Original article

Educational Intervention about Awareness of Preconceptional care: on Impact Among Bachelor Students

Dhakal K
Lecturer, Maharajgunj Nursing Campus, Maharajgunj
Correspondence to: Kamala Dhakal
Email: kdhakal77us@yahoo.com

Abstract

Introduction: Preconception care is just as important as prenatal care to reduce adverse pregnancy outcomes such as maternal and infant mortality, preterm births, and low birth weight infants. Awareness means Possession of information about preconceptional care and its components like diet, avoidance of alcohol and smoking, use of folic acid, prevention and management of risk factor related to pregnancy. The aim of the study was to assess the awareness on preconceptional care among bachelor level students before and after educational intervention

Methods: A one group pre-test post-test (pre-experimental) study on "Impact of Educational Intervention on Awareness Regarding Preconceptional care Among Bachelor Level Students" was conducted to find out the effectiveness of educational intervention on awareness regarding preconceptional care dated September 2009 to June 2010. The study adopted one group pre-test post-test (pre-experimental) design. Setting for the study was Pashupati Multiple College, Chabahil, Kathmandu. Total of 40 students from bachelor level 1st year (Arts, Major English) were taken by using purposive sampling. The self administered semistructred questionnaire was administered to measure their awareness on preconceptional care before and after educational intervention. The collected data was analyzed by using descriptive and inferential statistics such as frequency, percentage, mean, standard deviation between pre test and post test. Paired t-test was used to find out the difference in awareness at 0.05 level of significance. Statistical package for social science [SPSS] version 12 was used to manage and analyze data. The respondents were between 18 to 30 years of age groups. Out of 40 respondents 57.5 % were male and 42.5 were female. Most of the respondents that is 92.5 % respondents were unmarried.

Results: Only 27.5% respondents knew the meaning of pre conceptional care in pre-test, after intervention it was increased by 42.5%. Half that is 50% of the respondents answered that diet containing carbohydrate, protein and fat is essential for women for the preparation of being pregnant before intervention; it was reached up to 82.5% after educational intervention. Only 15% of the respondents answered folic acid reduces the risk of physical defect in growing fetus in pre-test, it was reached up to 82.5% after educational intervention in post-test. Nearly half that is 45% of the respondents knew that blood sugar should be in control in diabetes women before conception in pretest, after intervention it was increased by 65 % in post test. Out of total respondents, 50% respondents obtained fair awareness score and 50% respondents obtained poor awareness score in pre test, after intervention 55% of the respondents got fair awareness score and 45% of the respondents got good awareness score in post test. The grand mean of the mean awareness on preconceptional care regarding the general concept, health promotion, risk factor assessment was 12.41 with standard deviation 4.82 in pre test. Similarly the grand mean of all above mentioned item was 19.89 with standard deviation 4.20 in post test. Research hypothesis states that there will be a significant difference on awareness on preconceptional care among bachelor level students between pre and post educational intervention was tested using paired t-test which was found significant ($p=<0.05$) at 0.05 levels.

Conclusion: Over all study findings reveal that there is a significant increase in the awareness in all components of preconceptional care after educational intervention. Therefore, it is concluded that educational intervention on preconceptional care can bring significant increase in awareness of bachelor level students. Further, it is recommended that similar type of educational package should be incorporated in college level to increase the awareness on preconceptional care among reproductive age population.

Key words: Preconceptional care, Awareness, Bachelor Level Students, Education Intervention, Impact

Introduction

Maternal and neonatal mortality is a major issue and concern of maternal as well as neonatal health globally. The number of maternal death annually in the world is 5, 36,000; in developed region 960 and in developing region 533, 0001.

Globally, 80% of all maternal deaths are due to five major complications, namely hemorrhage, infections, hypertensive disorders of pregnancy, obstructed labour and unsafe abortion. The single most common cause accounting for a quarter of all maternal deaths is severe bleeding, generally occurring in post partum[1].

There are main four direct causes of neonatal death in developing countries: infection [tetanus, sepsis, pneumonia, diarrhea] 32%, birth asphyxia and injuries 29%, complication of prematurity 20%, congenital anomalies 10%. Globally, more than 20 million infants are born with low birth weight[1].

The maternal mortality ratio is 281/100000 live birth and neonatal mortality rate is 33/1000. According to maternal mortality and morbidity study 2008/2009, 69% of maternal death are due to direct cause and 31% maternal death are due to indirect cause. In direct cause death due to postpartum hemorrhage with or without retained placenta 24%, obstructed labour 16%, pre-eclampsia/ eclampsia 21%, puperial sepsis 5 % and complication of abortion 7 %. [2].

The number of neonatal deaths in Nepal is 24,261 in a year, 66 in a day and 3 in an hour. The major causes of neonatal death in Nepal are: serious infection-20.6%, birth injury-18.5%, ARI-18%, birth asphyxia-14.9%, congenital abnormality-8.1%, preterm birth/ low birth weight-5.9%The prevalence of low birth weight is 29% [3].

Preconceptional period means the time span between planning and onset of pregnancywhich refers to a time span of anything 3 months to 1 year before conception but ideally should include the time when both the ova and sperm mature, which is approximately 100 days before conception[4].

Organogenesis is completed by the first trimester. By the time the woman is seen in the antenatal clinic, it is often too late to advise because all the adverse factors have already began to exert their effects[5].

Preconception care is just as important as prenatal care to reduce adverse pregnancy outcomes such as maternal and infant mortality, preterm births, and low birth weight infants. Adverse pregnancy outcomes constitute a major public challenges: 12% of infants born premature; 8% are born with low birth weight; 3% have major birth defects; and 32% of women suffer pregnancy complications (centers for disease control and prevention[6].

The period of greatest environmental sensitivity and consequent risk for the developing embryo is between days 17 and 56 after conception. The first prenatal visit, which is usually a month or later after a missed menstrual period, may occur too late to affect reproductive outcomes associated with abnormal organogenesis secondary to poor life styles choices.[6]

Research study regarding Reproductive health and preconception counseling awareness in adolescents with diabetes: what they don't know can hurt them found that out of 82 respondents Overall, the response "don't know" or "never heard about it" was most frequently given. Most teens in this sample were unaware of the term preconception counseling; 65% (n = 52) indicated they knew nothing about preconceptional care. Many were not aware of the risks of pregnancy-related complications in women with diabetes. One fourth of the teens were aware of preplanning a pregnancy and the importance of good metabolic control. Many knew where to seek information about diabetes and pregnancy, and birth control[7].

Skilled birth attendant [SBA] policy 2004 has targeted in reduction of maternal mortality ratio [MMR] by three quarters between 1990 and 2015. This policy mainly focuses on birth preparedness and complication readiness and caring pregnant women after conception to delivery period by means of SBA[8]. The issue of preconceptional care is still in shadow in the context of Nepal.

Methods

Intervention study with pre experimental one group pre test- post test) design was conducted in Pashupati Multiple Campus, Chabahil, Kathmandu. The study population was Bachelor level 1st year students. A total of 40 students studying major English were taken out of 250(Major English, Maths, Nepali, Sociology and Economics) by using purposive sampling technique. A structured questionnaire with demographic and awareness related section was developed. An educational package on preconceptional care was developed which include, Meaning of preconception care, Meaning of preconception period, Purpose of preconception care, Component of preconception care. The total duration of teaching was two hours. Informed consent was obtained. Awareness before educational intervention was measured by administering self administered questionnaire on preconceptional care on total of 40 students. In the same day of pre test, the educational intervention was given to participants. After 2 weeks of educational intervention, the post test was administered by using the same instruments to the same 40 students. The awareness score was categorized as adequate, medium and inadequate on the basis of score gain by the respondents and mean score plus minus standard deviation.

Both descriptive and inferential statistics were used to analyze the data. For hypothesis testing, paired t-test was used at the 0.05 level of significance in an individual awareness item and compare the mean score knowledge applying computer command on the pre-test and post-test.

Ethical consideration

The research proposal was reviewed and approved by the Research Committee of Nursing Campus Maharajgunj,

Tribhuwan University. Written approval was taken from Nursing Campus Maharajgunj as well as Pashupati Multiple Campus, Chabahil, Kathmandu. The respondents were explained about the purposes and objectives of the study and informed consent was taken. Privacy and confidentiality was strictly maintained and anonymity of the research participants was ensured.

Results

Meaning of preconceptional care

This table 1 provides the information that only 11(27.5%) respondents knew the meaning of pre conceptional care in pre-test, after intervention it was increased by 42.5%., after intervention it was increased by 42.5%. The mean score of awareness about general concept of pre conceptional care was found 1.20and 2.05 with the standard deviation of 0.88 and 0.84 in pre and post test respectively. There is evidence of difference of difference of mean score of general concepts of pre conceptional care in pre-test and post- test ($p< 0.05$).

Table 1. Meaning of Preconceptional Care (n=40)

Meaning Known	Pre-test		Post –test		p–value t-test
	No.	%	No.	%	
preconceptional care					
preconceptional period.	11	27.5	28	70	
Purpose of Preconceptional care	11	27.5	28	70	
	18	45.0	26	65.0	
Mean score		1.20		2.05	
S.D.		0.88		0.84	0.000

Awareness on Components of Preconceptional Care

Table 2 shows that only half (50%) of the respondents answered that diet containing carbohydrate, protein and fat is essential for women for the preparation of being pregnant before intervention, it was reached up to 82.5% after educational intervention. The mean score awareness about health promotion was found 4.77 and 7.15 with standard deviation 1.44 and 1.21 pre and post test respectively. The value of paired t-test was 0.000.It reveals that there is statistical difference in pre and post test result after educational intervention.

Table 2. Awareness on health promotion: multiple indicators (n=40)

Items	Pre-test		Posttest		p –value t-test
(Multiple indicators)	No.	%	No.	%	
Appropriate ages of conception	20	50	25	62.5	
Necessary for both spouses	34	85.0	39	97.5	
Diet containing carbohydrate, protein and fat is essential	20	50.0	33	82.5	
Folic acid reduces the risk of physical defect in growing fetus.	6	15	29	72.5	
Stop smoking and alcohol by both spouses	28	70	39	97.5	
Mean score	5.51		9.07		0.000
S.D	1.44		1.21		

Awareness on Risk Factors Assessment

Table 3 represents that nearly half (45%) of the respondents knew that blood sugar should be in control in diabetes women before conception in pretest, after intervention it was increased by 65 percent. The mean score on knowledge about risk factors assessment was found 5.70 and 8.77 with standard deviation of 1.60448 and 1.16548 in pre and post test respectively. It reveals that there is statistical significance difference in mean score of risk factors assessment before and after educational intervention ($p< 0.05$).

Table 3. Awareness on risk factors assessment: multiple issues

Items(Risk factors)	Pre-test		Posttest		p –value t-test
	No.	%	No.	%	
Control Blood sugar in diabetes women	18	45	40	100	
Normal Blood pressure for being pregnant	32	80	36	90	
Screening of HIV/AIDS is not necessary for both partners*	26	65	36	90	
Exposure of the both partner to the pesticides has no harmful effect*	22	55	34	85	
Taking medically unpracticed drug by women is beneficial for the growing fetus.*	31	77.5	37	92.5	
Mean score	5.70		8.77		0.000
S.D	1.60		1.16		

* Negative response statement (False is correct answer)

Sum Awareness on Preconceptional Care

Table 4 provides the information regarding awareness and difference in sum awareness of respondents in pre and post test. That was found highly significant which reveals t-test p-value is less than 0.05. Since there is statistical difference in pre and post test result of knowledge after educational intervention, it can be concluded that the educational intervention was effective in increasing awareness of preconceptional care among bachelor level students (p=<0.05).

Table 4. Sum awareness on preconceptional care n=40

Items(Summary)	Pre-test		Post-test		P-Value t-test
	Mean	SD	Mean	SD	
General concept	1.20	0.88	2.05	0.84	0.000
Health Promotion	5.51	1.44	9.07	1.21	0.000
Risk factors Assessment	5.70	1.60	8.77	1.16	0.000
Sum Awareness	12.41	4.82	19.89	4.20	0.000

Classifications of Awareness score

Table 5 reveals that 50% respondents obtained fair and 50% respondents obtained poor awareness score in pre test, after intervention 55% of the respondents got fair awareness and 45% of the respondents got good awareness.
The p value of sign test [Wilcoxan significance test] was 0.000. It reveals that there is statistical difference in pre and post test result after educational intervention. It can be concluded that the educational intervention was effective in increasing awareness on preconceptional care.

Table 5. Classifications of awareness score of respondents

Awareness Level	Pre test		Post test		P-value Sign-test
	No.	%	No.	%	
Good	20	50.0	0	0	
Fair	20	50.0	22	55.0	
Poor	0	0	18	45.0	
Total	**40**	**100**	**40**	**100**	**0.000**

(Level of awareness	Score
Good	>75%
Fair	>50 – 75%
Poor	50 and Below)[12]

Discussion

A Systematic Review of Interventions to Increase Awareness, Knowledge, and Folic Acid Consumption Before and During Pregnancy conducted in California revealed that on average, women's awareness increased from 60% to 72%, knowledge from 21%to 45%, and consumption from 14% to 23%. This study is consistent with those studies which showed only 15% respondents knew that Folic acid is helpful in reducing the risk of physical defect in growing fetus in pre test, after educational intervention it was increased to 72.5%.[9]
A study conducted in Hispanic women of Puerto Rican on Brief Intervention for Alcohol Use by Pregnant Women. Women in the brief intervention condition were 5 times more likely to report abstinence after intervention compared with women in the assessment only condition. Newborns whose mothers received brief intervention had higher birth weights and birth lengths, and fetal mortality rates were 3 times lower (0.9%) compared with newborns in the

assessment-only (2.9%) condition. This study is contrast with that study which revealed 70% respondents knew that stop smoking and alcohol by both spouses for the preparation of being pregnant in pre test, after educational intervention the percentage was increased to nearly 100.[10] Research study regarding Improving women's preconceptional health: findings from a randomized trial of the Strong Healthy Women intervention in the Central Pennsylvania women's health study found that out of 692 Nonpregnant pre- and interconceptional women ages 18-35, Women in the intervention group were significantly more likely than controls to report higher self-efficacy for eating healthy food and to perceive higher preconceptional control of birth outcomes; greater intent to eat healthy foods and be more physically active; and greater frequency of reading food labels, physical activity consistent with recommended levels, and daily use of a multivitamin with folic acid. The finding of that study is consistent with present study which revealed 85% respondents knew that Pre conceptional care is necessary for both spouses in pretest, the percent was increased to almost Hundred(97%) after educational intervention. Just 50% respondents knew that Diet containing carbohydrate, protein and fat is essential for women for the preparation of being pregnant in pre test, after educational intervention it was increased to 82.5% in post test.[11]

Conclusion

This study was conducted to find out the changes in awareness about preconceptional care among Bachelor level students after educational intervention. While assessing the existing knowledge of the respondents, it was found that most of the respondents had lack of awareness on different components of preconceptional care. Mean score of overall awareness on different components was changed from 12.41 to19.89 after educational intervention. The difference in awareness between pre and post test was found to be highly significant (p=0.000). Study findings revealed that there is significant positive change in awareness after educational intervention. Therefore, this study revealed that educational intervention is an effective way to increase awareness among Bachelor level students. This is an affordable measure that can be conducted in different settings to enhance awareness on preconceptional care. Finally, it is concluded that educational intervention plays an important role in increasing and strengthening awareness regarding preconceptional care among Bachelor level students.

Recommendation

All reproductive aged population should be taught about preconceptional care and monitored for its effectiveness. Comparative study could be done between married and unmarried reproductive aged population and primi and multi gravida women. Comparative study could be carried out between knowledge and practice among reproductive aged population.

Conflict of interest: None declared

Acknowledgement

Author would like to express sincere gratitude to faculties and administration of Nursing Campus Maharajgunj, faculties and administration of Pashupati Multiple College and extend warm heartfelt gratitude to all those respondents who gave their valuable time to participate in the study, without that cooperation this study would not have been possible.

References

1 Shrestha, D. R. Safe Motherhood. Reproductive health national and international perspectives 2008; 1: 77-82.

2 Family Health Division, Department of Health Services, Government of Nepal, USAID, DFID. Maternal Mortality & Morbidity Study. Katmandu: The Author; 2008/2009.

3 Ministry of Health & Population, USAID, New ERA. Nepal demographic & health survey 2006. Katmandu: The Author; 2007.

4 Fraser, D. M. & Cooper, M. A. Preconception Care. Myles textbook for midwives 2003; 14:174-180.

5 Dutta, D. C.Preconceptional Counselling & Care. Text Book of obstetric 2008; 8: 108-109

6 Ricci, S. S. Preconception Care. Essential of maternity, newborn and women's health nursing 2009; 2: 288-291.

7 Charron, P. D. et al. Reproductive health and preconception counseling awareness in adolescents with diabetes: what they don't know can hurt them, Diabetes. Diabetes Educ. 2006 Mar-Apr; 32(2):235-42

8 Government of Nepal Ministry of Health and Population Department of Health Services Family Health Division. National Policy on Skilled Birth Attendants. Katmandu: The Author; 2006.

9 Chivu, C. M., Tulchinsky, T. H., Weiser, K. S., Braunstein, R., & Brezis, M. A. Systematic Review of Interventions to Increase Awareness, Knowledge, and Folic Acid Consumption Before and During Pregnancy. American Journal of Health Promotion. March/April 2008, Vol. 22, No.

10 O'Connor, M. J. & Whaley, S. E. Brief Intervention for Alcohol Use by Pregnant Women. American Journal of Public Health. February 2007, Vol 97, No. 2. Retrieved on May 16, 2009.

11 Hillemeier, M. M., et al. improving women's preconceptional health: findings from a randomized trial of the Strong Healthy Women intervention in the Central Pennsylvania women's health study. Womens Health Issues. Nov-Dec; 18(6 Suppl):S87-96; 2008.

12 Rashad, W. A., and Essa, R. M. Women's Awareness of Danger Signs of Obstetrics Complications. Journal of American Science. 2010; 6(10).