women's perception on importance of preconception care.

Table 6b: Association between the Utilization of Preconception care and selected Personal factors of the respondents.N=138

Variables		Utilization		Test of Significance X^2 (P-Value)
		Utilized	Not utilized	
Previous pregnancy complications	Yes	17(27.9%)	44(72.1%)	**0.177(0.674)**
	No	24(31.2%)	53(68.8%)	

Table 6b depicts that there is no association between utilization of preconception care and previous pregnancy complications. # Primigravida women were excluded here.

Table 7a: Association between the Utilization of Preconception care and selected social factors of the respondents. N=229

Variables		Utilization		Test of Significance X^2 (P-Value)
		Utilized	Not utilized	
Family's perception on importance	Important	65(29.4%)	156(70.6%)	**0.242(0.623)**
	Not important	3(37.5%)	5(62.5%)	
Availability of health care services	Yes	64(28.8%)	158(71.2%)	**2.13(0.144)**
	No	4(57.1%)	3(42.9%)	

Table 7a portrays that there is no association between utilization of preconception care and family's perception on importance on preconception care and availability of health care services.

Table 7b: Association between the Utilization of Preconception care and Accessibility of health care services.N=222

Variables		Utilization		Test of Significance X^2 (P-Value)
		Utilized	Not utilized	
Types of available health services	**Counseling only**	22(37.9%)	36(62.1%)	**2.238(0.135)**
	Laboratory facilities along with counseling	45(27.4%)	119(72.6%)	
Distance of health services	**<30 mins**	57(29.4%)	137(70.6%)	**0.466(0.495)**
	>30 mins	10(35.7%)	18(64.3%)	

Table 7b shows that there is no association between utilization of preconception care and types as well as distance of health services.

Those who didn't have access to any kind of health services were excluded.

DISCUSSION

In this study it was found that one hundred and sixty (69.9%) of the pregnant women were of age 20-29 years followed by >30 years (24%).

The mean age was 25.82 years with the range of 16-38 years. Ninety five (41.5%) of the respondents were Janajatis followed by Brahmin/Chhetri (32.8%) and Madhesi (16.2%). Seventy one (31.0%) of them had the education up to Intermediate/Diploma

level followed by high school (26.6%). More than half (69.4%) were unemployed. Near half (48.5 %) of the women had family income per month above 30000 and 45.9% of them had family income per month between 15000- 30000. Majority (98.7%) were married.

In the present study, 58.5% of the pregnant women had moderate knowledge of preconception care, but only 23.1% of them had sufficient knowledge and 18.3% had Insufficient knowledge. In a similar study conducted by Khanal L in Kathmandu, 66.5% of the women had average knowledge, 30.5% had adequate and 3% had inadequate knowledge.[11] In another similar study conducted in Ethiopia in 2021, 45.2% of the women had good knowledge and 54.8% of the women had poor knowledge about Preconception care.[5] Contradictory in a study conducted by Lemma T, only 17.1% of the women had good knowledge regarding preconception care.[12]

In the present study, only 29.7% of the respondents had utilized the Preconception care while 70.3 % of the respondents hadn't utilized the preconception care services. In a similar study conducted in Ethiopia in 2021, 22.3% of mothers had utilized preconception care.[5] In another study conducted in Kathmandu only 2% had high utilization whereas 98% had low utilization of preconception care services.[11] In another study conducted by Fetena N only 21.6% had utilized the preconception care services. While a study conducted by Goshu Y found only 9.6% of the pregnant women had utilized the preconception care. In another study conducted at Korle Bu teaching Hospital, only 15.8% had utilized the preconception care.[13,14]

In the present study, there was significant association only between knowledge level and age of the respondents among the selected sociodemographic characteristics. In a similar study conducted by Umar A, there was significant association between ethnicity and occupation and knowledge level of the respondents.[15] Similarly, in another study conducted by Lemma T, women's occupation, monthly income, gravidity, contraceptive use, history of congenital abnormality, history of neonatal death and time to reach a health facility were significantly associated with having good knowledge about preconception care.[12]

In the current study, there was association between utilization of preconception care and individual's perception on importance of preconception care. In a study conducted by Amaje E the education status of the women, wealth status, knowledge about preconception care, attitude towards preconception care and decision making of RH services was associated with the utilization of preconception care.[5] In similar study conducted in Central Ethiopia, educational status, joint discussion and planning with a partner, getting financial and psychological support from the partner, having a chronic health problem and having good knowledge about preconception care were associated with preconception care use.

In this study there was no association between the accessibility of health care services and preconception care whereas in the third decennial International Conference on Population and Development (ICPD) held in Cairo in 1994, emphasized that "access to appropriate health care services that enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant".[16] But in contrary, a study conducted by Demisse TL showed that availability and accessibility of unit for preconception care was significantly associated with its utilization.[10]

CONCLUSIONS

ven though higher proportion of women had moderate knowledge regarding preconception care, they hadn't utilized the preconception care and counseling services. This reveals a significant gap between knowledge and utilization of Preconception care, which would affect the maternal and fetal outcome. Regarding test of association, there was significant association between age and knowledge of preconception care while there was no association between respondent's perception on importance of preconception care and its utilization. Though maternal health services is one of the top most priority of Government of Nepal but utilization of Preconception care is still very low.

LIMITATIONS OF THE STUDY

The study was conducted only in one Hospital thus the findings could not be generalized for other Hospitals. Education Intervention could have been done.

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