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KNOWLEDGE REGARDING PREVENTION OF MODIFIABLE FACTORS OF CONGENITAL ANOMALIES AMONG REPRODUCTIVE WOMEN: A QUASI-EXPERIMENTAL STUDY

Obstetrics & Gynaecology

Anima Kumari Gupta — Sister Tutor, Nursing Training School, Howrah District Hospital, West Bengal, India

Debarchana Mandal — Reader, College of Nursing, R. G. Kar Medical College and Hospital, West Bengal, India

Sumana Saha* — Faculty, College of Nursing, R. G. Kar Medical College and Hospital, West Bengal, India
*Corresponding Author

ABSTRACT

Congenital anomalies contribute to a large fraction of childhood mortality and morbidity. Children with congenital anomalies become an emotional burden to the family.[2,3] The purpose of this study is to assess the effect of structured teaching programme on knowledge regarding prevention of modifiable factors of congenital anomalies among reproductive women and to find out the association between knowledge score with selected demographic variables. Investigators conducted a quasi- experimental study following one group pretest post-test design at selected sub-centres under Bandipur Block Primary Health Centre, North 24 Parganas, West Bengal. 60 reproductive women, residing at rural community were selected through non-probability convenience sampling technique following inclusion and exclusion criteria. Data related to socio-demographic characteristics of participants and their knowledge regarding prevention of modifiable factors of congenital anomalies was collected through validated questionnaires. Result showed 45% participants have average knowledge and only 3.33% were very good in pre-test. Whereas maximum 86.67% participants' knowledge regarding prevention of modifiable factors of congenital anomalies was excellent and 13.33% were very good in post-test, with a mean difference of 09.35 which was found to be statistically significant 't' (35.35), df (59), $p< 0.01$. Result also shows significant association with their educational qualification as $\chi 2$ (05.25) df (1) at $p< 0.05$. Based on the findings, it can be concluded that the structured teaching programme was effective in enhancing knowledge level regarding prevention of modifiable factors of congenital anomalies, which had a significant association with their educational qualification among participants.

KEYWORDS

Modifiable factors, congenital anomalies, structured teaching programme, birth defects, reproductive women.

INTRODUCTION

Babies come into the world with a bunch of good news but there are some unfortunate babies whose birth is clouded with sadness and worry for the parents because of their birth defects. [1]

Congenital anomalies are structural, functional and metabolic defects that develop during the organogenesis period and present at birth or detected later in life.[4]Congenital anomalies can occur in isolation or as a group of defects. [5] Etiology of isolated defects can differ from the etiology of multiple defects. [6] Approximately 50% of congenital anomalies cannot be linked to a specific cause. Genetic causes may occur from inherited or genetic mutations. Chromosomal abnormalities including Down syndrome, advance maternal age, diseases like zika virus, syphilis and rubella, lack of screening and prenatal care, inadequate access to nutritious foods for pregnant women, contact with alcohol or tobacco, and increased exposure to infection or environmental pollutants increase the risk of congenital abnormalities.[7,8]

Knowledge and beliefs of people on congenital malformations and their causes differ from society to society. Hence, planning a preventive strategy and providing health education on congenital malformations and their causes for parents of children are very necessary. [9]

According to **WHO (2021),** an estimated 29.70% neonatal deaths are due to congenital anomalies in South-East Asia. [10] Globally each year, approximately 295 000 newborns die before 4 weeks of age due to birth defects and associated complications. [7]

The incidence of congenital malformation varies from country to country and from region to region, with a variation of 1.73 to 6.3%. [4] A baby is born with a birth defect in every 4.5 minutes. [11] According to **National Health Portal of India (2021),** the prevalence of birth defects in India is 6-7% is around 1.7 million annually. [12]

Sarkar S, Patra C, Dasgupta MK et al. (2013) conducted a cross sectional descriptive study which established the prevalence of congenital malformations was 2.22% in West Bengal. The Musculo-skeletal system was involved in 33.2% and gastro-intestinal (GI) system 15% cases. In musculoskeletal system Talipes (17.1%) and cleft lip and cleft palate in GI system was most common. The study also established that male babies are more affected with congenital anomalies than female babies. [13]

Ayalew Y, Mulat A , Dile M et al (2017) conducted a community based cross sectional study to assess women's knowledge and associated factors in preconception care and revealed that some modifiable factors such as vaccination, adequate intake of folic acid or iodine through fortification of staple foods or supplementation, adequate antenatal care, avoiding use of unidentified medication during early pregnancy, avoiding alcohol drinking, and exposure to teratogens are significantly associated with occurrence of congenital anomalies.[14] Preventive strategic plans are necessary to create awareness among reproductive women. [15]

Need for the study

Birth defects can cause voluntary abortions and stillbirths; but these are not recognized as causes of mortality and disability among infants and under five children. They can be life-threatening, result in long-term disablement and negatively influence individuals, families, healthcare systems, and societies. Some birth defects are more severe than others, and it is estimated that worldwide 303,000 newborns die within first 28 days of life due to congenital anomalies. [16]Except India, Consanguineous marriages are not common. Few states emphasized on Rubella vaccination as part of pre-conceptional care. All these factors are responsible for increased prevalence of congenital anomalies in India. Early detection of major malformations during early pregnancy is necessary for Medical Termination of Pregnancy, as it can reduce the neonatal morbidity and mortality rates. Timely counseling, regular antenatal care with folic acid supplementation especially during the most sensitive period of embryogenesis is essential to avoid major congenital anomalies for future pregnancy. [1]

Studies emphasized that public health intervention is necessary to enhance the awareness. Thus, knowledge of reproductive women regarding prevention of modifiable factors of congenital anomalies should be enhanced and led emphasis on. So, to determine the knowledge level and administer structured teaching programme to change knowledge level of reproductive women regarding prevention of modifiable factors of congenital anomalies, present study was carried out.

Objectives of the study

1. To evaluate the effect of structured teaching programme on prevention of modifiable factors of congenital anomalies in terms of change in knowledge score.
2. To find out the association between the knowledge score and selected demographic variables.

Hypothesis

H_1 – After administration of structured teaching programme, mean post-test knowledge score of respondents is significantly higher than mean pretest knowledge score as measured by structured knowledge questionnaire at 0.05 level of significance.

Assumption

Reproductive women might have some knowledge regarding prevention of modifiable factors of congenital anomalies and they are willing to learn about this.

MATERIALS AND METHODS

Quantitative research approach and Quasi- experimental one group pretest post-test design was considered most effective to accomplish the objectives of the study. The study was conducted at selected sub-centres under Bandipur Block Primary Health Centre (BPHC), North 24 Parganas, West Bengal. 60 reproductive women were selected as participants from different rural community of West Bengal following non-probability convenience sampling technique, following selected inclusion and exclusion criteria. Data regarding demographic characteristics and pretest and post-test knowledge level of reproductive women were collected by the validated unstructured interview schedule (Tool I) and structured knowledge questionnaire (Tool II). Try out and pre-testing of the tool was done. The reliability of the tool was 0.77, established by Cronbach's Alpha method, indicated that structured knowledge questionnaire was found to be reliable. After considering administrative and formal permission, the final study was conducted from 07/02/2022 to 05/03/2022 in randomly selected 6 sub-centres by lottery method in rural community. Ludwig Von Bertalanffy's General system theory (1968) was used as conceptual framework in this study.

The research design can be presented as: K1 X K2
K1 = Pretest knowledge level of respondents regarding prevention of modifiable factors of congenital anomalies on day 1.
X = Introduction of structured teaching programme on prevention of modifiable factors of congenital anomalies on day 1.
K2 = Post-test knowledge level of respondents regarding prevention of modifiable factors of congenital anomalies on Day 8.

RESULTS AND ANALYSIS

Data was analyzed by using descriptive and inferential statistics. Study findings (table 1) revealed that, maximum reproductive women 36.67% belonged to the age group of 28-36 years, among them majority (61.67%) were Muslim. Maximum 50% respondents were educated upto Madhyamik and 76.67% were homemaker. Maximum 53.33% had monthly family income Rs.20001 – 30000. 31.67% of them had no children yet. Most of the respondents (98.33%) had no history of any congenital anomaly in the family, 76.67% had no history of loss of pregnancy and 55% reproductive women had no history of any co-morbidity. In the pretest, knowledge level of participants regarding prevention of modifiable factors of congenital anomalies ranged between 5-12 and in the post-test it ranged between 15-20. In the pretest, maximum of them (45%) had average knowledge regarding prevention of modifiable factors of congenital anomalies whereas in the post-test, most of them (86.67%) had excellent knowledge. Maximum knowledge gain of reproductive women was in the area of concept of congenital anomalies. The structured teaching programme was found effective in changing the knowledge level of reproductive women on prevention of modifiable factors of congenital anomalies, as calculated t value (35.35) was more than the table value (2.66) at 0.01 level of significance (table 2). Study results (table 3) also showed a significant association between knowledge score of reproductive women with their educational qualification. But, there was no significant association found between knowledge score of reproductive women and other selected demographic variables like age (in years), religion, occupation, history of loss of pregnancy and history of co-morbidities.

DISCUSSION

In this study, it was observed that among 60 respondents, knowledge of 45% women regarding prevention of modifiable factors of congenital anomalies was average, 21.67% had poor knowledge, 30% had good knowledge and only 3.33% had very good knowledge in pre-test. Whereas in post-test, 86.67% respondents had excellent knowledge and 13.33% had very good knowledge but no one had good, average and poor knowledge. Findings are consistent with the findings of study conducted by **Kale AB (2020)** on effectiveness of planned teaching program on knowledge regarding prevention of congenital anomalies among newly married couples, which revealed that among 70 respondents, 69% had poor knowledge in pretest knowledge score whereas maximum 59% had good knowledge in post-test knowledge score. [18] In the present study, the effect of structured teaching programme was measured in change in knowledge score which was significant as the calculated t value (35.35) was more than table value (2.66) df 59 at 0.01 level of significance. This suggests that structured teaching programme was effective in enhancing knowledge of reproductive women regarding prevention of modifiable factors of congenital anomalies. The study findings are supported by another study conducted by **Kumawat HK, Kharadi S, Narayan D et al (2021)** in Rajasthan on effectiveness of health communication programme on knowledge regarding prevention of congenital anomalies among parents, which revealed that mean and SD of post-test knowledge score of parents 23.63±10.5 was higher than mean and SD of pre-test knowledge score 9.97±13.1. It was found that calculated 't' value was 23.13 ($p \leq 0.05$) which showed a significant difference between the pre and post-test knowledge scores, by using paired t test. It suggested that health communication programme had improved the knowledge regarding the prevention of congenital anomalies among parents in the community. [17]

CONCLUSION

On the basis of findings, it can be concluded that structured teaching programme was effective in enhancing the knowledge of reproductive women regarding prevention of modifiable factors of congenital anomalies. The knowledge score of reproductive women had significant association with their educational qualification but no association was found with other selected demographic variables like age (in years), religion, occupation, history of loss of pregnancy and history of co-morbidities. The findings have several implications for nursing practice, nursing education, nursing administration and in nursing research. In recommendation, more awareness programmes are required to enhance the knowledge, so that risk of having children with congenital anomalies can be reduced in both hospital and community settings.

Limitations

The study was limited to small number of participants with no control group, selected through non-probability convenience sampling technique and from selected rural community only, which limits the generalization of the findings.

Conflict of interest Authors declare no conflict of interest.

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Table 1 Distribution of demographic characteristics of reproductive women n=60

Sample characteristics	Frequency (f)	Percentage (%)
Age (in years)		
19-27	18	30
28-36	22	36.67
37-45	20	33.33
Religion		
Hindu	23	38.33
Muslim	37	61.67
Educational qualification		
Upto class VIII	08	13.33
Upto Madhyamik	30	50
Upto Higher Secondary	16	26.67
Graduation	06	10

Table 2 Paired 't' test and its significance between pre-test and post-test knowledge scores regarding prevention of modifiable factors of congenital anomalies n=60

Knowledge score	Range	Mean	Mean Difference	Median	S.D.	't' value
Pretest	05-12	07.92		08	01.74	
			09.35			35.35**
Post-test	15-20	17.27		17	01.30	

Maximum possible score – 20, Minimum possible score – 0
t(df 59) = 2.66 , p<0.01, **Significant

Table 3 Association between knowledge score of reproductive women and selected demographic variables. n= 60

Sample characteristics	Knowledge score		$\chi 2$
	<median	median	
Religion			
Hindu	13	10	01.46
Muslim	15	22	
Educational qualification			
Madhyamik	22	16	05.25*
>Madhyamik	06	16	
Occupation			
Homemaker	19	27	02.28
Working	09	05	

Chi square (df 1) = 3.84, p< 0.05, * statistically significant

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