

Effectiveness of Structure Teaching Programme on Knowledge Regarding Genetic Disorders and Attitude Towards Preventive Measures for Genetic Disorders among Undergraduates at Higher Educational Institute.

Ajay Kolage¹, Yogita Autade², Krishnali Garje³

¹Ind Year M.Sc. Nursing, Vithalrao Vikhe Patil Foundation's College of Nursing, Ahmednagar, Maharashtra, India

²Associate Professor, Department of Community Health Nursing, Vithalrao Vikhe Patil Foundation's College of Nursing, Ahmednagar, Maharashtra, India.

³Ind Year M.Sc. Nursing, Vithalrao Vikhe Patil Foundation's College of Nursing, Ahmednagar, Maharashtra, India

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Abstract

Genetic disorders may be hereditary or non-hereditary meaning that they are transfers from the parent's genes. But in some genetic disorder's defects may be caused by new mutations, altered phenotype or changes to the DNA. A change may occur that brings about changes in the number or position of any or more genes. This changing of the structure of particular chromosomes is also called chromosomal mutation or chromosomal rearrangement. An evaluative approach with simple random sampling technique were used for the study. The study sample consisted of (n=54) in selected higher educational institute. Pre-test were taken on first and total 2 hours intervention programme was administered on the genetic disorders. Post -test was conducted after completion of intervention programme.

Findings of Study

In the present study it was found that all students (100 %) are in the age group of 18-21 years. Gender of students are 50% male and 50% female. Study shows the student had average knowledge regarding genetic disorders and strong positive attitude towards preventive measures for genetic disorders and after implementing intervention programme the knowledge level is increased and the very strong positive attitude was developed. There is a significant association of attitude score with demographic variables such as previous history of genetic counseling. Study shows there is significant difference in knowledge score between males and females. About attitude part After implementing intervention programmed. It shows males had more positive attitude than females about preventive measures for genetic disorders and there was no any significant difference in attitude score between males and females.

Keywords: Genetic disorders, structured teaching programme, preventive measures, undergraduate students, questionnaire, attitude scale.

Introduction

A genetic disorder is a genetic problem caused by one or more abnormalities formed in the genome. Most of genetic disorders are quite rare and affect one person in every several hundred thousand. The prompt known genetic condition in a hominid was

in the fossil species *Paranthropus robustus* with over a third of individuals displaying Amelogenesis imperfecta.^[1]

Genetic disorders may be hereditary or non-hereditary meaning that they are transfers from the parent's genes. But in some genetic disorder's defects

Corresponding Author:

ajaykolage1234.ak@gmail.com

may be caused by new mutations, altered phenotype or changes to the DNA. A change may occur that brings about changes in the number or position of any or more genes. This changing of the structure of particular chromosomes is also called chromosomal mutation or chromosomal rearrangement. Those changes result in phenotypic character of the individuals. In those cases, the defect will only be passed down if it occurs in the germline. Genetic disorders can be monogenic, multifactorial or chromosomal.^[2]

A genetic disorder is an illness caused by one or more abnormalities in between the genome specifically a condition that is present from birth (congenital). Mostly genetic disorders are quite rare and affect one in every several thousand or million persons. Genetic disorders may or may not be hereditary i.e., transfer from the parent's gene. In non- hereditary genetic disorders, defects may cause by new mutation or changes to the DNA. The defect will only be hereditary if the genetic disorder occurs in the germ line.^[3]

Methods and Materials

In this study, 54 Male and females in the age of 18 to 25 years. in Selected higher educational institute. A total of 54 students in that (27 male and 27female in the age of 18 to 25b). They were selected using a Probability simple random sample technique. and an evaluative approach. The study was conducted as a descriptive study. Exclusion Those who are visually or hearing impaired. The study was performed after obtaining written informed consent from study participants. Knowledge structures questioner for check knowledge score and Attitude Towards Preventive Measures For Genetic Disorders. Descriptive and inferential statistics were used to analyses the data.

Statistical Analysis: Statistical analysis was done by the SPSS statistical package. The Chi-square test was performed to compare individual characteristics, and the t- test was performed to compare the two groups. Fisher's exact test P-value was considered statistically significant if it was 0.05. A Pearson correlation test was used to determine the significant correlations between variables.

Section I: Frequency and percentage distribution of socio-demographic variables of male and female students.

(1) AGE : Finding shows the age distribution of the study subject, there are 54 (100%) are belong to age group of 18-21 and 0 (0%) are belong to age group of 21-24.

(2) GENDER: Finding shows the gender distribution of the study subject were 27 (50%) are male and 27 (50%) are female students.

(3) EDUCATION: Finding shows the Education distribution of the study subject where 12th science are 53 (98.1%) participants and participants from another diploma is 1 (1.9%).

(4) MARITAL STATUS: Finding shows the Marital Status distribution of the study subject where married are 1 (1.9 %) participant, widow are 0 (0.0%) participants, single are 53 (98.1 %) participants and divorced participant that is 0 (0.0 %) participants according to marital status .

(5) LIVING AREA : Finding Shows the living area distribution of the study subject where the 20 (37%) participants are live in urban and 34 (63%) participants are live in rural area.

(6) SOURCE OF INFORMATION : Finding Shows the Source of information distribution of the study subject where the 7 (13%) participants are got information by journal, 45 (83.3%) participants are got information by from newspapers and 2 (3.7%) participants are get information by magazines.

(7) ATTAINED WORKSHOP/ SEMINAR: Finding shows attained seminar/ workshop on genetic disorders that is 8 (14.8%) participants attained seminar/ workshop and 46 (85.2%) participants did not attained any seminar/ workshop.

(8) FAMILY HISTORY OF DISEASE: Finding shows the history of Genetic disorders that is 4 (7.4%) participants have family history of genetic disorders and 50 (92.6%) participants have no any family history of genetic disorders.

(9) PREVIOUS HISTORY OF GENETIC COUNSELING: Finding shows the previous history of Genetic counseling that is 4 (7.4%) participants have previous history of Genetic counseling and 50 (92.6%) participants have no any previous history of Genetic counseling.

Section II: Description of pre-test and post-test knowledge on genetic disorders among male and female students.

Table No 1: Distribution of Pre-test and Post-test knowledge on genetic disorders among students.

Pre-test knowledge on genetic disorders among male and female students.			
		Frequency	Percent
	Good	2	3.7%
	Average	44	81.5%
	Poor	8	14.8%
	Total	54	100.0%

Post-test knowledge on genetic disorders among male and female students.			
		Frequency	Percent
	Good	43	79.6%
	Average	11	20.4%
	Poor	0	0.0%
	Total	54	100.0%

Above table shows in pre-test the knowledge of 44 (81.5) students had average level of knowledge, 8 (14.8%) students had poor knowledge and only 2 (3.7%) students had good knowledge regarding genetic disorders. The finding shoes that after the intervention program, the knowledge level was improved. i.e., after post-test 43 (97.6%) students' knowledge improved to good level and the other 11 (20.4%) get average level of knowledge regarding genetic disorders.

Table No. 2: shows the distribution of all pre-test and post-test data

(n= 54)

	Mean	Std. Deviation	Median	Mean (%)
Pre-test knowledge on genetic disorders among male and female students.	8.04	2.628	8.00	42.3
Post-test knowledge on genetic disorders among male and female students.	14.56	3.196	15.00	76.6

Finding shows that mean percentage of Pre-test knowledge on genetic disorders among male and female students 42.3% by applying intervention it improved to 76.6% that means it increased by 34.31% . In pre-test the student had moderate level of knowledge regarding genetic disorders, after the implementation of teaching program it increases to adequate level of knowledge about genetic disorders.

Section III: Description of pre-test and post-test attitude towards preventive measures for genetic disorder among male and female students.

Table No.3 : Frequency percentage distribution of Pre-test and Post-test attitude towards preventive measures for genetic disorder among students.

(n=54)

Pre-test attitude towards preventive measures for genetic disorder among male and female students			
		Frequency	Percent
	Negative	4	7.4%
	Positive	50	92.6%
	Total	54	100.0%

Post-test attitude towards preventive measures for genetic disorder among male and female students			
		Frequency	Percent
	Negative	1	1.9%
	Positive	53	98.1%
	Total	54	100.0%

Above table shows in pre-test the attitude of 4 (7.4) undergraduate students was negative towards preventive measures of genetic disorders and remain 50 (92.6) was positive towards preventive measures of genetic disorders . The finding shoes that after the intervention program, the attitude level was improved. After post-test 53 (98.1%) undergraduate students had positive attitude towards preventive measures of genetic disorders and the only 1 (1.9) had negative attitude.

Section IV: To find out the association between selected demographic variables and knowledge on genetic disorder and attitude towards preventive measures for genetic disorder among undergraduate students.

Table No. 4 : To find out the association between selected demographic variables

Variable	p value	Association
Age	-	No association
Gender	.276	No association
Marital status	.519	No association
Educational Stream	.481	No association
Residence area	.138	No association
Source of information	.543	No association
Attain workshop/seminar	.787	No association
Family history of genetic disorders	1.000	No association
Previous history of genetic counselling	.047	Association

p value > 0.05, NS (Not significant) accept H₀

p value < 0.05, sig(significant)- reject H₀

0 < p value < 0.01, HS(highly significant)

The above table shows that demographic variable has significant association with a group of students with previous history of genetic counselling. here calculated fisher exact test value (0.047, p < 0.05) ,were found statistically significant at 5% level (i.e. p

<0.05) hence null hypothesis is rejected and research hypothesis is accepted.

Section V: To compare knowledge on genetic disorder and attitude towards preventive measures for genetic disorder among male and female students.

Table No. 5: To compare knowledge on genetic disorder and attitude towards preventive measures for genetic disorder among male and female students.

Gender	N	Mean	Std. Deviation	t value	d.f	p value	Difference
Pre-test knowledge on genetic disorders among male and female students.	2.1	27	7.81	-0.618	52.000	0.539	No significant difference
	2.2	27	8.26				
	Total	54	8.04				
Post-test knowledge on genetic disorders among male and female students.	2.1	27	15.63	2.600	52.000	0.012	There is significant difference
	2.2	27	13.48				
	Total	54	14.56				
Pre-test attitude towards preventive measures for genetic disorder among male and female students	2.1	27	58.22	0.471	52.000	0.640	No significant difference
	2.2	27	57.33				
	Total	54	57.78				
Post-test attitude towards preventive measures for genetic disorder among male and female students	2.1	27	67.63	1.293	52.000	0.202	No significant difference
	2.2	27	65.48				
	Total	54	66.56				

The above table shows the significant difference between knowledge on genetic disorder among male and female students at post-test level but not in pre-test. In pre-test and post-test there is no any difference in attitude towards preventive measures for genetic disorder among male and female.

Discussion

The results are consistent with the study conducted at the largest university in Saudi Arabia. It is divided into three fields of study namely medicine, sciences and humanities students. The mean knowledge score was 5.3 ± 1.4 out of 7. Students with a better academic performance showed a greater knowledge compared with their companion.^[4]

A cross-sectional study that was conducted using a self-administered questionnaire which was distributed to 400 Omani adults aged 20–35 who attended primary healthcare institutions at the South Batinah Governorate in Oman. shows the results of the evaluation of associations between socio-demographic characteristics and unwillingness to perform pre-marital testing, as obtained from multivariate logistic regression modelling. The marital status was significantly associated with unwillingness to have pre-marital testing.^[5]

Conclusion

- Most of the student had average knowledge regarding genetic disorders and strong positive attitude towards preventive measures for genetic disorders and after implementing intervention programme the knowledge level is increased and the very strong positive attitude was developed.
- Most of the student knows the introductory part regarding genetics due to 12th science and some secondary school had included some genetic topics in their syllabus.
- It shows there is significant difference in knowledge score between males and females. It shows males had more positive attitude than females about preventive measures for genetic disorders and there was no any significant difference in attitude score between males and females.

- There is a significant association of attitude score with demographic variables such as previous history of genetic counseling.

Recommendations

1. A descriptive study can be conducted among students or community peoples.
2. A similar study can be replicated in other settings with different age groups .
3. A study can be conducted for assessing knowledge, attitude and practice regarding genetic disorders and genetic testing.
4. A comparative study may be conducted between males and females.

Limitation of the Study

1. Study was restricted to students with science background.
2. The sample was selected by simple random sampling method .
3. Data collection was done by knowledge questionnaire and attitude scale so the amount of information gathered was restricted.
4. The present study was limited to assess effectiveness of Structure Teaching Programme on knowledge regarding genetic disorder and attitude towards preventive measures for genetic disorders among undergraduates at higher educational institute. Study included only an evaluative approach.
5. The study is restricted in age group of between 18 to 24 years.

Ethical Clearance- Ethical Clearance was obtained from Institutional Ethics Committee of Dr. Vithalrao Vikhe Patil Foundation's Ahmednagar.

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Conflict of Interest: There is no conflict of interest.

Competing Interest

Authors have declared that competing interest exist.

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