ASSESSMENT OF THE LEVEL OF KNOWLEDGE OF PREGNANT MOTHERS REGARDING THE EFFECT OF TERATOGENIC AGENTS DURING PREGNANCY

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ABSTRACT:

Many chemicals diffuse readily from the maternal bloodstream to the fetus. Fetal development can be affected by chemical exposure. A descriptive survey design was adopted to assess the knowledge of pregnant mothers on the effect of teratogenic agents on pregnancy. The samples were collected from different hospitals in Ernakulam, Kerala and the data collection procedure was carried out. A sample of 50 pregnant mothers in their first trimester was taken, the data analysis identified about half (44%) of them were in the age group of 21 to 25 years, more than 60% of the samples underwent secondary education and the majority (82%) of the samples were from the nuclear family. (58%) were in first parity and 42% were unemployed. Data analysis was done by descriptive statistics and chi-square statistics were used to find the association between variables. Based on the study (44%) of them had average knowledge regarding the effect of teratogenic agents and (42%) of them had a good knowledge level, just 8% of them had an excellent knowledge whereas (6%) of the sample exhibited poor knowledge. There was a significant association between occupation, parity, and family income with the level of knowledge at p <0.005.

Keywords: *Pregnant Mothers, Teratogenic Effects, Level of Knowledge*

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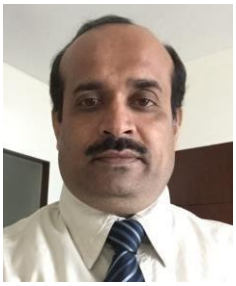

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INTRODUCTION

The knowledge of pregnant women regarding the effects of teratogenic agents is vital in preventing maternal and infant morbidity and mortality rate. The teratogenic agents are causing malformation of an embryo. They mainly include drugs such as anticonvulsants, antineoplastic agents, antibiotics, hypoglycemic agents, radiation, and infections (rubella, chickenpox).

Human reproduction has a high-risk rate of spontaneous loss and congenital malformation. Of all clinically recognized pregnancy (15%) ends in miscarriage and (3-5%) of live birth results in the neonate is identified with a congenital abnormality. It is found that (15%) of all live birth ultimately have malformation when assessed (5-10) years after delivery.[1]

According to the center for disease control, prenatal smoking is one of the most modifiable causes of poor outcomes in pregnancy. Evidence shows the relationship between maternal smoking has detrimental effects not only on the pregnancy but also on the child's health. An estimated (12.2%) to (14.1%) of pregnant women in the United States smoke. Placenta previa, abruption placenta, ectopic pregnancy, premature rupture of membrane, premature birth, and low birth weight are among the smoking-related pregnancy complication. Smoking during pregnancy is associated with fetal chromosomal instability and congenital abnormalities, including heart defect and orofacial defect. There exists a strong association that exists between maternal smoking during pregnancy and sudden infant death syndrome. Lead is considered as a severe environmental poison in the world. Lead is present in many products including petrol, pipes, paints, pottery, glasses, antique toys, and antique paint works.[1]

NEED FOR STUDY

The lifestyle pattern has entirely changed, and thereby, people are exposed to many teratogenic agents that are harmful to the body. In humans, the most vulnerable period is between 3 weeks and eight weeks after the last menstrual period. Unfortunately, most women do not identify they are pregnant until this critical period of development, and thereby, they may not have taken any precaution to avoid exposure to known teratogenic agents. The timing of exposure to teratogens during gestation is the primary factor that determines whether or not a teratogenic effect will be seen and which organ system will be affected etc.

A study conducted by the national institute of occupational health (NIH) under the Indian council of medical research (ICMR) showed various health issues related to lead exposure in pregnant women. The study says that once the lead is in the bloodstream and passes across the placenta especially in the first three months will critically affect the development of the central nervous system of the fetus. Studies show that a high level of maternal lead exposure (>40 mg/dl or 25 mg/dl) appears to reduce fertility and increase the risk of spontaneous abortion and reduce fetal growth (preterm delivery and low birth weight). Maternal blood lead level of approximately 10 mg /dl has been linked to increased risk of pregnancy hypertension, spontaneous abortion, reduced offspring, and neurobehavioral development. [2]

A study conducted by academic medical center Netherland investigated the incidence and distribution of congenital structural cardiac malformation among the offspring of mothers with type I diabetes and of the influence of periconceptional glycemic control. This study shows an increased likelihood of specific heart anomalies, namely transposition of the great arteries and single ventricle among the offspring of diabetic mothers. Pregnancy at first-trimester with glycemic control is more prone to get fetal heart problem. [3]

A study conducted by the American college of obstetricians and gynecologists published that (12.2%) to (14.1%) of pregnant women smokers in the USA undergo ectopic pregnancy and premature birth as the most common complication of smoking.[1]

STATEMENT OF THE PROBLEM

Assessment of the level of knowledge among pregnant women regarding the effect of teratogenic agents on pregnancy and fetal development in selected hospital clinics at Ernakulam.

OBJECTIVES

- To assess the level of knowledge of pregnant women regarding the effect of teratogenic agents
- To determine the association between level of knowledge level and selected demographic variables.

METHODOLOGY

Subjects and procedure:

A quantitative descriptive survey design was conducted to assess the level of knowledge and coping of pregnant mothers in June 2013. The study enclosed 50 antenatal mothers in their first trimester of pregnancy from antenatal clinics of different hospitals from Ernakulam, India. The samples were selected by convenient sampling technique. The hospitals were selected randomly and included Medical trust hospital, Lakshmi hospital, and Mother and Child Hospital in Ernakulam India. Samples of 15 pregnant women were chosen from Medical Trust Hospital, 25 from Mother and Child Hospital, and ten from Lakshmi hospital. Verbal and written consent was obtained from the participants. The demographic profile and knowledge questionnaire were provided to the samples for completion and was supervised by the researcher.

Based on objectives a self-administered knowledge questionnaire was prepared and utilized in the study. The prepared tool with blueprint was given for content validity to the subject experts, and the reliability was established by using the split-half method.

Description of Tool:

The tool has two parts – Part I consisted of demographic proforma, Part II consisted of a self- administered knowledge questionnaire highlighting the key areas of assessment of knowledge regarding teratogens, its causes, and prevention. The tool included seven different sections and a total of 34 questions. The various categories included initially the Basic awareness with (5 questions) which focused on the common Teratogenic agents, their sources, effects, and the stage of pregnancy mainly affected by the teratogens. The second classification was about Drugs with (4 questions) like antibiotics, anticonvulsants and their effects on the fetus, the third section was about Pesticides (6 questions) and it covered common reasons for consumption of pesticides in pregnancy and the common body systems affected in children due to this exposure, Fourth was (6 questions) on common Infectious diseases in pregnancy and their effects on the fetus, Fifth was (3 questions) on Radiation and reason for its exposure during pregnancy and its teratogenic effect. Sixth was (5 questions) Miscellaneous and it covered toxicity of lead, alcohol, diabetes on the fetus, and finally (5 questions) on prevention of teratogenic exposure including early identification, immunization, and other preventive strategies. According to the total score obtained, it was arbitrarily classified into four sections as Excellent (25-32), Good 17 – 24), Average(9- 16), and poor(<8).

RESULTS

Percentage distribution of samples according to demographic variables of pregnant women in their first trimester of pregnancy.

The majority (44%) of the pregnant women were in the age group of 21-25 years of age. Most (78%) of the pregnant mothers were from the urban area, and 44% of the sample was unemployed whereas and (32%) of them worked full time. A large number (44%) of the samples had a family income between 5001-10000. The majority (58%) of the mothers were primigravida, 82% of the mothers belonged to a nuclear family. The majority (60%) of the samples were educated with secondary education.

Table 1: Description of the level of knowledge of pregnant women on teratogenic agents To assess the level of knowledge of pregnant women on teratogenic agents a self- administered knowledge questionnaire was used. The knowledge scores were arbitrarily classified into three levels as Excellent, good, average, and poor.

N = 50

Level of Knowledge	Percentage (%)
Excellent (25-32)	8
Good (17-24)	42
Average (9- 16)	44
Poor (<8)	6

Data presented in Table 1 shows that the majority (44 %) of the pregnant mothers had average knowledge and 42 % had good knowledge whereas just (8%) had an excellent knowledge.

Table: 2 Maximum score obtained, range of score, mean, median and SD of the level of knowledge of nurses

N = 50

Max score	Range	Mean	Median	SD
29	6-29	16.52	16.50	5.24

The data presented in table 2 shows that the Maximum score, range of score, mean, median, and standard deviation of the level of knowledge of pregnant mothers was estimated as 29, 6 – 29, 16.52, 16.50, and 5.24 respectively.

Association of the level of knowledge with demographic variables

Chi-square test computed between the level of knowledge and a few selected variables showed that there was no significant association between the level of knowledge and a few selected variables. The calculated χ 2 value (age in years 0.6, educational status 3.05, type of family 0.0002652, and area of residence -6.24), were less than the table value at 0.05 level of significance. Thus, the null hypothesis H_01 was accepted. The calculated Chi-square χ 2 value (occupation 10.24, family income 10.24, and parity status (128.59) were greater than the tabled value at 0.05 level of significance. Thus, research H_1 was accepted

DISCUSSIONS

In the current study, majority of the mothers had good to average knowledge about the risk associated with teratogenic study which is supported by another study conducted by Yonas et al on the belief of awareness of pregnant women attending the antenatal clinic in Ethiopia on the teratogenic effects of drugs showed that 60.8 % of the participants stated that antibiotic affected both breastfeeding and pregnant mothers.[4]

The current findings are supported by another study conducted in Yemen on the knowledge of pregnant mothers regarding teratogens in which 95.3 percent of the 150 pregnant women had a piece of average knowledge regarding effects of teratogens and 94.7% reported learning about toxoplasmosis, and its serious effects like congenital malformation and abortion. The findings also show knowledge is associated with parity which supports the current study findings[5]. The current study is also supported by another study conducted in 315 pregnant mothers in Saudi Arabia on Knowledge on teratogenic risk in which the mean average ranking for knowledge score was average with a mean ranking score of 7 and the knowledge was statistically significant with income status supporting to the current study .[6]

CONCLUSION

Teratogenic are highly toxic for mother and fetus and it becomes worse if mothers do not know these effects in pregnancy. Nearly half of the mothers were between 44 % were between 21 – 25 years of age, The majority (58%) of the mothers were primigravida. Less than half (32%) worked full time and the highest proportion of mothers (60%) were educated with a degree and almost half (42%) of the mothers had a family income of 5001 – 1000. The current study also concluded that about half (44%) of the pregnant mothers had average knowledge and near half (42%) had good knowledge and a very small number (8%) of the pregnant mothers had an excellent knowledge regarding teratogenic effects on Pregnancy, On the other hand, the minority (6%)of the mothers had poor knowledge.

The demographic variables like family income, parity, and occupation were associated with the level of knowledge at $p< 0.05$ there existed no association between the level of knowledge with certain demographic variables like age, educational status, type of family, and area of residence.

Implications

The findings of the study have several implications for nursing practice, nursing education, nursing administration, and nursing research.

Nursing practice:

In nursing practice, it helps to include prevention strategies through the dissemination of information in the preconception clinics. It also helps to conduct prenatal screening and diagnostic techniques have which can lead to increased recognition of abnormality, particularly in early pregnancy.

Nursing Administration:

The findings help to plan for educational programs at the PHC level for nurses as well as midwives on the importance of screening antenatal mothers and the significance of teaching the mothers regarding teratogen

and its effects on pregnancy.

Nursing Education

In nursing education, it helps to include education for student nurses, modification of syllabus, community curriculum modification for developing knowledge regarding teratogenic agents on pregnancy.

Nursing research

In Nursing research these are helpful to develop the quality of nursing care delivered to pregnant mothers as well as enables further modifications.

Limitations

1. Since the sample was conducted on a small sample, a generalization of findings is restricted.
2. The study was conducted only in the first semester of pregnant women and second and third trimesters were not included.

Recommendations

1. The study can be done on a large sample for generalization of findings.
2. An interventional study can be done on knowledge of teratogenic agents.

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