
| **RESEARCH ARTICLE**

Utilization of Pre-Conceptional Care among Pregnant Women Attending at Teaching Hospital, Chitwan, Nepal

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| **ABSTRACT**

Pre-conceptional care refers to a group of interventions such as advice, treatment, and management that are given before pregnancy to improve the health and well-being of women and couples as well as outcomes of pregnancy and childbirth. Hence, this study aimed to find out the utilization of pre-conceptional care among pregnant women attending a teaching hospital. A cross-sectional descriptive study was conducted among pregnant women at Chitwan Medical College, Nepal, from September 24 to October 20, 2023. A total of 126 pregnant women who had completed 12 weeks of gestation, reported planned pregnancy, and attended Chitwan Medical College for antenatal care services were selected using a non-probability convenience sampling technique. Ethical approval was obtained prior to data collection. Descriptive statistics (frequency, percentage, measures of central tendency along with measures of dispersion) were used to summarize data. Out of 126 pregnant women, a percentage received advice from a health care provider about a nutritious diet, used folic acid up to 3 months after pregnancy, managed pre-existing medical conditions, and avoided/stopped taking any forms of drugs without a prescription. Most of the respondents avoided exposure to environmental health hazards (84.1%). However, only more than half of the women used folic acid during the pre-conception period (54.8%), and 58.4% received genetic counseling about hereditary disease. This study found that despite the availability and accessibility of the services, the utilization of pre-conceptional services among pregnant women is low, especially in receiving medical service/information regarding infertility/subfertility. Hence, health care agencies should conduct awareness programs about pre-conceptional care, and the Nepal government should strengthen the implementation of a preconception care package as per WHO guidelines.

| **KEYWORDS**

Pregnant women; Pre-conceptional care

| **ARTICLE INFORMATION**

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1. Introduction

Preconception health refers to the health of people during their reproductive years, or the years they can have a child. It focuses on interventions to protect the health of mother and the baby. Folic acid insufficiency before conception and during the first trimester is associated with a higher prevalence of neural tube defects. Adequate folic acid supplementation before pregnancy and during early pregnancy can help to reduce the risk of a neural tube defect-affected pregnancy. All women of reproductive age should get 400 micrograms (mcg) of folic acid each day, in addition to consuming food with folate from a varied diet, to help prevent neural tube defects. Neural tube defects

such as anencephaly and spina bifida are major birth defects of the baby's brain (Centers for Disease Control and Prevention, 2023).

Package of pre-conceptional care includes nutritional conditions, vaccine-preventable diseases, Genetic Conditions, Environmental health, Infertility/ Subfertility, Female genital mutilation, Too early, unwanted rapid successive pregnancies, Sexually transmitted infections, Human Immunodeficiency Virus (HIV), Interpersonal violence, Mental health, Psychoactive Substance use, Tobacco use (National Medical Standard for Maternal and Newborn Care, 2020).

Pre-conceptional care reduces the risk factors for adverse pregnancy outcomes, which include birth defects, preterm delivery, low birth weight, stillbirths, and spontaneous abortions, spanning a range of modifiable and non-modifiable exposures. These include factors like maternal age, education, socioeconomic status, health status, smoking, drinking, and obesity. Pre-conceptional interventions are necessary to reduce these risk factors. Preconception risk factors are addressed through high-risk women screening and management, as well as health promotion that includes education on nutritional factors (preconception folic acid supplementation, appropriate body mass index), limiting environmental exposures, and lifestyle modification (advice regarding caffeine, smoking, alcohol, and recreational drugs (Gund & Bhide, 2016).

Knowledge and utilization of preconception care among women in Nepal showed that only 2% had high levels and 98% had low levels of utilization of pre-conceptional care (Khanal, 2020).

2. Method

A cross-sectional descriptive study design was adopted to assess the utilization of pre-conceptional care among pregnant women attending the teaching hospital, Chitwan, from September 24 to October 20, 2023. This study was conducted in the outpatient department of gynecology and obstetrics at Chitwan Medical College, Teaching Hospital (CMC-TH) located in Bharatpur 10. Bharatpur. CMC-TH is a 750-bedded tertiary-level hospital. CMC-TH is considered one of the referral centers for maternal and newborn cases in Province 3, providing free delivery services and also providing pre-conceptional care services to couples. All services are carried out in co-ordination with the safe motherhood program under the Government of Nepal. The population of this study consisted of all pregnant women who had completed 12 weeks of gestation and attended at gynecology/obstetric outpatient department of CMC-TH for antenatal care services were selected by non-probability convenience sampling technique

The sample size was calculated using Cochran, W.G. (1977) formula

$$\text{Sample size } (n_o) = \frac{z^2 pq}{d^2}$$

Z signifies the level set at 95% confidence level which is 1.96 and 95 margin of error

p is the prevalence of pre-conceptional care utilization which is 16.27% (Ayele et al., 2021).

For infinite population:

$$n_o = (1.96)^2 \times (0.1627) \times (0.8373) / 0.0025$$

$$= 208.89 = 209$$

$$\text{Sample size } (n_o) = 209$$

Now, for finite population,

Average population per month who meets inclusion criteria per month (N) = 313

Then,

$$\begin{aligned}
 n &= \frac{no}{1 + \frac{N}{no-1}} \\
 &= \frac{209}{1 + \frac{209-1}{313}} \\
 &= 125.60 \cong 126
 \end{aligned}$$

The total final sample size was 126.

Ethical clearance was taken from the Chitwan Medical College Institutional Review Committee, and data collection approval from hospital administration of CMCTH. Prior to data collection, written informed consent was obtained from pregnant women who met the inclusion criteria.

The confidentiality of the information was maintained throughout the study by not disclosing the information and using the information only for research purposes.

A structured interview schedule was developed by researcher herself on the basis of ANC-TO PNC continuum of care by Nepal government (Family Well-fare Division, 2079), National Medical Standard Volume III, and WHO pre-conceptional care package. Data was collected from 2080/06/07 BS to 2080/07/03 by researcher self. First and foremost, respondents' OPD tickets were used to identify the respondent and to avoid repeating the same responders in data collection. The objectives of the study and the data collecting method was explained to the respondents, and each respondent's written informed consent was obtained prior to data collection to confirm their desire to participate in the study. Face-to-face interview technique was used to obtain data. Each day, data were collected from 5 to 6 pregnant women per day during OPD hours (9am-4pm). The interview duration was about 15-20 minutes for each respondent. Data was collected in the corner of OPD or separate rooms of the gynecology and obstetrics outpatient department.

Content validity of the instruments was established by doing extensive literature review, consulting with research advisor/co-advisor and opinion from subject experts and a team of professionals from the thesis committee of Chitwan Medical College. The research instrument was validated by six experts for Content Validity Index. The calculated CVI was 0.92 for the self reported checklist. Pretesting of the instrument was conducted on 10% of the total sample size in Gynae/OPD of CMCTH, who were excluded in the final study.

All collected data were reviewed and checked for completeness, consistency, and accuracy. The data were edited, organized, coded, and entered in IBM SPSS23. Data were analyzed using descriptive statistics (frequency, percentage, interquartile range, measures of central tendency).

3. Result

Out of 126 pregnant women, 116(92.1%) were in the age group 20-34 years. Regarding place of residence, 95 (75.4%) resided in urban areas whereas 120 (95.2%) followed Hinduism, regarding education level, 42 (33.4%), Table 1.

Among 126 pregnant women, regarding spouse education 89(70.6%) had more secondary education, Regarding decision maker for preconceptional 76 (60.3%) had jointly and 125(99.2%) had family support during preconceptional care, Table 2.

Out of 126 pregnant women, most of the respondents 102(81.0%) were multigravida whereas 62.7%% were primipars, 60(58.9%) had a history of abortion. Most of the respondents 97(77.0%) reported that their nearest health facility is situated more than 30 minutes away from home on foot. Regarding information (47.6%) got information on pre-conceptional care before planning pregnancy by health personnel and majority of respondents 88 (69.8%) received pre-conceptional care services from private hospitals, of the respondents had other pre-existing medical conditions (20.6%). Most of the respondents (80.8%) suffered from thyroid disorder, followed by hypertension disorder (11.5%) and diabetes mellitus (7.7%), Table 3.

Among 126 pregnant women, it shows that cent percent respondents received advice from health care providers regarding consumption of nutritious (balanced) diet and took folic acid up-to three months after pregnancy. More than half respondents (54.8%) used folic acid before pregnancy and got genetic counseling about inherited disorders by a health care provider (58.7%) during pre-conceptional period. Cent percent of respondents managed their pre-existing medical condition (Thyroid, Hypertensive disorder and Diabetes Mellitus). Most of the respondents (84.1%) avoided exposure to environmental health hazards such as pesticides, insecticides, cat litter and faces and majority of respondents (74.6%) avoided exposure to excessive use of cosmetics and lead based paints. However, only 15.9% received service and information regarding infertility/subfertility during pre-conceptional period, Table 4

Out of 126 pregnant women that more than half respondents (60.3%) used contraceptive method of family planning and cent percent of them discontinued during pre-conceptional period whereas only 25% screened for sexually transmitted diseases (Syphilis, Gonorrhea, HIV, Hepatitis B, VDRL) by couples and none of the respondents took vaccination against vaccine preventable diseases during pre-conceptional, 122(96.8%) received information on effect of tobacco and alcohol, Table 5.

Table 1 Respondents Socio-demographic Characteristics (n= 126)

Variables	Number	Percent
Age Group		
20-34 years	116	92.1
35 years or more	10	7.9
Median age = 28.50, year IQR(Q3-Q1) = (31.25-27) Min 20 year and Max 39 year		
Place of Residence		
Urban	95	75.4
Rural	31	24.6
Religion		
Hinduism	120	95.2
Buddhism	3	2.4
Christianity	3	2.4
Ethnicity		
Brahmin	34	27.0
Chhetri	37	29.4
Dalit	15	11.9
Jana Jati	40	31.7
Type of Family		
Nuclear	18	14.3
Joint	108	85.7
Educational Level		
Basic education	12	9.5
Secondary education	42	33.4
More than Secondary	72	57.1
Occupation		
Homemaker	63	50.0
Service	57	45.2
Business	6	4.8

IQR=Interquartile range, min= minimum, max= maximum

Table 2 Respondents' Spouse and Family Related Characteristics (n=126)

Variables	Number	Percent
Spouse education		
Basic education	2	1.6
Secondary education	35	27.8
More than Secondary	89	70.6
Spouse Occupation		
Business	78	61.9
Service	36	28.6
Labor daily wages	3	2.4
Foreign employment	9	7.1
Decision maker for pre-conceptional care		
Self	24	19.0
By husband	26	20.7
Jointly	76	60.3
Family support during pre-conceptional care		
Yes	125	99.2
No	1	0.8

Table 3 Respondents' Obstetric and Reproductive Health Services Related Characteristics n=126

Variables	Number	Percent
Gravida		
Primi Gravida	24	19.0
Multi Gravida	102	81.0
Parity		
Nullipara	35	27.8
Primipara	79	62.7
Multipara	12	9.5
History of abortion (n= 102)		
Yes	60	58.9
No	42	41.1
Distance of nearest health facility from residence on foot		
Less than 30 minutes	29	23.0
30 minutes and more	97	77.0
Sources of Information on pre-conceptional care before planning pregnancy		
Health personnel	60	47.6
Friends	41	32.5
Relatives	25	19.9
Health facility from where pre-conceptional care services received		
Government hospital	38	30.2
Private hospital	88	69.8
Presence of pre-existing medical conditions (n=126)	26	20.63
Types of pre-existing medical condition (n=26)		
Diabetes Mellitus	2	7.7
Hypertension disorder	3	11.5
Thyroid disorder	21	80.8

Table 4 Status of Utilization of Pre-conceptional Care Services (n=126)

Variables	Utilization of Pre-conceptional Care	
	Number	Percent
Nutritional Condition		
Consumed nutritious (balance) diet during pre-conceptional period as advice from health care provider	126	100.0
Folic acid used during pre-conceptional period	69	54.8
Folic acid used up-to 3 months after pregnancy	126	100.0
Genetic Conditions		
Received genetic counselling about inherited disorders (family history of developmental delays, learning disabilities, congenital malformation, birth defects)	74	58.7
Pre-existing medical condition (n= 26)		
Managed pre-existing medical conditions (Hypertension, diabetes, thyroid, asthma and epilepsy) drugs during pre-conceptional period	26	100.0
Environmental Health		
Avoided exposure to environmental health hazards (pesticides, insecticides, cat litter and feces) during pre-conceptional period	106	84.1
Avoided exposure to excessive use of cosmetics and lead based paints	94	74.6
Infertility/ subfertility		
Received medical services/information regarding infertility/subfertility	20	15.9

Table 5 Status of Utilization of Pre-conceptional Care Services (n=126)

Variables	Utilization of Pre-conceptional Care	
	Number	Percent
Too early, unwanted and rapid successive pregnancy		
Used contraceptive method of family planning during pre-conceptional period	76	60.3
Discontinued any contraceptives for family planning during pre-conceptional period (n= 76)	76	100.0
Sexually transmitted Infections		
Screening for sexually transmitted diseases (Syphilis, Gonorrhea, HIV, Hepatitis B, VDRL) by Couples as advice by health care provider	32	25.0
Vaccine preventable disease		
Vaccinated against (Hepatitis B, Rubella (German Measles), Influenza) during pre-conceptional period	0	0.0
Mental Health		
Received pre-conceptional counselling regarding mental (avoid stressors) health from health care provider	88	68.8
Psychoactive Substance Use		
Avoided/stopped taking any forms of non-prescribed drugs during pre-conceptional period	126	100.0
Avoided or decreased taking caffeinated beverage (coffee, soda drinks, cold drinks, tea) during pre-conceptional period	114	90.5
Tobacc/Alcohol Use		

Received information on effect of tobacco and alcohol use from health care provider during pre-conceptual period	122	96.8
Avoided direct exposure to any form of tobacco/alcohol intake during pre-conceptual period	94	74.6

4. Discussion

The findings of this study assess the utilization of pre-conceptual care among pregnant women. In this study, almost all pregnant women (92.1%) belonged to the age group 20-34 years and followed Hinduism (95.2%). Most of the pregnant women (75.4%) were from urban residence and belonged to joint families (85.7%). Cent pregnant women were married. More than half pregnant women (57.1%) received more than secondary level education, whereas 50% were home makers, the majority of pregnant women's spouses (70.6%) had more than secondary level education and were involved in business (61.9%). The majority of pregnant women (60.3%) reported that they took decisions for pre-conceptual care jointly. Almost all (99.2%) got family support during pre-conceptual period. Most pregnant women (81.0%) were multigravida whereas the majority of respondents (62.7%) were primiparous and more than half (58.9%) had a history of abortion. Most of the pregnant women (77.0%) reported that their nearest health facility is situated more than 30 minutes away from home on foot. Less than half (47.6%) of pregnant women got information on pre-conceptual care before planning pregnancy by health personnel and the majority of pregnant women (69.8%) received pre-conceptual care services from private hospitals. One fifth of the pregnant women had other pre-existing medical conditions (20.6%). Among them, most of the pregnant women (80.8%) suffered from thyroid disorder.

Among seventeen items of the eleven components of pre-conceptual care services, cent percent (100%) of pregnant women had consumed nutritious (balanced diet) as advice from health care providers during the pre-conceptual period. The findings of the study are consistent with the study conducted in Nepal by Khanal (2020) which showed that cent percent (100%) received advice on consumption on proper balanced diet from health care providers during pre-conceptual period. Furthermore, the results of this study is higher than the study in Nepal Godar et al.(2023), which showed that 90.1% ,respectively, received advice on proper balanced diet during pre-conceptual period. These dissimilarities might be due to geographical variation and population characteristics between present and previous study, educational status of respondents which might increase awareness and may increase utilization of pre-conceptual care.

This study shows that 54.8% pregnant women used folic acid during pre-conceptual period. These findings are higher than the study conducted in Nepal Khanal, L.D.(2020) which showed that 11.0% used folic acid before conception due to different time periods and different population(planned pregnancy) in present study. Furthermore, the findings are higher than other studies conducted in Italy, De Santis et al.(2013) and Gazzino et al.(2020) in Itali , in Ghana Boakye-Yiadom et al.(2020), in Korea Kim et al.(2017), and in Nepal Koirala & Pokharel (2018) showed that folic acid utilization was 43.4%, 34.0%, 26.4% , 16.8% and 17.% respectively. However our finding is lower than the study done in Belgium Goossens et al.(2018) in which folic acid utilization was 76% during pre-conceptual period. Folic acid utilization is inadequate although women who planned their pregnancy and the level of information received from different sources before being pregnant. The discrepancy between these studies could be due to differences in geographical areas as well as approaches used to measure the utilization of pre-conceptual care and population characteristics.

This study showed that cent percent of pregnant women used folic acid up to three months after pregnancy. These findings are consistent with the study conducted in Sri Lanka Pathiraja & Prathapan (2020) in which showed that 98.4% of pregnant women used folic acid after pregnancy. The reasons behind this might be due to proper implementation of national antenatal care protocol by the health institutions and similar population characteristics.

In this study, only 20.6% pregnant women reported that they had pre-existing health problems before they became pregnant. Among them 80.0% had thyroid disorder, 11.5% had hypertensive disorder and only 7.7% had diabetes mellitus. These findings are inconsistent with the study conducted in Ethiopia Wegene et al.(2022) and Amaje et al. (2022) in Ethiopia which showed 18.4% of pregnant women screened and treated for chronic medical diseases. The discrepancy might be to larger sample size 400 and 660 in Wegene et al.(2022) and Amaje et al. (2022) respectively than present study and dissimilarity in selection of the sample. Both studies used systematic sampling technique whereas the present study used convenience sampling technique may not be representative of the population.

In this study more than half (58.7%) of pregnant women received genetic counseling about inherited disorders such as family history of developmental delays, learning disabilities, congenital malformation, birth defects by health care providers during pre-conceptional period. These findings of the study are higher than the study conducted in Ethiopia Fekene et al.(2020) which showed that counseling on medical and genetic conditions was 17.6%. The previous study population was reproductive aged women so that population might not feel the importance of genetic counseling than present study. Sampling technique which was a multistage, stratified sampling procedure, time and study setting between present and previous study might be the reasons for dissimilarities.

In this study, most pregnant women (84.1%) avoided environmental health hazards such as pesticides, insecticides, cat litter and feces during pre-conceptional period. However these findings are lower than the study conducted in Nepal Khanal, L.D (2020) and higher than the study conducted in Ethiopia Goshu et al. (2018) which showed 89.5% and 0.9% respectively. These dissimilarities might be attributed to difference in time, variation between educational status of respondents, larger sample size 200 and 229 respectively and variations in study setting and design, which was community based.

The study shows that 60.3% discontinued using any contraceptives for family planning (if they used) during the pre-conceptional period.. These findings are higher than the study conducted in Ethiopia Girma et al. (2023) and Alie et al. (2022) which showed that 56.9% and 17.9% respectively used and removed family planning devices during the pre-conceptional period. This might be due to the information received on pre-conceptional care from health institutions, and study conducted on a large population.

The study shows one quarter of couples 25.0%. that screened for sexually transmitted diseases (syphilis, Gonorrhea, HIV, Hepatitis B, VDRL) as advised by health care providers. Whereas the finding is higher than study conducted in Nepal Khanal, L.D (2020) , lower than the study in Ethiopia Amaje et al. (2022) and Fetena et al. (2023) and higher than the study conducted by Alie et al. (2022) were 1.5%, 87.1%, 29.8% and 9.6% respectively were screened for sexually transmitted infections. These dissimilarities due to difference in time and study setting i.e all studies were conducted in community setting than recent study. Population variation between pregnant women and reproductive age women might be the reason for not emphasizing the importance of screening of sexually transmitted infections.

In the present study, cent percent pregnant women were avoided/stopped taking any forms of drugs without prescription during pre-conceptional period as advised by health care provider and supportive study conducted in Nepal Khanal, (2020) and Godar et al. (2023) which showed that 95.5% and 85.6% avoided/stopped taking drugs without medical prescription during pre-conceptional period respectively which may have access of information from health personnel, friends and relatives and high level educational status in recent study and characteristics of population between present and previous study i.e pregnant women and reproductive age women.

5. Conclusion

The current study suggests that the cent percent of pregnant women who planned their pregnancy utilize the information regarding the consumption of a nutritious (balance) diet, folic acid up to 3 months after pregnancy, manage the pre-existing medical conditions, and avoid/stop taking any forms of drugs use without doctor's prescription during pre-conception period. It indicates that utilization of preconception care is low among women who planned their pregnancy, especially in certain components. Hence, pre-conception care should be integrated with other maternal health services through various programs involving the target groups to maximize the health and wellbeing of women, children and couples.

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APPENDIX A

INSTRUMENTS (ENGLISH, Nepali)

Chitwan Medical College

School of Nursing, Bharatpur-10, Chitwan

Affiliated to Tribhuvan University

Interview Schedule

“Structure Interview Schedule on Utilization of Pre-conceptional Care among Pregnant Women attending at a Teaching Hospital.”

Code no:

Date of Interview:

Place: Gynecology/ Obstetric Out Patient Department, CMC-TH

Direction: Researcher will ask the respondent screening question related to the current pregnancy is planned or not for selection of respondents for the study. If respondents answer “yes” then ask other questions.

Researcher ticks (√) in the box for the appropriate answer provided to the closed ended question and for appropriate response for multiple responses according to respondent view point.

PART I: Questions related to socio-demographic characteristics of respondents, spouse and family related characteristics, obstetric and reproductive health services related characteristics and pre-existing medical conditions before pregnancy related characteristics.

S/N	Questions	Response
1.	What is your completed age?	
2.	Where is your place of residence? a) Urban b) Rural	☐ ☐
3.	What is your religion? a) Hinduism b) Buddhist c) Christianity d) Islam	☐ ☐ ☐ ☐

4.	What is your ethnicity? a) Brahmin b) Chhetri c) Dalit d) Jana-Jati e) Muslim	
5.	What is your marital status? a) Married b) Unmarried	
6.	What is your educational status? a) No education b) Basic education c) Secondary education d) More than Secondary	
7.	What is your occupation? a) Homemaker b) Agriculture c) Service d) Business e) Labor daily wages f) others.....	
8.	What is your family type? a) Nuclear b) Joint	
9.	Is your yearly household income sufficient for living? a) Sufficient for < 6 months b) Sufficient for 6 – 12 months c) 12 months or more	
Spouse and family related characteristics		
10.	What is the level of education of your husband? a) No education b) Basic education c) Secondary education d) More than Secondary	
11.	What is the occupation of your husband? a) Agriculture b) Business c) Service d) Labor daily wages e) foreign employment	
12.	Who made decisions regarding utilization of pre-conceptual care before pregnancy? a) Women self b) Husband c) Jointly	

13.	Do you have family support during pre-conceptional period? a) Yes b) No	<table><tr><td></td></tr><tr><td></td></tr></table>		

Obstetric and reproductive health services related characteristics

14.	How many times did you get pregnant?				
15.	How many children do you have?				
16.	How many times did you receive antenatal care service in current pregnancy?				
17.	Did you have a history of abortion before pregnancy? a) Yes b) No	<table><tr><td></td></tr><tr><td></td></tr></table>			
18.	How long does it take to reach the nearest health facility on foot?				
19.	From whom did you get information about pre-conceptional care before planning pregnancy? a) Health personnel b) Friends c) Relatives	<table><tr><td></td></tr><tr><td></td></tr><tr><td></td></tr></table>			
20.	Where did you receive the preconception care service in the current pregnancy? a) Government hospital b) Private hospital	<table><tr><td></td></tr><tr><td></td></tr></table>			

Pre-existing medical condition before pregnancy related characteristics.

21.	Did you have any pre-existing medical conditions (Hypertension, diabetes, thyroid, asthma and epilepsy) before pregnancy? a) Yes b) No	
22.	If yes please specify	

PART II: Questions related to utilization of pre-conceptual care

Direction: The researcher will orally ask the question to the respondents regarding utilization of pre-conceptual care. Researcher ticks (√) in the box for the appropriate answer. Total items will be 17. The researcher requests respondents to give the answer to the researcher orally, "Yes" for utilized and "No" for not-utilized pre-conceptual care services (Habte et al., 2021).

S/N	Question related to utilization of pre-conceptual care	Respond	
		Yes	No
	I. Nutritional condition		
1.	Did you take advice from a health care provider regarding consumption of nutritious (balanced) diet during pre-conceptual period?		
2.	Did you receive folic acid daily before pregnancy?		
3.	Did you take folic acid daily up to 3 months after diagnosis of pregnancy?		
	II. Genetic Conditions		
4.	Did you receive genetic counselling about inherited disorders (family history of developmental delays, learning disabilities, congenital malformation, birth defects) by a health care provider during the pre-conceptual period?		
	III. Pre-existing medical condition		
5.	Did you manage any pre-existing medical condition by modifying drugs in the pre-conceptual period? (Hypertension, diabetes, thyroid, asthma and epilepsy)		
	IV. Environmental Health		
6.	Did you avoid exposure to environmental health hazards (pesticides, insecticides, cat litter and feces) in the pre-conceptual period?		
7.	Did you avoid exposure to excessive use of cosmetics and lead based paints during the pre-conceptual period?		
	V. Infertility/ subfertility		
8.	Did you receive medical services regarding infertility during pre-conceptual period?		
	VI. Too early, unwanted and rapid successive pregnancy		
9.	Did you use the contraceptive method of family planning before the pre-conceptual period?		
10.	Did you discontinue using any contraceptive if you used during pre-conceptual period?		
	VII. Sexually transmitted Infections		
11.	Did you and your husband screen for sexually transmitted diseases as advised by the health care provider (Syphilis, Gonorrhea, HIV, Hepatitis B, VDRL) before current pregnancy?		
	VIII. Vaccine preventable disease		
12.	Did you take vaccines (Hepatitis B, rubella (German Measles) and Influenza) during pre-conceptual period?		
	IX. Mental Health		
13.	Did you receive pre-conceptual counselling regarding mental health (avoid stressors) by health care provider during the pre-conceptual period?		
	X. Psychoactive Substance Use		
14.	Did you avoid/stop taking any forms of drug use without a doctor's prescription during the pre-conceptual period?		
15.	Did you avoid or decrease the intake of caffeinated beverages (coffee, soda drinks, cold drinks, tea) during the pre-conceptual period?		
	XI. Tobacc/Alcohol Use		
16.	Do you receive information on the effects of tobacco and alcohol use before conception?		
17.	Did you avoid direct exposure to any form of tobacco/alcohol intake during the pre-conceptual period?		

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APPENDIX B

LIST OF EXPERTS CONSULTED FOR VALIDITY OF INSTRUMENTS

This is the list of experts to whom researcher consulted to maintain validity of the instrument.

1. Prof. Dr. Kalpana Sharma
2. Prof. Raj Kumar Mehta
3. Prof. Basanta Thapa
4. Prof. Laxmi Rajbanshi
5. Assoc. Prof. Jaya Laxmi Shakya
6. Assoc. Prof. Subina Bajracharya

APPENDIX C

INFORM CONCENT FORM (English, Nepali)

College of Nursing

Bharatpur-10, Chitwan

Affiliated to Tribhuvan University

INFORM CONCENT FORM

I have full capacity to consent and do hereby volunteer to participate in this study entitled "Utilization of Pre-conceptional Care". I was informed about the aims and objectives of study. My participation in the study will be voluntary and I can withdraw at any time without any penalty. My personal identity will not be revealed in any publication that may arise from the study. I have read this consent form and understand that the information I provide to you will be kept confidential. I have been given an opportunity to ask questions regarding this study without any hesitation during the data collection period.

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Respondents Signature

Date:

Thumb print

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APPENDIX D**PARTICIPANT INFORMATION SHEET (ENGLISH AND NEPALI****Chitwan Medical College****School of Nursing, Bharatpur -10, Chitwan****Affiliated with Tribhuvan University****PARTICIPANT INFORMATION SHEET**

Namaskar,

My name is Yashoda Mishra. I am a student of MN second year, Women Health and Development at Chitwan Medical College Bharatpur. I am assigned research work by the college on the title utilization of pre-conceptional care among pregnant women at Teaching Hospital, Chitwan, Nepal for the partial fulfilment of the requirements of the Master of Nursing in Women's Health and Development.

The objective of this research is to assess the utilization of pre-conceptional care among pregnant women. I humbly request you to participate in this study by responding honestly and openly to the set of questions. Your response will contribute a lot to the successful completion of this research study and will be highly appreciated. Your responses and personal information will be maintaining strict confidentiality that will be used only for study purposes. It will take 25-30 minutes only. At first part, will be socio-demographic, spouse and family, obstetric and reproductive health services and pre-existing medical condition before pregnancy related questions and in second part will be structured interview schedule using self-reported checklist containing utilization of pre-conceptional care related questions to assess utilization of pre-conceptional care.

Our conversation will be held separately. I would like to assure you that your personal identity will not be disclosed in the report. I will be happy to answer your questions if you have any. If you have any questions about the research study, please contact the researcher at Chitwan Medical College, School of Nursing during the data collection time. My cell phone number is 9841557891.

Thank you.

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xfd[f] s'/fsfgL 5'\$} / zfGt 7fpFdf ul/g]5 . of] ljj/0f tYof] ljZn]if0fsf] qmddf st] pNn]v gx'g] s'/f ljZjt u/fpg rfxG5' . olb tkfO{nfO{ cg';Gwfg ;DalGw s'g} hfgsf/L rfxPsf] 5 eg], s[kof hfgsf/L ;'lng cjlwdf cg';Gwfgstf{nfO{ lrtjg d]l8sn sn]h, :s'n ckm gl;{Ëdf ;Dks{ /fVg ;Sg'x'g]5 . d]/f] df]afOn g+= (*\$!%%&*(! xf] .

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APPENDIX E ETHICAL APPROVAL LETTER

**Chitwan Medical College (CMC)**
Institutional Review Committee (IRC)

Ref: CMC-IRC/080/081 -129

Date: September 15, 2023

To,

Ms. Yasodha Mishra
MN Student
Chitwan Medical College

Ref: Ethical Approval of Research Proposal

Dear Ms. Mishra

The Institutional Review Committee of Chitwan Medical College (CMC-IRC) has reviewed and discussed your research proposal entitled "Utilization of Preconceptional Care among Pregnant Women Attending at Teaching Hospital, Chitwan".

I am pleased to inform you that after careful evaluation, the above-mentioned research proposal has been approved by Institutional Review Committee of Chitwan Medical College (CMC-IRC).

This CMC-IRC is organized and operates in accordance with the Guidelines of Nepal Health Research Council (NHRC) and Standard Operating Procedures (SOP) of CMC-IRC.

The standard conditions of this approval are:

- Conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the CMC-IRC
- Report immediately of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project (Email: irc.secretary@cmc.edu.np)
- Make submission for approval of amendments to the approved project before implementing such changes
- Submit a 'progress report' on three monthly basis or more frequently as the committee feels it.
- Required to apply for renewal of ethical clearance if the study is not completed at the end of this clearance. This approval is valid for one year from the date of approval.
- CMC-IRC may conduct an audit of the project at any time.
- Provide a copy of 'FINAL REPORT' to CMC-IRC when the project is complete
- Abide by the principles of good clinical practice and ethical conduct of research.

Please note that failure to comply with the conditions of approval may result in withdrawal of approval for the project. You may now commence your project.

I wish you all the best for the conduct of the project.


Prof. Raj Kumar Mehta
Member-Secretary
Institutional Review Committee (CMC-IRC)

Bharatpur-10, Chitwan, Nepal P.O.Box No. 42
Email: irc.secretary@cmc.edu.np / na@cmc.edu.np Phone: 056-532933 Fax: 056-532937 Website: www.cmc.edu.np