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IMPACT OF GENETIC COUNSELLING FOR EVALUATION OF RISK AND FOLLOW-UP IN THE PREVENTION AND CONTROL OF MENTAL ILLNESS AMONG ANTENATAL MOTHERS

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Abstract:

The well-being of a human being has two facets viz., physical, mental. The physical health has greater prominence over mental health aspect. The etiology of psychiatric disorder is complex, with both genetic and environmental component contributing to their development. It is thought that different set of genes may be involved in increasing susceptibility to a particular disorder in various population. Experts recommend that all pregnant women regardless of age be offered genetic counselling and testing to screen the genetic disorder and other disorders. A quantitative research approach and pre experimental design, pre-test and post-test without control group was selected for this study. The study was conducted on 50 antenatal mothers of Kalarahanga village, Bhubaneswar, Odisha through non probability purposive sampling technique. Data was collected through using a self-structured knowledge questionnaire and were analysed by using descriptive and inferential statistics. Findings revealed that there was highly significant difference in pre-test and post-test knowledge scores obtained by paired 't' test at 5% level of significance. Chi square test was calculated and found that there is significant association between post-test knowledge scores with education, previous knowledge and areas of living at 5% level of significance. Whereas no significant association was found between post-test knowledge scores with age, religion, parity, type of family, monthly family income, history of mental illness, history of medical diseases.. Statistical analysis of data revealed that STP was effective in improving knowledge regarding genetic counselling on mental illness among antenatal mothers.

Keywords: - Structured Teaching Programme (STP), genetic counselling, mental illness, prevention, control, antenatal mother.

INTRODUCTION

Mental illness is clinically significant characterized by alteration in thinking, mood (emotion), or behaviour associated with personal distress and or impaired functioning. Genetic counselling is the process by which patients and relatives at risk of an inherited disorder are advised of the consequences and nature of the disorder, the probability of developing or transmitting it, and options open to them in management and family planning. Although genetic counselling has traditionally been provided mainly for families affected by single gene disorders or by complex disorders for which genetic susceptibility testing is available.[1-3]

High risk mother is one in which some condition puts the mother or the developing fetus or both, at an increased risk for complications during or after pregnancy and birth. The heritability of psychiatric disorders is high compared with other complex disorders, such as asthma, diabetes and stroke. The recent explosive growth in the number of genes identified through efforts of the NIH. Currently over 4,000 diseases are known to be genetic, and diagnostic tests are available for over 450 genetic disorders.[4-6]

WHO estimated that mental behavioural disorders account for about 12% of the global burden of disease. Various studies has shown that prevalence of mental disorders were high in females, elderly, disaster survivors, industrial workers, children, adolescent and those who are having chronic illness. A study shows prospective 11680 consecutive deliveries have congenital malformation; the overall incidence was 2.3%.[7]

A study was conducted on burden of genetic disorder in India showed the congenital malformations and genetic disorders in a multi centric study on the causes of referral for genetic counseling the top 4 disorders were repeated abortion 12.4%, identifiable syndrome 12.1 %, chromosomal disorder 11.3% and mental retardation 11%. The more recent studies shows top reasons for referral were reproductive genetics 38.9%- comprising prenatal

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diagnosis , recurrent abortions, infertility, congenital malformations 16.1%, Down syndrome 9.1%, Thallasaemia 8.8%.[8]

An estimated 276000 babies die within 4 weeks of birth every year, worldwide, from congenital anomalies. The most common severe congenital anomalies are heart defect, neural tube defects and Down syndrome. Congenital anomaly can be genetic, infectious, nutritional or environmental in origin. The number of people affected by mental health problems in Australia is high (an estimated 17.7% of the adult population over a 12-month period). It is clear from family, twin and adoption studies that genetic factors play an important role in influencing susceptibility to many adult psychiatric disorders.[9]

A cross-sectional survey study was conducted on genetic counseling in tribal's in India. A majority of populations are from the Indo-Aryan stock 72% followed by Dravidian 25% and mongoloid and other 3% of the reported 62 tribal communities from Orissa. Sickle cell disease is highly prevalent in general castes (0.3-20.7%), SC (0.8-9%) and ST (0.5-5%). The study on Maharashtra, Tamilnadu, Gujarat showed prenatal diagnosis in 238 pregnancies at risk, of which 193 were for sickle cell homozygots, 44 for sickle cell beta thallasemia disease.[10]

Statement of Problem

Effectiveness of Structured Teaching Programme on genetic counselling for evaluation of risk and follow-up in the prevention and control of mental illness among antenatal mothers in selected community area at Khurda, Odisha.

Objectives of the study

- To assess the knowledge of mothers regarding mental illness.
- To assess the effectiveness of structured teaching programme on genetic counselling in prevention and control of mental illness among antenatal mothers.
- To find out the association between post-test knowledge score with selected demographic variables.

Hypothesis

- **H1** – There will be a significant difference between pre and post-test knowledge scores of antenatal mothers regarding genetic counselling on mental illness
- **H2** – There will be a significant association between post-test knowledge scores with selected demographic variables.

MATERIAL AND METHOD

A quantitative research approach with pre experimental design was adopted in this study. The study was conducted in Kalarahanga village, Bhubaneswar, Odisha where 50 antenatal mothers were selected by purposive sampling technique. The tool were developed in 2 section- A comprises the demographic variables and section- B comprises structured knowledge questionnaire regarding genetic counselling in prevention and control of mental illness.

Permission was obtained from the corporater of Kalarahanga (Patia), Bhubaneswar, Odisha and informed consent was taken from the participants. Pre-test was conducted by using self-structured closed ended questionnaires. After 3 days post-test with Structured Teaching Programme regarding genetic counselling on mental illness was administered. Descriptive and inferential statistics was used for data analysis procedure.

FINDINGS

Distribution of antenatal mothers according to their demographic variables.

Table 1: Findings revealed that among the 50 antenatal mothers, the highest 26 (52%) of antenatal mothers were between the age 25-30yr. It was also found that the almost of all 20 (40%) of mothers were having primary education. The majority of 40 (80%) of antenatal mothers were Hindu. The highest 30 (60%) antenatal mothers were multiparous. The majority 41 (82%) of mothers belonged to joint family. The highest 25 (50%) of mothers were having family income <10,000. 42 (84%) of mothers have no family history of mental illness. The majority of 34 (68%) mothers were from rural area. Most 40 (80%) of antenatal mothers have no previous knowledge regarding genetic counselling on mental illness. Also highest 38 (76%) antenatal mothers were no previous history of medical diseases.

Table-1 Frequency and percentage wise distribution of Demographic Variables

Variables	Frequency	Percentage
Age in year		
<25	10	20%
25-30	26	52%
30-35	8	16%
>35	6	12%

Corresponding Author - Mahlo Ansu Ekka, Lecturer, Dept of Psychiatric Nursing, LJM College Of Nursing, Bhubaneswar

Education		
Primary	20	40%
Matriculation	12	24%
Higher secondary	7	14%
Graduation or Above	11	22%
Religion		
Hindu	40	80%
Muslim	6	12%
Christian	4	8%
Parity		
Primi para	20	40%
Multi para	30	60%
Type of family		
Nuclear	9	18%
Joint	41	82%
Monthly family Income		
<10,000	25	50%
10,000-20,000	12	24%
20,000-30,000	9	18%
>30,0000	4	8%
History of mental illness		
Yes	8	16%
No	42	84%
Areas of living		
Rural	34	68%
Urban	7	14%
Slum	9	18%
Previous knowledge		
Yes	10	20%
No	40	80%
Any medical disease		
Yes	12	24%
No	38	76%

Table-2-Area wise distribution of mean, standard deviation, mean percentage of pre-test and post-test knowledge scores of antenatal mothers on genetic counselling for prevention and control of mental illness.

SL NO	AREA	PRE TEST			POST TEST			MEAN DIFFERENCE
		MEAN	SD	MEAN %	MEAN	SD	MEAN %	
1	**General information on mental illness**	1.7	0.84	42.5	2.74	0.63	68.5	26
2	**High risk pregnancy**	6	3.33	33.33	12.4	1.75	68.8	35.47
3	**Genetic Counselling**	5.94	2.65	49.5	9.48	1.8	79	29.5
4	**Prenatal genetic tests**	6.88	3.9	43	12.46	2.23	77.87	34.87
5	**Over all**	20.52	9.17	41.04	37.08	5.34	74.16	33.12

Corresponding Author - Mahlo Ansu Ekka, Lecturer, Dept of Psychiatric Nursing, LJM College Of Nursing, Bhubaneswar

Table 2: It was observed that overall pre-test mean score was (20.52±9.17) and mean percentage is 41.04%. The post-test mean score was (37.08±5.34) and mean percentage is 74.16% .The highest mean percentage is 79 for "genetic counselling". The difference in mean percentage is 33.12% revealed the effectiveness of Structured Teaching Programme.

Figure-1; Comparison of level of knowledge of pre and post test scores of antenatal mothers regarding genetic counselling

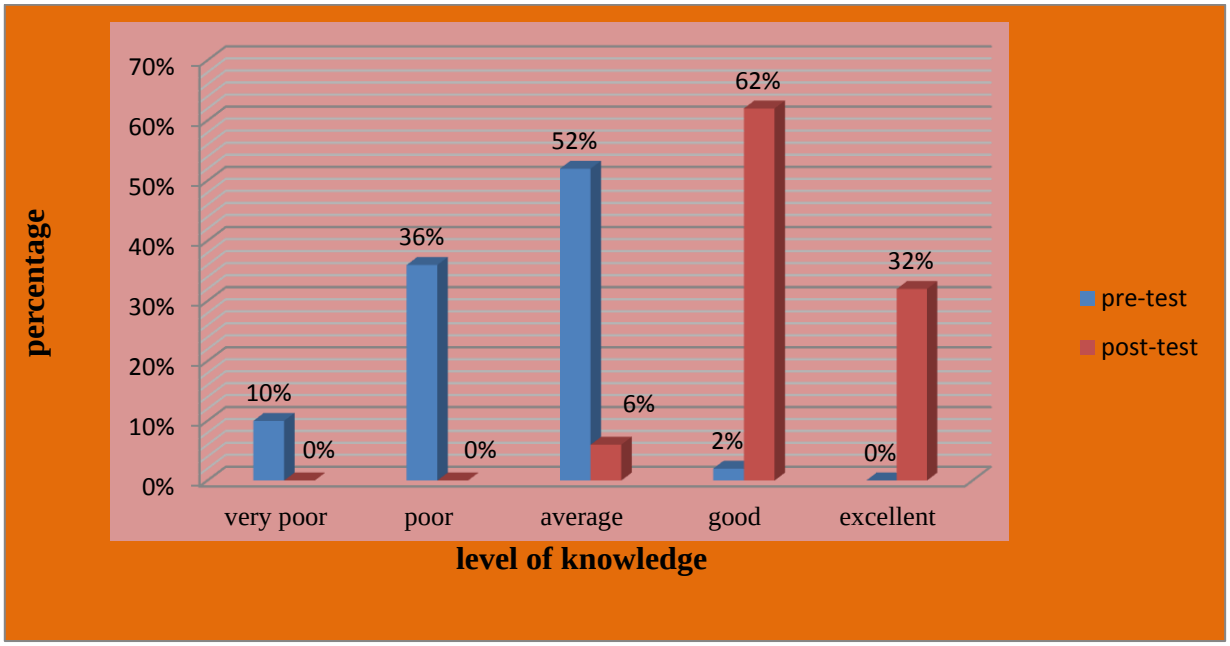

Figure-2: LINE GRAPH

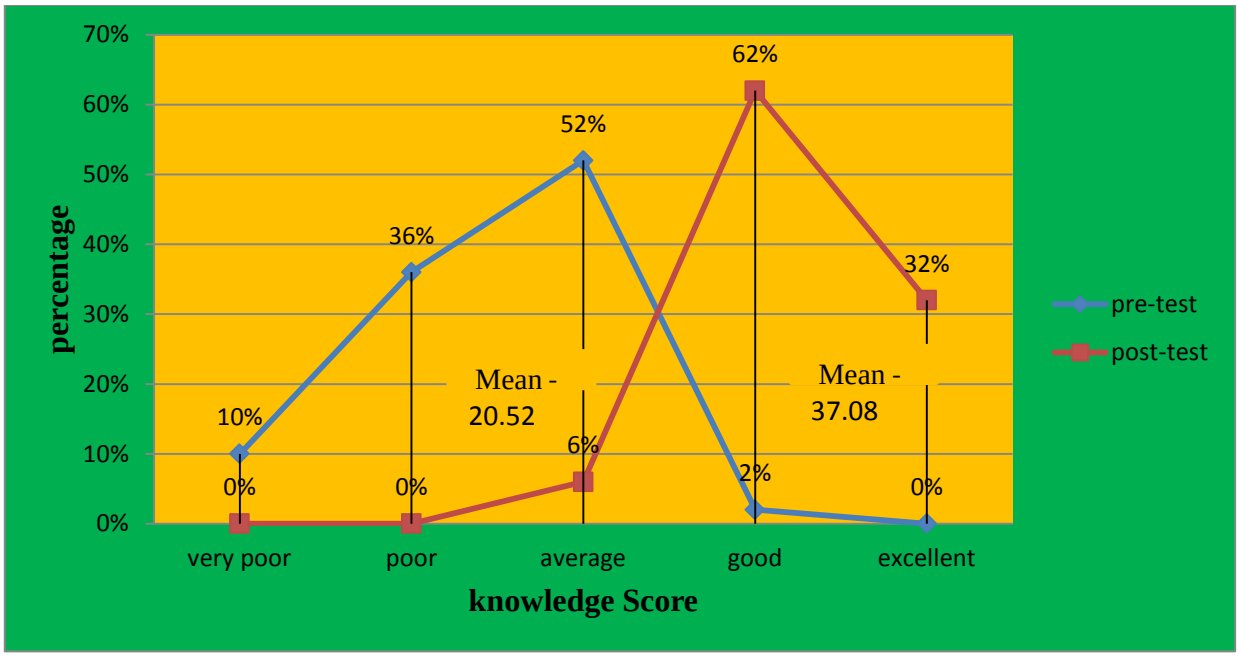

Fig-1 and Fig-2 reveals that highest pre-test mean score is between 21-30 "Average" which is obtained by 52% of antenatal mothers ,the lowest mean score between 31-40 "Good" obtained by 2%. The highest post-test mean score is between 31-40 "Good" which is obtained by 62% of antenatal mothers whereas the lowest mean score is between 21-30 "Average" obtained by 6% of antenatal mothers. None of them secured between 0-10, 11-20... It shows effectiveness of STP.

H1 – There will be significant difference between pre and post-test knowledge scores of antenatal mothers regarding genetic counselling for prevention and control of mental illness.

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Table-3 Comparison between difference of pre and post-test knowledge scores of antenatal mothers regarding genetic counselling

AREA	't' VALUE	LEVEL OF SIGNIFICANCE
General information on mental illness	7.02	Highly significant
High risk pregnancy	3.53	Highly significant
Genetic counselling	7.83	Highly significant
Prenatal genetic tests	8.801	Highly significant

(df = 49), (Table value= 2.00), (P≤ 0.05)

Table-3 reveals that Paired 't'test was calculated to assess the significant difference between pre and post-test knowledge scores which shows highly significant difference between area wise score values of pre-test and post-test knowledge scores. Hence, the statistical hypothesis is accepted. Thus it can be interpreted that Structured Teaching Programme is effective for all the areas.

H2 – There will be a significant association between post-test knowledge scores with selected demographic variables.

Table-4 Association between post-test knowledge scores of the antenatal mothers on genetic counselling with selected demographic variables

Demographic variables	Chi square value ($\chi 2$)	Df	Table value	Level of significance
Age of mother	2.47	3	7.82	Not significant
Education	39.51	3	7.82	Highly significant
Religion	0.16	3	7.82	Not significant
Parity	1.19	1	3.84	Not significant
Type of family	0.515	2	5.99	Not Significant
Monthly income of family	6.89	3	7.82	Not significant
History of mental illness	0.049	1	3.84	Not Significant
Areas of living	6.483	2	5.99	Highly Significant
Previous knowledge	24.2	1	3.84	Highly significant
History of medical disease of mother	2.09	1	3.84	Not significant

(P≤0.05)

Table-4 reveals that Chi square was calculated to find out the association between post-test knowledge scores of antenatal mothers with their selected demographic variables. From above Chi square test it was interpreted that there is significant association between post-test knowledge scores among antenatal mothers on genetic counselling when compared to education, previous knowledge and areas of living at 5% level of significance. There is no significant association between post-test knowledge scores among caregivers when compared with age, religion, parity, types of family, monthly family income, history of mental illness, history of medical diseases at 5% level of significance.

RECOMMENDATIONS

Keeping in view the findings of the present study, the following recommendations were made:

- A similar study can be conducted with a very large sample size for wide generalization.
- A similar study can be undertaken in different settings like hospitals, psychiatric centres.
- A similar study can be under taken by considering control group.
- A similar study can be conducted among nurses and other groups.
- Similar study can be conducted by using various instructional media obtaining effective method E.g, VATM, demonstration.

CONCLUSION

From the analysis and findings of the present study it can be concluded that STP on genetic counselling was effective in improving the knowledge and prevention and control of mental illness among antenatal mothers.

- **Conflict of interest :** Nil
- **Source of funds :** Self
- **Ethical consideration:** The permission was obtained from the corporator of the Kalarahanga village (ward no-3), Bhubaneswar, Odisha. Written

informed consent was obtained from the study participants before data collection.

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