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Knowledge and perception of mothers regarding childhood immunization in a tertiary care teaching hospital in Bhubaneswar

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ABSTRACT

Introduction: Immunization prevents many life-threatening diseases among infants and children. Proper vaccination has to be given at proper time in a proper route. For this it is necessary to have proper knowledge of mothers so that they are motivated to bring their children for vaccination. In this background, the present study was planned to vaccination to find out the role of socio-demographic characteristics on knowledge of mothers regarding immunization and to find out the level of knowledge of mothers regarding immunization of their children. **Materials and methods:** It was a hospital-based cross-sectional study conducted at an immunization clinic of Hi-Tech Medical College and Hospital, Bhubaneswar, among 50 mothers who brought their children for immunization at immunization clinic from November, 2013 to February, 2014. Mothers were asked 12 questions regarding knowledge on immunization and their knowledge was assessed based on their socio-demographic characteristics. **Results and analysis:** All mothers knew that vaccination prevents diseases. Majority (96%) were in favor of vaccination. Briefly, 50% mothers did not know that with mild illness vaccination can be given and 78% mothers were in favor of massage of local area after vaccination, while 32% mothers were totally unaware about the danger of delaying of vaccination. Majority (84%) did not know which vaccines were being given to their children and what are the diseases these vaccines prevent. In total, 66% mothers did not know when to bring their children next time for vaccination. Education has no significant role in changing the knowledge regarding vaccination. However the working mothers had significantly better knowledge than those who were housewives. **Conclusion:** Four key messages regarding the vaccine is must which should not be ignored during immunization session. Proper knowledge of mothers will increase their acceptability for vaccinating their children and the chance of drop out would be minimized.

Key words: Immunization, Knowledge, Perception, Vaccination

INTRODUCTION

Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases like diphtheria, measles, and polio. The fact is that immunization has made many infectious diseases rare or almost unheard of can lead to the opinion among parents and health professionals that immunization is no longer necessary. Owing to gaps in vaccination coverage disease outbreak occurs affecting everyone in the society.

If proper immunization is given from very beginning of life (first day of life) the body's immune system becomes stronger so that the agents cannot enter the human body. Thus timely and scheduled immunization helps in building healthy individual, free of fear of onset of disease or contact of disease, which is essential to build healthy human society.

For optimum immunization of children every country has their National Immunization Schedule. Every child should be vaccinated timely and completely according to the schedule. In India the timeliness and completeness of primary as well as booster immunization are not up to the mark. There is wide variation of immunization status of children living in different states of this large country. Intra-state variation according to geographical area is also seen. Cultural practice of the community, educational status of mothers, and other socio-demographic characteristics play a significant role in vaccinating the child.

Vaccination plays a great role in health promotion. Disease prevention is the key to public health. It is always better to prevent a disease than to treat it. Vaccines prevent disease in the people who receive them and protect those who come into contact with unvaccinated individuals. Vaccines help in prevention of infectious diseases and save lives. Vaccines are responsible for the control of many infectious diseases that were once common in this country, including polio, measles, diphtheria, pertussis (whooping cough), rubella (German measles), mumps, tetanus, etc. Vaccine-preventable diseases have a costly impact, resulting in doctor's visits, hospitalizations, and premature deaths. Sick children can also cause parents to lose time from work.

Parents are constantly concerned about the health and safety of their children and take many steps to protect them. Vaccines work to protect infants, children, and adults from illnesses and death caused by infectious diseases that can be passed on to people who are not protected by vaccines.

In this background, the present study was planned at an immunization clinic of Hi Tech Medical College and Hospital, Bhubaneswar, among mothers bringing their children for vaccination to find out the role of socio-demographic characteristics on knowledge of mothers regarding immunization and to find out the level of knowledge of mothers regarding immunization of their children.

MATERIALS AND METHODS

i. Study Area

The study was conducted at an immunization clinic of Hi-Tech Medical College and Hospital, Bhubaneswar, Odisha, in the eastern part of India.

ii. Study Subjects

The study was conducted among mothers coming to the immunization clinic of Hi-Tech Medical College and Hospital to immunize their babies.

iii. Study Design

It was a hospital-based cross-sectional study.

iv. Study Period

November 2013 to February 2014.

v. Study Tools

A pre-designed, pre-tested, semi-structured questionnaire was used for data collection.

vi. Study Technique

Mothers were interviewed about their knowledge and perception regarding childhood immunization and post-immunization care.

vii. Sample Size

Data were collected from 50 mothers after taking informed consent.

viii. Inclusion Criteria

i. Mothers having baby of up to 10 weeks of age during the first visit or aged more than 10 weeks but have come to receive either DPT-1/ Pentavalent-1, OPV-1, HBV-1 or DPT-2/ Pentavalent-2, OPV-2, HBV-2.

ii. Mothers who gave informed consent to take part in the study.

ix. Exclusion Criteria

i. Mothers having baby who came to receive either 3rd or booster dose of DPT, OPV or measles or for secondary immunization.

ii. Mothers who did not wish to give informed consent to take part in the study.

iii. Mothers who did not come back for next dose of vaccination of their babies during the study period.

Table 1: Score for different questions on knowledge of vaccination

Question	Possible scores		
	2	1	0
Does vaccination prevent disease?	Knows completely	Knows partially	Does not know
Are you in favor of vaccination?	Knows completely	Knows partially	Does not know
Is vaccination harmful?	Knows completely	Knows partially	Does not know
Will you recommend vaccination to others?	Knows completely	Knows partially	Does not know
Today which vaccine would be given to your child?	Knows completely	Knows partially	Does not know
What are the vaccines given to the child for disease prevention?	Knows completely	Knows partially	Does not know
What are the diseases prevented by vaccination?	Knows completely	Knows partially	Does not know
Is there any problem if vaccination is delayed?		Knows completely	Does not know
Is there any dietary restriction after vaccination?		Knows completely	Does not know
Is massage needed after vaccination?		Knows completely	Does not know
With mild illness can the child be vaccinated?		Knows completely	Does not know
Next time when to bring the child for immunization?		Knows completely	Does not know

iv. Mothers who did not wish to participate in the 2nd interview.

x. Parameters Used

Age, education, occupation of mothers, per capita income in the family, knowledge and perception regarding vaccination, e.g., importance of timely vaccination, prevalence of diseases, role of different community members in the society, problems faced for immunization.

xi. Knowledge Score of Mothers

Knowledge of mothers regarding childhood immunization was assessed by asking questions to them and according to the level of knowledge scoring was given. In total, 12 questions were asked. Then intervention was delivered in the form of health education about the proper knowledge regarding vaccination. The level of knowledge of mothers were again assessed by repeating these 12 questions to the mothers who returned back for immunizing their children for the next dose of vaccination. Total knowledge score was compared before and after intervention. Table 1 shows the questions on knowledge of vaccination.

xii. Statistical Analysis

After collection of data it was double entered in Microsoft excel sheet and verified. A clean datasheet was generated and copied into SPSS sheet (Version 16.0). Then the whole analysis was performed in SPSS. Bar diagram and pie charts were prepared for graphical representation of data. Independent sample t-test and correlation were the main statistical tests of significance used in this study.

RESULTS AND ANALYSIS

Table 2 shows the knowledge and perception of mothers regarding vaccination of their babies. It is seen that 100% of the mothers knew that vaccination prevents diseases. In total, 96% of mothers were in favor of vaccination. Majority of the mothers (82%) knew that vaccination was not harmful for their babies. Briefly, 78% of the mothers told that they will recommend vaccination to others. Only 38% of the mothers knew the name of vaccines to be administered to their children. A few mothers (2%) knew the name of various vaccines given for disease prevention. Only 6% of the mothers were aware about the diseases preventable by early and timely vaccination. Majority of the mothers (68%) opined that problem will occur if vaccination is delayed. Most of the mothers (72%) said that diet restriction is needed after vaccination. Briefly, 78% of the mothers told that massage is not needed after vaccination of their babies. Half of the mothers told that with mild illness children can be vaccinated and half of them denied the fact and most of the mothers (66%) were unaware about the next date for immunization of their babies.

Figure 1 describes that 70% of the mothers chose this private facility for near distance, 24% of them chose for relative working here/ staff reference and only 6% of them chose for better facility.

In Table 3, the Anova test shows that the total knowledge score of mothers having different educational levels is not significant (0.148).

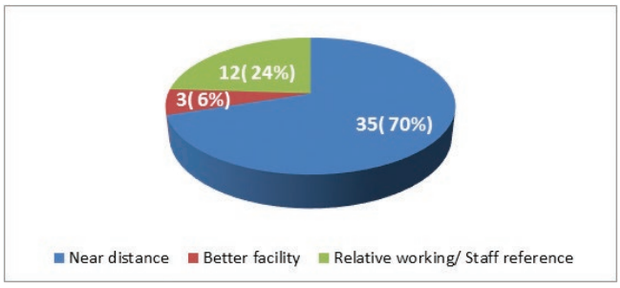

Figure 1: Reasons for choosing private facility

Table 2: Knowledge and perception of mothers regarding vaccination of their children

Question	Score		
	2	1	0
Does vaccination prevent disease?	50 (100%)	0 (0%)	0 (0%)
Are you in favor of vaccination?	48 (96%)	2 (4%)	0 (0%)
Is vaccination harmful?	41 (82%)	5 (10%)	4 (8%)
Will you recommend vaccination to others?	39 (78%)	7 (14%)	4 (8%)
Today which vaccine would be given to your child?	19 (38%)	20 (40%)	11 (22%)
What are the vaccines given to the child for disease prevention?	1 (2%)	7 (14%)	42 (84%)
What are the diseases prevented by vaccination?	3 (6%)	5 (10%)	42 (84%)
Is there any problem if vaccination is delayed?		34 (68%)	16 (32%)
Is there any dietary restriction after vaccination?		36 (72%)	14 (28%)
Is massage needed after vaccination?		11 (22%)	39 (78%)
With mild illness can the child be vaccinated?		25 (50%)	25 (50%)
Next time when to bring the child for immunization?		17 (34%)	33 (66%)

Table 3: Relationship between education of mother and total knowledge score

Total score	Sum of squares	Degree of freedom	Mean square	*F*-value	*P*-value
Between groups	23.503	3	7.834	1.872	0.148
Within groups	192.497	46	4.185		
Total	216.000	49			

*Statistical test performed – Anova test.

In Table 4 it is noted that mothers who were Housewives, have mean total knowledge score of 12.12 as compared to those who were working have mean total score 14.14 and this difference is statistically significant ($P = 0.016$).

Table 5 shows that there is no significant coefficient correlation ($P = 0.714$) between total knowledge score of mothers and age of mothers. Pearson's correlation coefficient is 0.054.

Table 6 shows that the mean total knowledge score of mothers belonging to nuclear family is 13.00 as compared to that of joint family 12.21 and this difference is not statistically significant ($P = 0.260$).

Table 5: Correlation between age of mothers and total knowledge score

Comparing variables	Pearson correlation coefficient	*P*-value
Age of mothers with total knowledge score	0.054	0.714

*Statistical test performed – correlation.

Table 6: Relationship between type of family and total knowledge score

Type of family	Number (%)	Mean total score	Standard deviation	Standard error mean	*P*-value
Nuclear	12 (24%)	13.00	2.523	0.728	0.260
Joint	38 (76%)	12.21	1.947	0.316	

*Statistical test performed-independent sample *t*-test.

DISCUSSION

In spite of the effort of the govt. to prevent vaccine preventable diseases by vaccination it has been found that the proportion of children vaccinated is not 100% and it varies according to the particular vaccine and the particular areas in which the children live. Many socio-demographic parameters often play a great role in taking decision to vaccinate or not to vaccinate the child.[1] Usually in India mothers bring the children for vaccination. In this regard the socio-demographic parameters and knowledge of mothers often take a leading role in taking decision regarding vaccinating their children. This finding was matched with the study by Kitamura et al.[2]

The present study was conducted in an immunization clinic of a Medical College and Hospital (Hi-Tech Medical College and Hospital, Bhubaneswar) to find out the knowledge and perception of mothers regarding childhood immunization.

In India teenage pregnancy is not uncommon. Young mothers who give birth to a child at very tender age often are not able to rear their children properly. Teenage pregnancy is associated with early school dropout and the knowledge of these mothers is often poor which is reflected in the knowledge of child rearing practice also. Wilson et al[3] revealed that practice of childhood vaccination is poor among younger mothers. Bbaale[4] in a study in Uganda has found significant association between ages of mothers with their knowledge regarding children. However, in the present study no significant correlation between ages of mothers and their knowledge scores regarding childhood immunization is seen. This finding is collaborated to finding of Etana et al.[5] The present study was conducted in the city of Bhubaneswar, which is the capital of Odisha and the minimum age of mothers was found to be 20 years. Hence, no teenage mother came to the immunization clinic during the study period and as a result of it the correlation between age of mothers and total knowledge scores of them has not shown any significant relationship.

In formal education a person is often educated about the ways of normal day to day practice. Hence, mother's educational status is often linked with their knowledge and practice regarding immunization of their children.[6] In the developing country like India where social taboos and customs often prevent a child to get vaccinated, adequate education of mothers can fight against this and help the child to get vaccinated. In studies by Rammohan et al[7] and Vikram et al,[8] it has been found that with the maternal education of secondary level and above the likelihood of child to get vaccinated is significantly increased. In some other studies from different parts of the World like study by Fatiregun et al[9] also found the significant association of education of mothers with their knowledge regarding childhood immunization. But in the present study no

Table 4: Relationship between mothers' working status and total knowledge score

Mothers' working status	Number	Percentage	Mean total score	Standard deviation score	Standard error of mean	*P*-value
Housewife	43	86	12.12	2.049	.313	0.016
Working	7	14	14.14	1.574	.595	

*Statistical test performed – Independent sample *t*-test.

significant association was found between education of mothers and their total knowledge scores. It may be due to small sample size or it may also happen that in all communities formal education and the knowledge regarding childhood vaccination do not go hand in hand. Further, it has also been noted that with health education session the knowledge scores of mothers belonging to all educational levels increased significantly.

In India till now a large proportion of women are housewives. Often it is postulated that housewife mothers rear their children better than the working mothers. But working mothers get chance to interact with more people and so their knowledge levels is often better than housewives. In the present study it has been found that the knowledge level of working mothers regarding childhood immunization was significantly better than housewives. However, with health education session the knowledge of both increased significantly.

While assessing the knowledge levels of mothers regarding childhood immunization some questions were asked to them. All of the mothers agreed that vaccination prevents disease and most of them were in favor of vaccination. This finding was also supported by the study of Tarrant et al.[10] In spite of the above fact 8% mothers thought that vaccination is harmful and they would not recommend vaccines to others. It was found that only 2% mothers know fully the name of vaccines which are given to the child for disease prevention and only 6% mothers fully knew the names of the childhood diseases which are prevented by vaccination. This is corroborated with the findings of Tobin-West et al,[11] who found that 15.2% mothers new the names of six vaccine preventable diseases. The knowledge regarding post-immunization care and problem of delayed vaccination were also far below the desired level.

Keeping all these deficiency pockets in knowledge health education session is must for mothers regarding the knowledge of childhood immunization. Hence, Government of India has initiated to train the ANMs to deliver four key messages to caregivers when they are bringing their children during immunization session. However, the proper utility of that tool is not there in many places.

This study indicates that still there is huge lack of knowledge of mothers regarding immunization of children. Although there are different factors governing the childhood vaccination, if mothers are educated by regarding the proper knowledge, the overall improvement can happen in childhood immunization as mothers with proper knowledge will bring their children for immunization at proper time and it is also likely that the post-immunization care will also be delivered properly. Overall the burden of infectious diseases among children may go down.

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