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A study to evaluate the effectiveness of educational package on knowledge and practice regarding pre-conceptional care among eligible couples in selected rural areas of Dharwad

[1]Latika Rani, [2]Rhoda Jesuraj, [3]Dr. Nagaraj GK and [4]Shweta Potnis

[1, 2] Professor and HOD, Department of OBG, Shreeya College of Nursing, Opp. District Court, P.B. Road, Dharwad, Karnataka, India
[3] Professor and HOD, Department of Community Health Nursing, Shreeya College of Nursing, Opp. District Court, P.B. Road, Dharwad, Karnataka, India
[3] Assistant Professor Department of OBG, Shreeya College of Nursing, Opp. District Court, P.B. Road, Dharwad, Karnataka, India

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Abstract

Background: Preconceptional health of eligible couples can be improved by planning about pregnancy before conception. Nationally about half of all pregnancies are unplanned. Preconceptional care is perhaps the most important factor which determines the outcome of pregnancy. This pre-experimental study aimed to evaluate the effectiveness of educational package on knowledge & practice regarding pre-conceptional care among eligible couples in selected rural areas of Dharwad.
Method: An evaluative approach with one group pretest-posttest design was adopted for the study. The samples from the selected rural areas of Dharwad were selected using non probability purposive sampling technique. The sample consisted of 50 eligible couples. The tools used for data collection were structured Knowledge and practice questionnaire and educational package was developed. The data analysis was done by using both descriptive and inferential statistics.
Result: Knowledge scores of participants, the findings reveal that the post-test mean knowledge scores was found higher [mean=28.76, SD of 6.15] when compared with pre-test mean knowledge score value which was 20.46with SD of 7.29. The statistical paired‘t’ implies that the difference in the pretest and post-test value was found statistically significant at 5% level (p<0.05) with a paired‘t’ value of 12.07. There exists a statistical significance in the difference of knowledge score indicating the positive impact of educational package. Practice scores of participants, the findings reveal that the post-test mean practice scores was found higher [mean=6.80, SD of 1.19] when compared with pre-test mean practice score value which was 4.54 with SD of 1.64. The statistical paired‘t’ implies that the difference in the pretest and post-test value was found statistically significant at 5% level (p<0.05) with a paired‘t’ value of 12.23.
There exists a statistical significance in the difference of practice score indicating the positive impact of educational package. The computed Chi-square value for association between level of knowledge of eligible couples regarding pre conceptual care and their selected demographic variables is found to be statistically significant at 0.05 levels for sources of information and is not found statistically significant for other socio demographic variables. The computed Chi- square value for association between level of practice of eligible couples regarding pre conceptual care and their selected demographic variables is found to be statistically significant at levels for previous knowledge and source of information and is not found statistically significant for other socio demographic variables.
Conclusion: The findings revealed that, Knowledge of eligible couples regarding preconceptional care was inadequate before the administration of educational package. The educational packagr was effective in increasing the knowledge of participants regarding preconceptional care. Since a very few studies have been conducted regarding this topic in India, so the nurse researcher can take further studies on the same topic.

Keywords: Preconceptional health, preconceptional care, pregnancy

Introduction

Preconceptional health of eligible couples can be improved by planning about pregnancy before conception. Nationally about half of all pregnancies are unplanned.

Preconceptional care is perhaps the most important factor which determines the outcome of pregnancy. It has a long endorsed as a means to identify mothers at risk for delivering a pre term infant and to provide an array of available medical, nutritional& reduce the risk of low birth weight & other adverse pregnancy conditions & out comes Preconceptional care is perhaps the most important factor which determines the outcome of pregnancy. It has long been endorsed as a means to identify mothers at risk for delivering a preterm infant and to provide an array of available medical, nutritional, and educational interventions to reduce the risk of low birth weight and other adverse pregnancy conditions and outcomes. Preconception care targets all women of reproductive age, during adolescence and before the first pregnancy, and between pregnancies.
Preconception care is one of the preventive strategies in Maternal and Newborn Health (MNH) as recommended by World Health Organization (WHO) and is considered to be feasible to both developed and developing worlds.

Methods
The investigator adopted the conceptual framework used in the study was based on the Ludwig von Bertalanffy's General Systems theory. This theory includes 3 important components i.e. input, Throughput, and Output.
The research design selected for the study was Pre-Experimental research design of one group pre-test and post-test design. The independent variable was educational package and dependent variables were performance in knowledge and practice scores on pre conceptional care.
The sample of this study comprised of 50 eligible couples from selected rural areas. Purposive sampling technique was used to draw the sample for the study.
The tool developed and used for the data collection was structured knowledge questionnaire and practice based knowledge questionnaire. The reliability of the tool was established by Karl Pearson coefficient of correlation where r = 0.80 & 0.76.
Pilot study was conducted from 4-4-2022 to 9-4-2022 as a part of the major study, tool proved to be comprehensive, feasible and acceptable.

Data collection procedure: Data was collected from 18-4-2022 to 31-5-2022 after obtaining administrative permission from selected rural areas. The investigator personally explained the participants the need and assured them of the confidentiality of their responses.
The pre-test was administered followed by an administration of educational package, data of pre- test was analyzed and post-test was administered 7 days after the administration of educational package by using the same questionnaire used in the pre-test.

Plan of data analysis: It was planned to use both descriptive and inferential statistics for analysis of the data.
- Frequency and percentage distribution was used to analyze the selected personal variables.
- Percentage, mean, median and standard deviation was computed to analyze the knowledge scores.
- Paired 't' test was used to analyze pretest – Post Test Mean knowledge score differences
- Chi square was used to analyze association between pretest knowledge scores and socio demographic variables.

Result
Organization of Findings
The analysis of the data is organized and presented under following sections:

Section I: Demographic profile.

Section II: Structured knowledge questionnaire
1. Distribution of pretest and posttest knowledge and practice scores of respondents.
2. Distribution Respondent's Scores According To Their Level Of knowledge and practice during pretest and post test
3. Effectiveness of educational package.
4. Correlation between knowledge and practice scores.

Association between knowledge and practice scores with selected demographic variables.

Section I: Demographic profile

Table 1: Frequency & Percentage Distribution of Respondents according to their socio demographic variables n=50

S. No.	Demographic variables	Frequency (f)	Percentage (%)
1.	**Age (in yrs.)**		
	19-25	15	30
	26-30	18	36
	31-35	17	34
2.	**Educational qualification**		
	Illiterate	04	8
	Primary	25	50
	Secondary	21	42
3.	**Religion**		
	Hindu	25	50
	Muslim	18	36
	Christian	7	14

4.	**Type of family**		
	Nuclear	30	60
	Joint	12	24
	Extended	8	16
5.	**Personal habits**		
	Smoking	00	00
	Alcoholism	00	00
	Betel Nuts chewing	06	12
	None	44	88
6.	**Previous knowledge**		
	Yes	23	46
	No	27	54
7.	**Source of information**		
	Friends	15	30
	Family	19	38
	Mass media	10	20
	Health professionals	6	12

Section II

Distribution Respondent's Scores according To Their Level of knowledge and practice during pretest and post test

a) Area wise and total distribution of pretest and posttest knowledge scores of respondents.

Table 2: Mean, median, mode, standard deviation and range of pretest and posttest knowledge scores of respondents n = 50

Area of Knowledge	Number of Items	Mean	Median	Mode	Standard deviation	Range
Pre test	40	20.46	21	24	7.29	10-34
Post test	40	28.76	30	32	6.15	12-38

b) Area Wise and Total Distribution of Pre Test and Post Test Practice scores Of Respondents.

Table 3: Mean, median, mode, standard deviation and range of pretest and posttest practice scores of respondents n = 50

Area of practice	Number of Items	Mean	Median	Mode	Standard deviation	Range
Pretest	12	4.54	4	3	1.64	2-8
Post test	12	6.80	7	6	1.19	5-9

c) Distribution respondent's pretest and post test scores according to their level of knowledge and practice

Knowledge Scores

Table 4: Frequency and Percentage distribution of respondents according to level of Knowledge regarding pre conceptual care n=50

Level of Knowledge					
Pre test			Post test		
Poor f (%)	Average f (%)	Good f (%)	Poor f (%)	Average f (%)	Good f (%)
11 (22%)	27 (54%)	12 (24%)	1(2%)	16 (32%)	33 (66%)

Practice Scores

Table 5: Frequency and Percentage distribution of respondents according to level of Practice regarding preconception care n=50

Level of Practice					
	Pre test			Post test	
Poor f (%)	Average f (%)	Good f (%)	Poor f (%)	Average f (%)	Good f (%)
29 (58%)	21 (42%)	00	00	45 (90%)	5 (10%)

Effectiveness of educational package

Paired 't' value was computed to find out the significance of difference between means of pre-test and posttest knowledge and practice scores of respondents. The data is presented in Table 6. To test statistical significance following research hypothesis were stated-

H_1: The mean posttest knowledge scores of eligible couples on pre-conceptional care, who have undergone the educational package, will be significantly higher than their mean pre-test knowledge scores at 0.05 level of significance

H_2: The mean posttest practice scores of eligible couples on pre-conceptional care, who have undergone the educational package, will be significantly higher than their mean pre-test practice scores at 0.05 level of significance.

Table 6: Mean, standard deviation, standard error of difference and's' value of pre-test and post-test knowledge and practice scores N=50

Area	Aspects	Mean	SD	SEMD	Paired t Test
Knowledge	Pre-test	20.46	7.29	0.68	12.07*
	Post-test	28.76	6.15		
Practice	Pre-test	4.54	1.64	0.18	12.23*
	Post-test	6.80	1.19		

* Significant at 5% level

Correlation between knowledge and practice scores

In order to, find out the correlation of knowledge scores and practice scores of eligible couples, a correlation coefficient

was computed by using Karl Pearson's Co efficient of correlation. The data are presented in Table 7. To test the statistical significance following hypothesis was stated:

H_3: There will be significant statistical relationship between knowledge and practice among eligible couples regarding preconceptual care at 0.05 level of significance.

Table 7: Correlation coefficient of knowledge and Practice scores n=50

Score	Mean score	Correlation coefficient
Knowledge scores	20.46	0.06
Practice score	4.54	

The data presented in Table 7 shows that the correlation between knowledge and practice scores is positive and found not significant at $p<0.05$ levels. Thus the hypothesis H_3 is rejected, indicating no statistical significant correlation between knowledge and practice.

Association between level of knowledge, practice and selected socio demographic variables To find out the association between the levels of knowledge, practice and selected personal variables, Chi square was computed and the following hypothesis are stated-

H_4: There will be statistical association between the mean pretest knowledge scores of eligible couples regarding preconceptual care and their selected demographic variables at 0.05 level of significance.

H_5: There will be statistical association between the mean pretest practice scores of eligible couples regarding preconceptual care and their selected demographic variables at 0.05 level of significance.

Table 8: Chi-square values between levels of knowledge of respondents and their selected demographic variables. n = 50

S. No.	Demographic variables	Knowledge score			d(f)	Chi square value	Level of significance
		Poor	Average e	Good			
1.	**Age (in yrs.)**						
	19-25	4	9	2	4	8.58	NS
	26-30	1	11	6			
	31-35	6	7	4			
2.	**Educational qualification**						
	Illiterate	2	2	0	4	3.25	NS
	Primary	6	13	6			
	Secondary	3	12	6			
3.	**Religion**						
	Hindu	6	11	8	4	3.21	NS
	Muslim	4	12	2			
	Christian	1	4	2			
4.	**Type of family**						
	Nuclear	9	17	4	4	6.99	NS
	Joint	2	6	4			
	Extended	0	4	4			
5.	**Personal habits**						
	Betel Nuts chewing	2	3	1	2	0.57	NS
	None	9	24	11			
6.	**Previous knowledge**						
	Yes	6	14	3	2	2.82	NS
	No	5	13	9			
7.	**Source of information**						
	Friends	3	8	4	6	12.68	S
	Family	1	11	7			
	Mass media	3	6	1			
	Health professionals	4	2	0			

χ^2 (2) =5.99, (4) = 9.48, (6) = 12.59 ($p>0.05$) NS – Not Significant

The data presented in the Table 8 shows that the computed Chi-square value for association between level of knowledge of eligible couples regarding preconceptual care and their selected demographic variables is found to be statistically significant at 0.05 levels for sources of information and is not found statistically significant for other socio demographic variables. Therefore, the findings partially support the hypothesis H4, inferring eligible couples level of knowledge regarding preconceptual careis significantly associated only with their sources of knowledge.

Table 9: Chi-square values between levels of practice of respondents and their selected demographic variables.

S. No.	Demographic variables	Practice score		d(f)	Chi square value	Level of significance
		Poor	Average			
1.	**Age (in yrs.)**					
	a) 19-25	11	4	4	5.11	NS
	b) 26-30	11	7			
	c) 31-35	7	10			
2.	**Educational qualification**					
	a) Illiterate	4	0	2	3.21	**S**
	b) Primary	14	11			
	c) Secondary	11	10			
3.	**Religion**					
	a) Hindu	13	12	2	0.92	NS
	b) Muslim	12	6			
	c) Christian	4	3			
4.	**Type of family**					
	a) Nuclear	16	14	2	1.90	NS
	b) Joint	9	3			
	c) Extended	4	4			
5.	**Personal habits**					
	a) Betel Nuts chewing	4	2	1	0.21	NS
	b) None	25	19			
6.	**Previous knowledge**					
	a) Yes	9	14	1	6.22	S
	b) No	20	7			
7.	**Source of information**					
	a) Friends	5	10	2	6.19	S
	b) Family’	13	6			
	c) Mass media	6	4			
	d) Health professionals	5	1			

χ^2 (2) =5.99,(6) = 12.59 (p>0.05) NS – Not Significant

The data presented in the Table 9 shows that the computed Chi-square value for association between level of practice of eligible couples regarding preconceptual care and their selected demographic variables is found to be statistically significant at 0.05 levels for previous knowledge and source of information and is not found statistically significant for other socio demographic variables. Therefore, the findings partially support the hypothesis H5, inferring that eligible couples level of practice regarding preconceptual care is significantly associated only with their previous knowledge and source of information.

Discussion

The findings of the study were discussed under following sections.

Part I: Description of demographic characteristics.

Part II: Analysis of pretest and posttest knowledge and practice score of eligible couples regarding pre conceptional care.

Part III: Analysis of the effectiveness of educational package regardingpre conceptional care.

Part IV: Association between pretest knowledge and practice score with their selected socio- demographic variables.

Part I: Description of demographic characteristics.

- Majority 18 (36%) of the respondents belong to the age group of 26-30 years
- Majority 25 (50%) respondents were belonged to Hindu religion
- Majority 25(50%) of respondents were had primary education
- Majority 30 (60%) of the respondents wear belonged to nuclear family
- Majority 44 (88%) of respondents were not had any personal habits
- Majority 27 (54%) respondents were not had previous knowledge
- Majority 19(38%) respondent’s source of information was family

Above findings can be correlated with the findings of the other study conducted by Munthali M *et al*, it revealed that, 45.8% of the women were young women aged between 15 and 24 years. At least 38.3% of women had gone up to secondary school. About 63.3% of women had children with 34% of them having 5 or more children. Nearly one third of the women (31.6%) were still in School. 48.2% of the women were married while 36% were single and 11.9% were divorced. Over half (54.2%) of the women had ever used family planning. About 136 (54%) women of reproductive age had heard about preconception care.

Part II: Analysis of pretest and posttest knowledge and practice score of eligible couples regarding pre conceptional care.

The pretest knowledge scores respondents mean was 20.46, median was 21, mode was 24 with standard deviation 7.29 and score range was 10-34. The posttest knowledge scores respondents mean was 28.76, median was 30, mode was 32 with standard deviation 6.15 and score range was 12-38.

In pretest, respondents practice mean was 4.54, median was 4, mode was 3 with standard deviation 1.64 and score range was 2-8. In posttest, respondents mean was 6.80, median was 7, mode was 6 with standard deviation 1.19 and score range was 5-9.

With regard to pretest level of knowledge it shows that, maximum 27(54%) respondents were having average knowledge, 12 (24%) respondents were having good knowledge and remaining 11(22%) of respondents were having poor knowledge. During post-test maximum 33(66%) of respondents were having good knowledge 16(32%) of respondents were having average knowledge and 1(2%) of respondents were had poor knowledge.

With regard to pretest level of practice it shows that, majority 29(58%) respondents were had poor practice and remaining 21(42%) of respondents were having average practice. During post-test maximum 45 (90%) of respondents were having average practice and 5(10%) of respondents were had good practice.

Similar results were observed in another study conducted by Trupti Jangade among 30 eligible couples to assess the level of knowledge and practice of eligible couples regarding pre conceptional care. The data showed that among 30 respondents during pretest 10 were having poor knowledge and 12 were having poor practice, 18 respondents were having moderate knowledge and practice and 2 were having good knowledge and none were having good practice. During posttest all 30 respondents were having good knowledge and moderately adequate healthy practice regarding pre conceptional care.

This is similar to study findings in Iran, Canada, Egypt [23] and Ethiopia, which also reported poor knowledge level among health workers of 11.1%, 21.6%, 28.6% and 43% respectively. Further, the study has shown that the level of knowledge of preconception care was dependent on area of specialization with clinicians being knowledgeable than nurses. Similar findings on variation in knowledge and practice for preconception care among health workers were reported in Iran, Khoy city where those with Bachelor of Science in family health, family physicians midwives and physicians were more knowledgeable than others.

Part III: Analysis of the effectiveness of educational package on knowledge and practice regarding pre conceptional care.

The statistical paired' implies that the difference in the pretest and post-test value was found statistically significant at 5% level (p<0.05) with a paired' value of 12.07. There exists a statistical significance in the difference of knowledge score indicating the positive impact of educational package.

The statistical paired't' implies that the difference in the pretest and post-test value was found statistically significant at 5% level (p<0.05) with a paired't' value of 12.23. There exists a statistical significance in the difference of practice score indicating the positive impact of educational package.

These findings are consistent with the finding of another study conducted regarding effectiveness of using structured teaching programme on pre conceptional care, at medical college, University of Western Australia where couples evaluation of pre conceptional care. A 2-hour structured teaching programme was designed and implemented to address these issues. Pre teaching programme and post teaching programme questionnaires showed a marked increase in self-rated competence and suggested this improvement was directly attributable to the teaching programme. A follow-up survey of a small number of couples demonstrated this increase was sustained over time. STP appeared to be an effective instructional format in the small group setting.

These findings are similar with the other study conducted to assess wether counseling before conception is important. After completing the knowledge survey the woman was sent for initial assessment. 400 surveys were used for the data analysis. Patients were informed about the health optimization, consumption of folic acid, exposure to infectious disease, use of medication and use of recreational drug. Nulliparous women were found less knowledgeable. The more educated women had more knowledge. It was suggested that the women need their physicians to educate about pre-pregnancy lifestyle.

Part IV: Association between pretest knowledge and practice score with selected socio- demographic variables

The computed Chi-square value for association between level of knowledge of eligible couples regarding pre conceptual care and their selected demographic variables is found to be statistically

Significant at 0.05 levels for sources of information and is not found statistically significant for other socio demographic variables.

The computed Chi-square value for association between level of practice of eligible couples regarding pre conceptual care and their selected demographic variables is found to be statistically significant at 0.05 levels for previous knowledge and source of information and is not found statistically significant for other socio demographic variables.

Conclusion

The findings revealed that, Knowledge of eligible couples regarding preconceptional care was inadequate before the administration of educational package. The educational packagr was effective in increasing the knowledge of participants regarding preconceptional care. There was significant association found between the knowledge and practice scores of participants.

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