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ORIGINAL RESEARCH ARTICLE

KNOWLEDGE ON PRECONCEPTION CARE AMONG BACHELOR LEVEL NURSING STUDENTS OF SELECTED CAMPUSES IN BAGMATI PROVINCE

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ABSTRACT

Background: Preconception care is the provision of biomedical, behavioural and social health interventions to women and couples before pregnancy to improve the health status of mother, new-born and child. There is growing evidence that preconception care may have an important role in preventing short and long-term adverse health consequences for women and their offspring. So this study was conducted to assess knowledge on preconception care among bachelor-level nursing students.

Methods: A descriptive cross-sectional design with a purposive sampling technique was used to select 129 students from Constituents and affiliated Nursing campuses of Tribhuvan University in Bagmati Province. Data were collected over one month from 1st September to 27th September 2020. Knowledge on preconception care was evaluated through self-administered questionnaires. Analysis was done by using descriptive statistical tests.

Results: Among 129 respondents, 17.8% of respondents had adequate and 81.4% had a moderate level of knowledge on preconception care. The respondents had adequate levels of knowledge on teratogens and environmental toxins and inadequate on some of the very important issues such as proper time for preconception care, birth spacing, hygiene, and vaccines contraindicated during pregnancy.

Conclusions: Based on the findings, most of the respondents had a moderate level of knowledge but as a nurse to provide holistic care to the client and future mother they have to have an adequate level of knowledge to prevent adverse consequences of maternal and child health. Therefore, there seems to be a strong need to develop a simple guideline of preconception care and incorporate it into the nursing curriculum.

INTRODUCTION

Preconception care is the provision of biomedical, behavioural and social health interventions to women and couples before pregnancy to improve the health status of mother, new-born and child. [1] It is an essential part of antenatal care which helps women's to prepare for pregnancy, reduce risk, promote healthy lifestyle as well as minimize fetal malformations.[2]

The global child mortality rate according to UNICEF has declined by 62 percent from 1990 to 2016 with deaths of children under the age of five, decreasing from 12.7 million to 5.6 million. However, the reduction in neonatal mortality is not as rapid when compared to the under-five mortality globally. [3] Maternal mortality, on the other hand, has declined by 44 percent from 386 deaths to 216/100 000 live births globally, from 1990 to 2015. This translates to an average of 2.3 percent annually and is not enough to meet the SDG 3.1. [4]

Several risk behavior and exposures affect fetal development and subsequent outcomes. The greatest effect occurs early in pregnancy.[5] Different studies indicate that improving a woman's health before pregnancy will improve pregnancy outcomes. [6] According to statistics, every minute in the world, 380 women become pregnant, 190 face unplanned or unwanted pregnancy; 110 experience a pregnancy-related complication; 40 have an unsafe abortion; and one woman dies from a pregnancy-related cause. Hardly 20 percent of mothers receive all the required components of prenatal care. [7]

Several studies conducted in Nepal [9] Egypt[10] and Ethiopia [11] had found that nursing students and health care providers had inadequate level of knowledge on preconception care.

The nurses are the person who provide holistic care to the client and future mother, they have to have an adequate level of knowledge to prevent adverse consequences of maternal and child health. Thus the purpose of the study was to assess the knowledge on preconception care among bachelor level nursing students in Bagmati Province.

METHODS

A descriptive cross-sectional research design was used to find

out the knowledge on preconception care among bachelor-level nursing students of selected campuses in Bagmati province. The study population was B.Sc. Nursing 4th year students who were currently studying in constituent and affiliated campuses of TU, IOM. The total population was 137 (Maharajgunj Nursing Campus: 30, Manmohan Memorial Institute of Health Science: 30, Lalitpur Nursing Campus: 19, Janamaitri Foundation Institute of Health Sciences: 28 and Chitwan Medical College: 30). The purposive sampling technique was used for data collection. Hence, a total of 129 participants were included for the final analysis.

Structured self-administered questionnaires were constructed by researchers themselves after extensively reviewing the related literature. The content validity of the instrument was maintained by consulting with research advisor, subject experts and peers. The instrument was pretested in 13 (10% of 129) samples at Universal College of Medical Sciences (UCMS), Bhairahawa. The questionnaire had two parts consisting of socio-demographic characteristics and knowledge on preconception care and assessment of knowledge was done in 3 sections: Section A - Concept of Preconception Care, Section B - Preconception health promotion, Section C- Effects of teratogens exposure. For each correct response 1 score was given. Afterward, total knowledge scores were calculated and further classified into adequate, moderately adequate, and inadequate levels of knowledge. Data were collected over one month from 1st September to 27th September 2020 after getting ethical approval (Ref 87/ (6-11) E2 076/077 from the Institutional Review Committee (IRC) of Tribhuwan University, Institute of Medicine. Administrative approval for data collection was taken from different nursing campuses by submitting the letter from the Maharajgunj Nursing Campus. Written informed consent was taken from each nursing student before data collection by explaining the purpose of the study. Confidentiality and Anonymity were maintained throughout the study, using code number instead of respondent name and using the information only for the study purpose respectively. Respondent's dignity was maintained by giving the right to reject or discontinue the research study at any time without penalty.

Data were edited, coded, and entered into the IBM SPSS version 16 program. Data were summarized using descriptive statistics (as frequency, percentage, mean score, and standard deviation).

RESULTS

Out of 129 respondents, almost all of the respondents (92.2%) were from the age group 20-24 years and only 1.6% were in the age group of 15-19 years. The mean age was 21.98±1.208. Regarding marital status, almost all (93.8%) were unmarried. Among married respondents, only 14.3% were planning for a baby shortly. About educational organizations, nearly two-thirds (64.8%) belong to affiliated colleges whereas 34.9% belong to constituents. Furthermore, 54.3% obtained 1st division, and 45.7% obtained distinction division. Concerning source of information of preconception care, 100%, 23.3%, and 31.0% of students obtained information from the course-book, mass media, and from health professionals respectively (Table 1).

Table 1: Socio-demographic characteristics of the respondent (n=129)

Characteristics	Number (%)
Age group (Completed years)	
15-19	2 (1.6)
20-24	119 (92.2)
25-29	8 (6.2)
Mean age (in years)±SD 21.98±1.208; Min=21.98	
Marital Status	
Unmarried	121 (93.8)
Married	8 (6.2)
If married (n=8)	
Not Planning for baby	7 (85.7)
Planning for baby	1 (14.3)
Organization	
Affiliated Colleges	84 (65.1)
Constituent Campuses	45 (34.9)
Division Obtained	
1st division	70 (54.3)
Distinction	59 (45.7)
Source of Information	
Course book	129 (100.0)
Others	
Health professional	40 (31.0)
Mass media	30 (23.3)
None	59 (45.7)

Table 2: Respondents' general knowledge on preconception care (n=129)

Variables	Correct response
	Number (%)
Reproductive period is Period between menarche and menopause	128 (99.2)
Meaning of conception is Fusion of sperm and ovum	113 (87.6)
Both male and female should be involved in preconception care	98 (76.0)
Preconception period is 3 months before pregnancy	80 (62.0)
Hormonal family planning should be stopped 3 months prior conception	76 (58.9)
Preconception care means Care and Advice for future parents	73 (56.6)
Proper time for giving preconception care is Teenage period	50 (38.8)
Birth spacing after a live birth should be 2 years and abortion should be 6 months	43 (33.3)
Components of Preconception Care *	
Risk screening	124 (96.1)
Counseling	124 (96.1)
Health promotion	118 (91.5)
Vaccinations	84 (65.1)

* Multiple response

Table 2 showed that almost all of the respondents (99.2%) answered the correct meaning of reproductive period. Nearly two-third 62% of them had an idea about the preconception period however, only 33.3% of the respondents knew about birth spacing, and 38.8% about the proper time for giving preconception care.

Concerning components, almost all of the respondents (96.1%), (96.1%), and (91.5%) answered risk screening; counselling and health promotion are the components of preconception care respectively. However, nearly two-thirds (65.1%) of respondents had known that vaccination is also the component of preconception care.

Table 3 showed that almost all of the respondents (98.4%) had known about essential elements to prevent neural tube defects. About body mass index, 85.3% answered it correctly. Regarding vaccines, 60.5% of respondents answered that the rubella vaccine is contraindicated during pregnancy. Likewise, only 24% knew about oral hygiene as the most important hygiene in the preconception period.

Table 3: Respondents' knowledge on preconception health promotion (n=129)

Variables	Number (%)
Essential element to prevent neural tube defect is Folic acid	127 (98.4)
Body mass index is weight in kilogram/height in meter square	110 (85.3)
Appropriate dose of folic acid is 400mcg	97 (75.2)
Time by which neural tube has closed during pregnancy is 28 days of gestation	80 (62.0)
Rubella is a contraindicated vaccine during pregnancy	78 (60.5)
Oral Hygiene is most important hygiene in preconception period as well as during pregnancy	31 (24)

Table 4: Respondents' knowledge on components of healthy lifestyle, assessment, disease screening and genetic counselling (n=129)

Variables	Correct Response Number (%)
Components of Healthy Lifestyle during Preconception Period*	
Assess the risk of nutrition deficiencies	124 (96.1)
Caution against obesity and being underweight	118 991.5)
Regular brisk exercise	85 (65.9)
Do not take hot baths	25 (19.4)
Preconception Assessment*	
Physical assessment including medical and family history	127 (98.4)
History of past pregnancy	128 (99.2)
Psychosocial screening	111 (86.0)
Immunization status	103 (79.8)
Career screening	82 (63.6)
Domestic Violence	66 (51.2)
Disease Screening *	
Symptoms of STDs	127 (98.4)
Hypertension	122 (94.6)
Hypothyroidism	116 (89.9)
Depression/anxiety	104 (80.6)
Epilepsy	92(71.3)
Deep vein thrombosis	74 (57.4)
Asthma	60 (46.5)
Genetic Counseling*	
History of genetic abnormality	126 (97.7)
Sickle cell anaemia	99 (76.7)
Thalasemia	95 (73.6)
Cystic fibrosis	70 (54.3)

*Multiple Response

Table 4 revealed that almost all of the respondents (96.1%) and (91.5%) had answered that assessment of nutritional deficiencies and caution against obesity and underweight are components of a healthy lifestyle. However, only 19.4% knew not to take hot baths is also the component of it.

Regarding assessment, almost all of the respondents (99.2%) and, (98.4%) had known that history of Past pregnancy and

physical assessment should be assessed during preconception care. However, nearly two-thirds (63.3%) and a half (51.6%) of the respondents had answered about carrier screening and domestic violence should also be assessed during the preconception period.

About disease screening, almost all of the respondents (98.4%) were aware that symptoms of STDs should be screened before pregnancy followed by hypertension (94.6%) and, hypothyroidism (89.9%), However, Less than half (46.5%) of the respondents knew that asthma should also be screened before pregnancy.

Concerning genetic counselling, almost all of the respondents (97.7%) answered that history of genetic abnormality should be done during preconception genetic counselling followed by Sickle cell anaemia (76.7%) and Thalassemia (73.6%). However, only more than half (54.35) had an idea about cystic fibrosis should also be included in it.

Table 5 showed that almost all of the respondents (99.2%) were aware that alcohol consumption during pregnancy can cause mental retardation and neurodevelopment defect. However, less than half (45.7%) had an idea about radiation hazards during pregnancy.

Table 5: Respondents' knowledge on effect of teratogens and environmental exposure **n=129**

Variables	Correct Response Number (%)
Alcohol consumption during pregnancy can cause mental retardation, neurodevelopment defect	128 (99.2)
Household chemicals harmful effect in pregnancy	114 (88.4)
Excess use of vitamin A is beneficial for pregnancyº	17 (13.2)
Oral anticoagulants and anti-epileptic drugs are safe in pregnancyº	19 (14.7)
Second hand smoke causes miscarriage, LBW, learning and behavioural deficiencies	103 (79.8)
Exposure to cat feces before and during pregnancy leads to toxoplasmosis	102 (79.1)
Isotretinoins used in pregnancy result in miscarriage and birth defect	99 (76.7)
Radiation after 20 weeks of gestation can cause fetal deformitiesº	70 (54.3)

Incorrect Response º

Table 6: Respondents' level of knowledge on preconception care

Level of Knowledge	Number (%)
Adequate knowledge (>80%)	23 (17.8)
Moderately adequate knowledge (50-80%)	105 (81.4)
Inadequate knowledge (≤50%)	1 (0.8)

Table 6 depicted that out of 129 respondents, 81.4% had a moderately adequate level of knowledge, 17.8% had adequate knowledge and 0.8% had inadequate knowledge regarding preconception care.

DISCUSSION

This study was designed to find out the knowledge on preconception care among B.Sc. nursing students of selected campuses in Bagmati Province.

This study result showed that more than half of the respondents (56.6%) had known about the meaning of preconception care. Regarding proper time for giving preconception care, only more than one-third of them (38.8%) stated as teenagers is the proper time. Similarly, 76% of respondents stated both males and females should be involved in preconception care. Similar findings were reported by other studies [8-9] in which 59.6%, 46.5% and 76.6% respondents had a good level of knowledge about the meaning of preconception, proper time and both partners should be involved in preconception care respectively. The possible explanation for these similarities might be similar levels of students.

This study revealed that three fourth (75.2%) of respondents had knowledge about the appropriate dose of folic acid. Similarly, almost all of the respondents (98.4%) had known about essential elements to prevent neural tube defect and only less than one-third of respondents (24.0%) had known about oral hygiene. These findings are contradictory with the other studies [9, 10] where only less than half (46.9%) and more than half (55.3%), (53.1%) of the respondents were aware about the dose of folic acid, elements to prevent neural tube defect and periodontal disease respectively. This might be due to different streams (B.Sc. and BNS) and study settings of the respondents.

Regarding exercise, this study result revealed nearly two-thirds of respondents (65.9%) had answered that regular exercise is an important part of preconception care. The finding is inconsistent with the study conducted in Nepal which showed almost all of the respondents (95.3%) had known about it. [9] With regard to teratogens, this study result revealed that three fourth of respondents (76.7%) had known about isotretinoin leads to miscarriage and birth defect, 85% had an idea that oral anticoagulants and anti-epileptic have a harmful effect on health, 54.3% known that radiation can cause fetal deformities. These findings are nearly similar to the other study [9,] where 95.3% of respondents had known that isotretinoin, oral anticoagulants, and anti-epileptic drugs pose a teratogenic effect. Similarly, the present study showed 79.1% of respondents had known that cat feces lead to toxoplasmosis. The findings are similar to the study findings done in Egypt, [10] where more than two-thirds of the respondents (67.8%) had known about it. This might be due to the similar academic background of the respondents.

CONCLUSION

Based on the findings, it can be concluded that most of the respondents had a moderate level of knowledge on preconception care. Concerning different areas of preconception, they had more knowledge on the effects of teratogens and environmental toxins followed by preconception health promotion. The respondents' knowledge is inadequate on some of the very important issues such as proper time for preconception care, birth spacing, hygiene and vaccine contraindicated during pregnancy, etc. There is a need to develop a simple guideline of preconception care and incorporate it in nursing curriculum. The study was limited to B.Sc. Nursing students of Tribhuwan University of Bagmati Province and non-probability sampling technique. Thus large scale with Interventional studies can be done by using probability sampling techniques to generalize the findings.

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