

Effect Of Structured Teaching Programme On Folic Acid Supplements In Prevention Of Congenital Anomalies Among Undergraduate Students In A Selected College, Tirupathi.

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Abstract: Introduction: Neural tube defects are the second most common severe disabling congenital defects. They occur because of defect in the neurulation process which begins in fourth week of intrauterine life. Neural tube defects (NTDs) are congenital structural abnormalities of the brain and vertebral column. **Objectives:** To assess the pre-test level of Knowledge on folic acid supplements in prevention of Congenital anomalies among undergraduate students. To assess the post-test level of Knowledge on folic acid supplements in prevention of Congenital anomalies among undergraduate students. To find out the association between effects of STP on folic acid supplements in prevention of congenital anomalies among undergraduate students with the socio-demographic variables. **Materials and methods:** A quasi experimental one group pre-test and post-test design was adopted for this study. Fifty undergraduate female students were selected using by simple random sampling technique who are studying in Sri Vijayakrishna junior college Tirupati. A Self-structured questionnaire was used to assess the knowledge on folic acid supplements in prevention of congenital anomalies. **Results:** The study findings revealed in pre-test out of 50 undergraduate students 31(62%) had inadequate knowledge regarding folic acid supplements whereas 16 (32%) had moderately adequate knowledge and only 3(6%) had adequate knowledge whereas in post-test 17(34%) had moderately adequate knowledge, 33(66%) had adequate knowledge after structured teaching programme. This indicates that there was a significant improvement in knowledge on folic acid supplements in prevention of congenital anomalies at $p < 0.01$ levels. **Conclusion:** The present study revealed that undergraduate students have inadequate knowledge regarding folic acid supplements in prevention of congenital anomalies and after structured teaching programme knowledge have improved among undergraduate students.

Key words: Neural tube defects, Folic acid, spina bifida, Encephalocele

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I. Introduction

Neural tube defects (NTDs) are congenital structural abnormalities of the brain and vertebral column. Neural tube defects can be categorized as either cranial or spinal defects. Anencephaly failure of fusion of cephalic portion of neural folds; absence of all part of brain, neurocranium, and skin. Exencephaly failure of scalp and skull formation; exteriorization of abnormally formed brain. Encephalocele failure of skull formation; extrusion of brain tissue into membranous sac. Iniencephaly defect of cervical and upper thoracic vertebrae; abnormally formed brain tissue and extreme retroflexion of upper spine. Spinabifida failure of fusion of caudal portion of neural tube, usually of 3-5 contiguous vertebrae; spinal cord or meninges or both exposed to amniotic fluid.¹

The term folate is typically used as a generic name for the group of chemically related compounds based on the folic acid structure. Folate, or vitamin B9, is thought of as one of the 13 essential vitamins. It cannot be synthesized de novo by the body, and must be obtained either from diet or supplementation.²

Folate is known to be important for the formation of red and white blood cells, proper development of the fetus and the formation of nucleic acids in DNA and RNA³. Folates also play an important role in homocystein metabolism, with folate having a homocysteine lowering effects⁴. Adequate blood folate levels have been documented to be associated with several beneficial health effects, however the most notable are the health benefits associated with maternal and fetal health.⁵

Need For The Study:

Each year 3-4 lakh infants worldwide are born with spina bifida and anencephaly. The prevalence is approximately 1.5 per 1000 live births and the risk of recurrence is 2-3%. In United States, the prevalence of Neural tube defects is 1/1000 live birth affecting 4000 pregnancies annually. In United States, higher rates of Neural tube defects are found among white population than blacks. In Canada and Denmark, the prevalence rates are 0.8/1000 and 1.4/1000 live births respectively. In China, 11 lakh infants are born annually with spina bifida or anencephaly⁶.

Wide variation in the prevalence of neural tube defects among the WHO regions Eastern Mediterranean (ranging from 2.1 to 124.1 per 10,000 births), Europe (ranging from 1.3 to 35.9 per 10,000 births), Americas (ranging from 3.3 to 27.9 per 10,000 births), South-East Asia (ranging from 1.9 to 66.2 per 10,000 births), Western Pacific (ranging from 0.3 to 199.4 per 10,000 births)⁷

The incidence of Neural tube defects ranges from 0.5-11/1000 births in different regions of India. The incidence of Neural tube defects shows wide variation, being influenced by race, ethnicity, nutritional status, geographic location, and socio economic conditions.⁸ The reported Neural tube defects incidence in India varies from 0.5 to 11/1000 births while incidence in the USA and EUROPE is reported below 1/1000, with progressive decline with periconceptional folate fortification.⁹

Statement Of The Problem

Effect of Structured Teaching Programme on Folic Acid Supplements in Prevention of Congenital Anomalies among Undergraduate Students in a Selected College' Tirupathi.

Objectives Of The Study

1. To assess the pre-test level of Knowledge on folic acid supplements in prevention of Congenital anomalies among undergraduate students.
2. To assess the post-test level of Knowledge on folic acid supplements in prevention of Congenital anomalies among undergraduate students.
3. To find out the association between effects of STP on folic acid supplements in prevention of congenital anomalies among undergraduate students with the socio-demographic variables.

Research hypothesis

H₁ There will be significant difference between the pre-test and post-test level of knowledge regarding folic acid supplements in prevention of congenital anomalies among undergraduate students.

H₂ There will be significant association between demographical variables and pre-test and post-test knowledge scores regarding folic acid supplements in prevention of congenital anomalies among undergraduate students.

Assumptions:

1. Most of the undergraduate students will have interest to learn about folic acid supplements in prevention of congenital anomalies.
2. The structured teaching programme will improve the knowledge on folic acid supplements in prevention of congenital anomalies.

Limitations:

The present study is limited to

- Selected college Tirupati
- Age group between 16-18 years
- Those who are willing to participate

II. Methodology

Research approach:

Quasi experimental research approach was adopted for the study

Research design:

Pre experimental one group pre-test and post-test design was adopted for this study.

Variables of the study:

Independent variable:

A presumed cause was referred to as independent variables, structured teaching programme on folic acid supplements in prevention of congenital anomalies is the independent variable in present study.

Dependent variable:

The effect was referred to as dependent variables. Knowledge regarding folic acid supplements in prevention of congenital anomalies is the dependent variable in present study.

Setting of the study:

The study was conducted at Vijayakrishna junior College, Mangalam road, tirupati

Population:

The population includes undergraduate female students in selected colleges of tirupati.

Target population: Target population in this study includes undergraduate female students at selected college, Tirupati.

Accessible population: Accessible population for this study was undergraduate female students who were studying at Vijayakrishna junior College, Mangalam road, tirupati.

Sample

Undergraduate female students selected as a sample who fulfilled the inclusion criteria during the period of the study.

Sample size:

50 undergraduate female students were selected.

Sampling technique:

Probability simple random sampling technique was adopted for this study

III. Analysis And Interpretation

The data collected from the undergraduate female students regarding the level of knowledge on folic acid supplements in prevention of congenital anomalies were tabulated, analysed and interpreted.

Table: 1 Frequency and Percentage Distribution of Demographic Variables among undergraduate students (N= 50)

S.no	DEMOGRAPHIC VARIABLES	FREQUENCY	PERCENTAGE	
1	Age in years	a)16 years	18	36.00
		b)17 years	14	28.00
		c)18 years	18	36.00
2	Religion	a)Hindu	46	92.00
		b)Christian	2	4.00
		c) Muslim	2	4.00
		d) Others	0	0
3	Type of family	a) Nuclear	38	76.00
		b) Joint	12	24.00
		c) Extended	0	0
4	Educational status of the father	a)Illiterate	5	10.00
		b)Primary school	20	40.00
		c) Higher secondary	14	28.00
		d) Under graduate	7	14.00
		e) Post graduate	4	8.00
5	Educational status of the mother	a)Illiterate	18	36.00
		b)Primary school	17	34.00
		c) Higher secondary	12	24.00
		d) Under graduate	2	4.00
		e) Post graduate	1	2.00
6	Occupational status of the father	a)Unemployed	2	4.00
		b)coolie		
		c) Private employee	16	32.00
		d) Government employee	8	16.00
		e)Business	4	8.00
		f) Farmer	12	24.00
7	Occupational status of the mother	a) House wife	28	56.00
		b) Coolie	2	4.00
		c) self-employee	8	16.00

		d) Private employee	8	16.00
		e) Government employee	4	8.00
8	Monthly income of the family in Rs	a)< 10000	23	46.00
		b)10000-20000	12	24.00
		c)>20000	15	30.00
9	Area of residence	a) Rural	29	58.00
		b) Urban	20	40.00
		c) Slum	1	2.00
10	Habit of food pattern	a) Vegetarian	8	16.00
		b) Non vegetarian	5	10.00
		c) Ova-vegetarian	1	2.00
		d) Mixed diet	36	72.00
11	Have you heard about folic acid deficiency?	a)Yes	34	68.00
		b) No	16	32.00
12	If yes what are the sources of information	a)Discussion with friends, family and Neighbours	6	17.60
		b) Attended meetings	2	5.90
		c) Watching TV	10	29.40
		d) Reading magazines/ news paper	12	35.30
		e) Health education by health personnel's	4	11.80

The table 1 shows that among 50 undergraduate female students highest 18 (36%) were in the age group of 16 and 18 years, least 14 (28%) were in the age group of 17 years.

Pertaining to religion highest 46 (92%) were Hindus, least 2 (4%) were Christians and 2(4%) were Muslims.

Regarding type of family highest 38 (76%) were from nuclear family, least 12(24%) were from joint family.

Pertaining educational status of the father, highest 20(40%) were primary school, 14(28%) were higher secondary, 7(14%) were undergraduate, 5(10%) were illiterate, least 4(8%) were postgraduates.

Regarding educational status of the mother, majority 18(36%) were illiterates, 17(34%) were primary school, 12(24%) were higher secondary, 2 (4%) were undergraduate, least 1(2%) was post graduate.

Pertaining occupational status of the father, highest 16(32%) were private employee, 12(24%) were farmer, 8(16%) were coolie and government employee, 4 (8%) were business, least 2(4%) were unemployed.

Regarding occupational status of the mother, majority 28(56%) were house wife's, 8(16%) were self and private employee, 4(8%) were government employee, least 2(4%) were coolie.

Pertaining monthly income of the family in Rs .highest 23(46%) were Rs <10000 income, 15(30%) were >20000 income, least 12(24%) were 10000-20000 income.

Regarding area of residence, majority 29(58%) residing in the rural areas, 20(40%) were in urban,least 1(2%) were residing in the slums.

Pertaining habit of food pattern, highest 36(72%) were mixed diet, 8(16%) were vegetarian, 5(10%) were non vegetarian, least 1(2%) was ova vegetarian.

Regarding have you heard about folic acid deficiency, majority 34(68%) members were answer yes, least 16(32%) members were answer No.Pertaining if yes what are the sources of information, majority of undergraduate students 12(35%) obtained from reading magazines, 10(29%) obtained from watching TV, 6(17%) obtained from discussion with friends, family and neighbours, 4(11.80%) obtained from health education by health personnel's, least 2(5.90%) obtained from attended meetings.

Table: 2 Frequency and Percentage Distribution of pre-test and post-test knowledge (N=50)

VARIABLE	INADEQUATE		MODERATE		ADEQUATE	
	F	%	F	%	F	%
LEVEL OF KNOWLEDGE IN PRE-TEST	31	62.00	16	32.00	3	6.00
LEVEL OF KNOWLEDGE IN POST-TEST	0	0	17	34.00	33	66.00

Table 2 : shows that in pre-test out of 50 undergraduate students 31(62%) had inadequate knowledge regarding folic acid supplements 16(32%) had moderately adequate knowledge and only 3(6%) had adequate knowledge whereas in post-test 17(34%) had moderately adequate knowledge, 33(66%) had adequate knowledge and there is no inadequate knowledge after structured teaching programme.

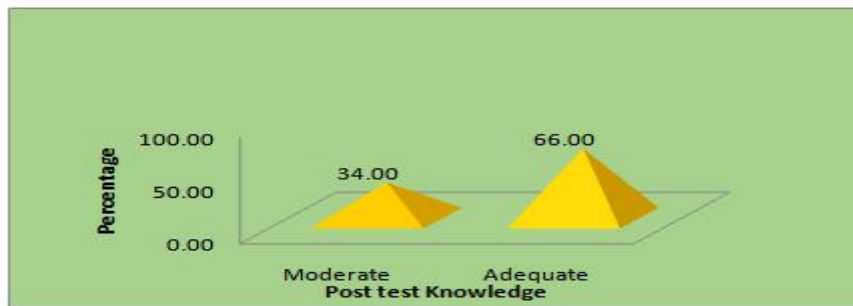
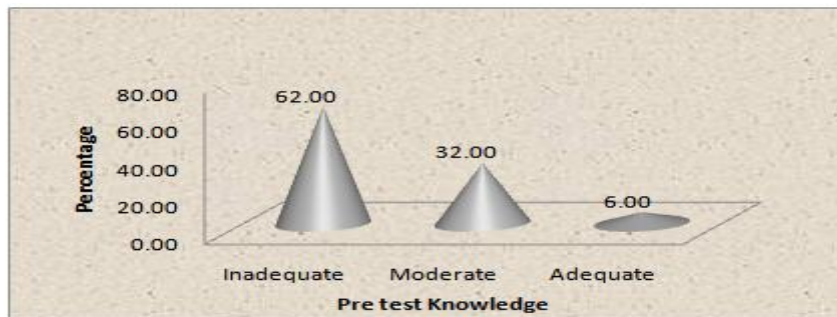


Table3: Mean, standard deviation and t-value of pre-test and post-test knowledge scores (N=50)

KNOWLEDGE SCORES	MEAN	STANDARD DEVIATION	T VALUE	P VALUE	SIGNIFICANCE
Pre-test total Knowledge Score	28.48	10.70	20.714	0.000	**
Post-test total Knowledge Score	52.68	6.59			

** Significant at 0.01 level
 *significant at 0.05 level

Table 3 describes that, pre-test mean score of 28.48 with standard deviation of 10.70, whereas in post-test mean score of 52.68 with standard deviation of 6.59. t-value is 20.714 and there was a significant improvement in knowledge on folic acid supplements in prevention of congenital anomalies at $p < 0.01$ level. So the above results shows that there was significant difference in pre-test and post-test knowledge scores among undergraduate students. So H_2 hypothesis was accepted.

Table 4: correlation of demographic variables with relationship between the Pre –test and post- test knowledge (n=50)

S.NO	DEMOGRAPHIC VARIABLES	CORRELATION BETWEEN PRE TEST AND POST TEST			
		PRE TEST		POST TEST	
		R-value	P Value	R-value	P Value
1	Age in years	663**	0	611**	0
2	Religion	-0.214	0.135	-349*	0.013
3	Type of family	0.213	0.137	387**	0.006
4	Educational status of the father	649**	0	349*	0.013
5	Educational status of the mother	642**	0	463**	0.001
6	Occupational status of the father	0.275	0.053	294*	0.039
7	Occupational status of the mother	543**	0	0.254	0.075
8	Monthly income of the family in Rs	330*	0.019	0.213	0.138
9	Area of residence	524**	0	499**	0
10	Habit of food pattern	-0.031	0.831	0.007	0.96
11	Have you heard about folic acid deficiency	-0.055	0.703	0.001	0.996
12	If yes what are the sources of information	0.17	0.337	0.03	0.866
	Pre-test knowledge	1		636**	0
	Post-test knowledge	636**	0	1	

*correlation is significant at the 0.05 level

**correlation is significant at the 0.01 level

Table 4: Shows the relationship between selected demographic variable with pre- test knowledge on folic acid supplements in prevention of congenital anomalies. In the pre-test undergraduate student age, educational status of the father, educational status of the mother, occupational status of the mother, area of residence were significant at 0.01 level, and Monthly income of the family was significant at 0.05 level.

In the post test demographic variables such as age, type of family, educational status of the mother, area of residence were significant at 0.01 level. Religion, educational status of the father occupational status of the father were significant at 0.05 level.

IV. Discussion

This chapter deals with discussion part to the results, obtained from statistical analysis based on the data of the study, the reviewed literature, hypothesis, which was selected for the study. The present study was conducted to evaluate the effectiveness of structured teaching programme on folic acid supplements in prevention of congenital anomalies among undergraduate students. It was presented in the view of the objectives of the study.

The first objective of the study was to assess the pre-test level of Knowledge on folic acid supplements in prevention of Congenital anomalies among undergraduate students. Pre-test results shows that students 31(62%) had inadequate knowledge regarding folic acid supplements whereas 16(32%) had moderately adequate knowledge and only 3(6%) had adequate knowledge, so the H1 hypothesis which states that there was significant differences between mean pre-test and post-test knowledge scores regarding folic acid supplements in prevention of congenital anomalies among undergraduate students was accepted.

The results of above study supported by the study carried out by **John M. et al¹⁰ (2000)** conducted a educational intervention on College women's awareness and consumption of folic acid for the prevention of neural tube defects. A total of 71 female students participate in the study. Signed informed consent was obtained from, of the study participants. Subjects met for 45-minute sessions during which they completed pre-tests, listened to a live educational slide presentation about folic acid. The results of the study revealed that Changes in post-test responses compared with pre-test responses were determined using the student's t-test. Following the intervention, a significant increase in knowledge of both folic acid (P = 0.0001) and of NTDs was found (P = 0.0002), and there was a significant increase in scores for the perceived benefits factor (P = 0.0001), for the perceived barriers factor (P = 0.0001), and for the perceived threat factor (P = 0.0001)

V. Conclusion

The present study revealed that undergraduate students have inadequate knowledge regarding folic acid supplements in prevention of congenital anomalies and after structured teaching programme knowledge have improved among undergraduate students

Nursing Implications:

In order to prevent adverse outcome due to inadequate intake of folic acid during preconception and early conception it is necessary to know about congenital anomalies and its prevention. Health education is a strong weapon in preventing and promoting knowledge regarding folic acid supplements. The findings of the study have implications in various areas of nursing profession i.e nursing service, Nursing education, nursing administration and nursing research.

Nursing Service

- The study results would help to enlighten their knowledge and care for pregnant mothers regarding congenital anomalies.
- The expanded role of professional nurse emphasizes the activities which promote health.
- Health education regarding folic acid supplements in pregnancy is essential part of nursing services. Nurses can be instrumental in preventing congenital anomalies among pregnant women.
- Planned education programme regarding folic acid supplements in prevention of congenital anomalies by health professionals should be made on an ongoing process in the OPDs, maternity wards and in the community settings.
- Nurses working on community have to realize their responsibility in health education to the community peoples regarding folic acid supplements.
- Nurses can take active part in conducting mass media awareness programmes regarding congenital anomalies to adopt healthy practices to prevent congenital anomalies.

NURSING EDUCATION

- The students must be under adequate supervision and guidance while rendering the knowledge adequately to provide health education to the antenatal mothers in community about folic acid supplements in prevention of congenital anomalies.
- Workshop must be conducted on various folic acid supplements in prevention of congenital anomalies which may help to improve our knowledge in that particular aspects.
- The curriculum should provide enough opportunity for trainee to design health education module regarding prevention of congenital anomalies for clinical teaching.

NURSING ADMINISTRATION

- Nursing administration should take an initiative to formulate policies that would include all nursing staff to be actively involved in health education programme regarding folic acid supplements in maternity hospitals, outpatient departments, MCH centre, PHC, sub centre and anganwadi centres.
- Administrative department of nursing at various levels like institutional, local, state and national level should take measures to improve public awareness regarding congenital anomalies.
- The administrator can plan awareness programmes on congenital anomalies and publish maternal which should be available to public.
- Administration support should be provided to activities which encourages public education for prevention of congenital anomalies.

NURSING RESEARCH

- The study reveals that there is a need for extensive research to find out behaviour modification after teaching programme.
- Various methods may be used to strengthen the knowledge of people regarding prevention of congenital anomalies by researches.
- There is a great need for nursing research in the area of undergraduate student's education particularly on prevention of congenital anomalies.

LIMITATIONS

The present study is limited to

- Selected college Tirupati
- Age group between 16-18 years
- Those who are willing to participate

Recommendations

- On the basis of findings, the following recommendations have been made for further study:
- The study can be replicated on larger samples, there by finding can be generalized for a large group

- A descriptive study which can be conducted to assess the knowledge regarding preconception intake of folic acid among antenatal mothers at selected community.
- A study which can be conducted to assess the effectiveness of video assisting teaching programme on folic acid supplements in prevention of congenital anomalies among antenatal mothers at selected OPD's.

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