Effectiveness of structured teaching programme on knowledge regarding genetic testing among college students in a selected college at kollam district

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Abstract

A pre experimental study was conducted to assess the effectiveness of structured teaching programme on knowledge regarding genetic testing among 60 college students who selected by using stratified random sampling technique. A quantitative research approach with one group pre test - post test only design was adopted for this study. The pretest level of knowledge was assessed using structured knowledge questionnaire and structured teaching program was given. The post test was conducted on the 7th day using the same tool. Result showed that the mean post test score 18.78 with SD 3.26 was significantly higher than the mean pre test score 13.07 with SD 2.86 with a mean difference of 5.71.The calculated 't' value 16.63 was more than the table value (2.70) with df 59 at 0.01 level of significance. Thus the educational programme was effective in improving the knowledge level of the college students.

Key words: Effectiveness; Structured teaching programme; Knowledge; Genetic testing; Prenatal diagnostic tests.

Introduction

Pregnancy is the most beautiful phase in every woman's life. During pregnancy every women takes care of herself to give birth to a normal and a healthy child. But there are changes that a dark cloud of congenital abnormalities might be looming over the child in the form of genetic mutations, hormonal imbalance, maternal infections or abnormal immune response[1].

Genetics is the science of inheritance. It aims to understand the mechanism by which the blueprints for life are passed through generations and variations in these blueprints are essential for evolution. In this era because of the high prevalence of genetic disorders the genetic testing methods are playing great importance[2]. Pre natal diagnosis was first introduced nearly four decades ago yet gaps still exist in public knowledge about the screening programmes.

Prenatal diagnostic procedures are options available to women in both the first and second trimesters of pregnancy aimed at identifying those at increased risk of birth defects and or hereditary conditions such as down syndrome, neural tube defects and some other fetal anomalies[3].

Objectives

1. To assess the pre test level of knowledge regarding genetic testing among college students.
2. To assess the post test level of knowledge regarding genetic testing among college students.
3. To find out the effectiveness of the structured teaching program on knowledge regarding genetic testing among college students.
4. To find out the association between the pre test knowledge and selected socio demographic variables

Hypotheses

1. H_1: There will be a significant difference in the mean post test level of knowledge regarding genetic testing among college students.
2. H_2: There will be a significant association between the pre test level of knowledge regarding genetic testing and selected socio demographic variables.

Review of literature

In this study the review of literature was arranged under studies related to prevalence of genetic disorders, studies related to genetic testing, studies related to knowledge regarding genetic testing, studies related to structured teaching programme on genetic testing.

A cross sectional descriptive study was conducted at R. G. Kar Medical College, New Delhi,(2011-2012) to assess the prevalence of congenital anomalies in neonates in the neonatal care unit involving 12,896 babies born showed that the congenital anomalies were more likely to be associated with low birth weight, prematurity, multiparty, consanguinity and cesarean delivery and the study recommends the public awareness about preventable risk factors and early prenatal diagnosis and management of common anomalies[4].

A cross sectional study was conducted in Sultan Qaboos University, Oman (2012) to explore the knowledge and attitude of university students towards premarital screening program among 590 unmarried students by administering structured questionnaire revealed that the majority of the participants thought it is important to carry out premarital screening only half favored making it obligatory before marriage and one third favored making laws and regulations to prevent marriage in case of positive results and it reflected the importance of health education as a keystone in improving knowledge and attitude towards premarital screening programmes[5].

Conceptual frame work

Nola G Pender's Health Promotion Model

Methodology

Research approach: Quantitative

Research design: Pre experimental one group pre-test post test design.

Table :1 Schematic representation of the research design

Group	Pre test	Intervention	Post test
Experimental	O_1	X	O_2

Keys:

O_1 – Pre test for assessing the level of knowledge regarding genetic testing among college students.

X – Structured teaching programme on genetic testing.

O_2- Post test for assessing the level of knowledge regarding genetic testing among college students.

Variables: Structured teaching programme was the independent variable and knowledge of the college students was the dependent variable.

Setting: The study was conducted at Mount Tabor Training College Pathanapuram, Kollam District, Kerala.

Population: The population in the study was the college students at Kollam district

Data collection

Prior permission was obtained from the concerned authority of Mount Tabor Training College Pathanapuram. Based on the ethical aspect of research, socio demographic data was collected using the structured questionnaire and the pre test was conducted after obtaining informed consent from the subjects. The pre test was done on 8/1/2015. Structured teaching programme on genetic testing was given to the study subjects for a duration of 1 hour by using relevant teaching aids including LCD, charts and pamphlets on 9/1/2015. Post test was conducted for the study subjects by using structured knowledge questionnaire after 7th day of the structured teaching programme, on 16/1/2015.

Data analysis

Descriptive and inferential statistics was used. Paired 't' test was used to compare the pre test and post test level of knowledge among college students regarding genetic testing and Chi square test was used to find out the association between pre test levels of knowledge among college students with selected socio demographic variables.

Results

Figure 1: Pyramidal diagram showing comparison of pre test and post test level of knowledge of college students regarding genetic testing. (n=60)

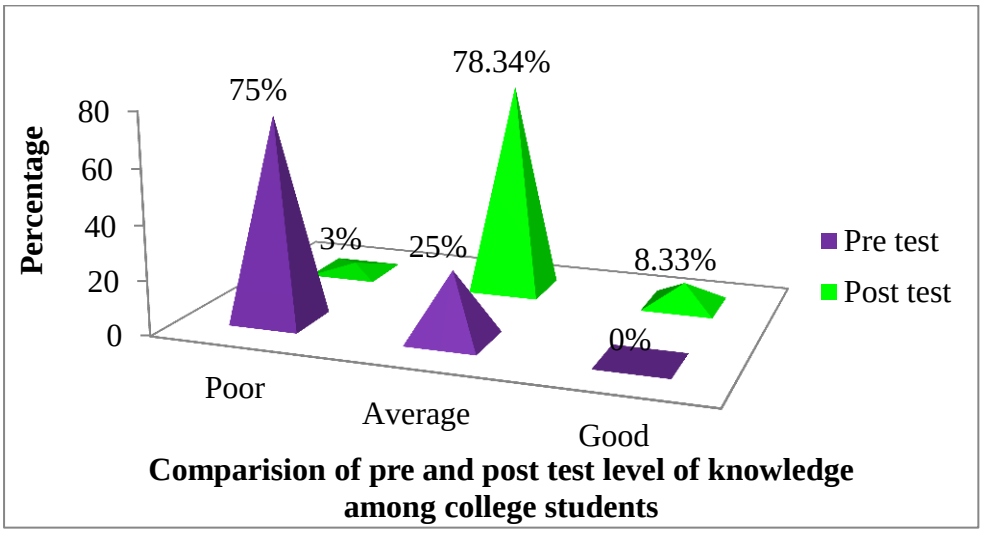

Table: 2 Mean, S.D and t-value of knowledge level of college students regarding genetic testing before and after Structured Teaching Programme. (n=60)

Test	Mean	S.D.	Mean Difference	df	t	table value	p value
Pre test	13.07	2.86	5.71	59	16.63**	2. 70	p < 0.01
Post test	18.78	3.26					

** Significant at 0.01 level.

The table shows that the structured teaching programme was effective in improving the knowledge level of college students

Table 3 – Association between the pretest level of knowledge among college students regarding genetic testing with selected socio demographic variables.

SI No:	Variables	χ2	df	P value	Inference
1	Age	1.05	2	0.59	NS
2	Gender	0.12	1	0.72	NS
3	Religion	0.61	2	0.74	NS
4	Area of living	0.485	1	0.49	NS
5	Previous educational status	0.27	1	0.61	NS
6	Current subject of study	5.07	5	0.41	NS
7	Type of family	0.485	1	0.49	NS
8	Family history of hereditary diseases	11.42	5	0.04	S*
9	Family history of genetic disorders	0.03	1	0.86	NS
10	Monthly family income	7.22	4	0.125	NS
11	Main sources of information on genetic testing	7.78	5	0.17	NS

*Significant at 0.05 level NS: Not significant; S: Significant

The calculated chi square (χ2) of family history of hereditary diseases 11.42 was greater than that of the table value (11.07) with 5 degrees of freedom at 0.05 level of significance. So there was a significant association between family history of hereditary diseases and pre test level of knowledge score. Hence the research hypothesis (H_2) with regard to family history of hereditary diseases was accepted and null hypothesis (H_{02}) was rejected. The calculated chi square (χ2) value of all the other socio demographic variables was less than the table value.

So the research hypothesis (H_2) with regard to all the other socio demographic variables was rejected and null hypothesis (H_{02}) was accepted. So it was concluded that the level of knowledge is also influenced by the family history of hereditary diseases.

Discussion

The present study showed that the structured teaching programme was effective in improving the knowledge level. The study was supported by another an experimental study done in Libya (2014) to assess the effectiveness of 30 minutes educational session on preconception health and genetic testing awareness among adolescents among 7290 students in Lebanese high schools developed by the National Collaborative Perinatal Neonatal Network's (NCPNN) research team by administering a multiple-choice questionnaire prior to and after the session showed that the awareness campaigns in schools increased the knowledge among high school students and they recommend expanding the scope of this intervention into universities in Lebanon.[6]

Implications

The study has various implications in nursing education, nursing practice, nursing administration and nursing research. The nurse educators and administrators should take initiative to conduct health education programmes and community based awareness classes regarding genetic testing. The midwifery curriculum should be strengthened enough with the current concepts of genetic testing methods especially the prenatal diagnostic tests. This study would help the researchers to develop insight into the development of teaching module and materials on various aspects of genetic testing for the promotion of safe childhood

Recommendations

1. A descriptive study can be conducted to assess the knowledge and practice regarding genetic testing.
2. A similar study can be conducted with experimental and control group.
3. A similar study can be conducted among mothers.
4. A similar study can be conducted in other settings.
5. A study can be conducted to assess the knowledge, practice and attitude of women's regarding genetic testing.
6. A similar study can be replicated in large population for the generalization of the results.

Limitations

- Generalization could not be done due to limited samples.
- Population was limited to Kollam district only.
- This study didn't use a control group.

Conclusion

The study aimed to assess the effectiveness of the structured teaching programme on knowledge regarding genetic testing among college students. This study was very much

effective among the college students. This type of studies can be conducted in other settings to create awareness.

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