



ASSESSMENT OF MOTHERS KNOWLEDGE REGARDING IMMUNIZATION OF THEIR CHILDREN IN URBAN AND RURAL AREA

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ABSTRACT

Background: Knowledge, attitude and practice of mothers regarding the basic health care needs of their child are pivotal for maintaining good health and creating a better future. Immunization is one of the vital components that determines the health of a child, as children during their early ages are susceptible to infectious disease because their immune system is not fully developed. This study aimed to determine the knowledge of mothers regarding vaccination and its various aspects in both urban and rural areas and to determine the impact of counselling.

Methodology: Our study was an observational cross-sectional study with 300 participants of which 150 were from rural and 150 from urban locations and the study was carried out in Eraviperoor Gramapanchayath and Thiruvalla Municipality from Pathanamthitta district. **Result:** Compared to rural mother's urban mothers had satisfactory knowledge on various aspects of vaccination such as; timely vaccination and its importance, VPDs, standard doses of vaccine. **Conclusion:** Mothers in urban areas have better knowledge regarding healthcare in terms of vaccination. But it was found with the selected group of respondents for the study that the intervention given in the form of counselling resulted in increasing the knowledge regarding the same among both groups. So proper counselling and a holistic level of support and guidance should be given to mothers, which is possible by strengthening and streamlining the existing programs designed for the same.

KEYWORDS: Vaccine preventable diseases; Healthcare, Vaccination.

INTRODUCTION

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine.^[1] Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease.^[2,3] It is one of the most significant contributions of the medical fraternity to mankind as Sir William Foege said once "Vaccines are the tugboats of preventive health".^[4,5] Immunization is the cost effective, safest and efficient health investments for saving millions of lives and averting morbidity, mortality and disability by VPDs.^[6] The major VPDs are diphtheria, tetanus, Hib, whooping cough, tuberculosis, poliomyelitis, mumps, rubella, and hepatitis B.^[7]

As per the estimates of WHO, globally 2 to 3 million deaths are averted each year with immunization and it has moved to centre stage as one of the vital driving forces in reducing mortality.^[8] Besides this it also provides a range of other benefits such as disease control and elimination, prevention of drug resistance and overall economical and societal well-being.^[9] Diseases of early childhood

preventable by vaccination remain a serious problem in developing countries as immunization is an essential health care component and also is a necessary intervention of child care.^[10,11] The government of India has initiated the universal immunization program with the objective of eradicating vaccine preventable diseases from India. According to UNICEF, 2010; in India, out of 26 million infants, all due vaccines were taken by only 61% ensuring that all the infants getting the benefits of vaccines in India is a challenging task.^[12]

Vaccination scene in India has been at crossroads as newer vaccines are being regularly licensed in the country and India is one of the leading producers and exporters of vaccines, it has one of the lowest immunization coverage rates in the world.^[9,5] Under five mortality rate is still a burning issue in the developing world including India.^[13] UNICEF's annual reports mention that the health status of our children is worse than some of our neighbouring countries, and comparable to Sub-Saharan African countries.^[14] In spite of some notable gains still much need to be done in

India, especially in low performing areas.^[13]

Even though the budget allocation is very high, the benefits of these programmes are not reaching the majority of children who are at high risk of these VPDs. The most challenging task is therefore to ensure that all the infants of India are getting benefits of these vaccinations.^[15,16] As per the recent report (January 2019) of the MoHFW immunization coverage of India grew at the rate of 1% point per year and India's vaccination coverage grew from 35% in 1992-93 to 62% in 2015-16.^[17]

Kerala's achievements in the health sector have been often cited as role models for the country. Some of its health indices match with that of the developed countries. The state has a better health standard with low birth and death rate, rapidly declining growth rate, high level of acceptance of family planning methods and increased life expectancy. While providing quality healthcare affordable and acceptable to all, the state is also focused on prevention, control and management of communicable diseases and other healthcare problems. Latest Vaccination Coverage Evaluation Survey shows that 87.9 % of children are fully immunized though the percentage of full immunization by age 12 months is 82.9. Further the recently conducted DLHS III shows 79.5% coverage for full immunization. Many initiatives have been taken to improve the immunization status in the state such as outreach immunization camps, services through ASHA workers, immunization sessions conducted in the remote areas etc.^[18,19,20] Parental decisions regarding immunization are very important for increasing the immunization rate and compliance and depend heavily on their knowledge and attitude regarding immunization.^[12] Child care is mostly the responsibility of mothers irrespective of education, income and social class differences and is well established that the welfare of a child and his/her future depend upon the care and attention bestowed upon him before and after birth. The nature and quality of care depends on the mother's knowledge regarding child care since immunization is a major aspect of child care mother's knowledge regarding immunization practices is also pivotal.

Providing health education to mothers, particularly the illiterate mothers and the adolescents girls who are the future mothers may be a key factor in increasing the EPI coverage and sustain achievement.^[21] Even though Kerala is a state with a high literacy rate among the other states of the country; there are many factors that affect the immunization attitude of parents, including Misinformation about vaccines, Adverse effects of vaccines, VPDs and disease development after the administration of vaccines, Deficiencies in parent's knowledge about the adverse effects and contraindications of vaccines, Lack of health services and other infrastructures in rural areas, Lack of communication between parents and health care

providers & Impact of myths and believes souring immunization.^[12,22]

MATERIALS AND METHODS

The study was designed as a prospective cross sectional study to determine the knowledge of urban and rural mothers regarding immunization of their children in urban and rural area and to determine the impact of counselling. The study was carried out in 300 subjects 150 each from urban and rural area and the data was collected using a structured questionnaire that contained various questions to meet the objectives.

Location of the study

The study was carried out in Eraviperoor Gramapanchayath and Thiruvalla Municipality from Pathanamthitta District on the topic "ASSESSMENT OF KNOWLEDGE OF MOTHERS REGARDING IMMUNIZATION OF THEIR CHILDREN IN URBAN AND RURAL AREA".

Duration of study: Six months.

Sample size: The sample was calculated to be 300; 150 mothers each from urban and rural area using the statistical formula

$$\frac{Z^2 \times P(1+P)}{e^2} \div \left[1 - \frac{Z^2 \times P(1+P)}{e^2 N} \right]$$

Where,

P	=	Standard deviation
N	=	Population size
e	=	Margin of error
Z	=	95% Confidence interval of Z ²
P	=	Standard deviation
N	=	Population size
e	=	Margin of error
Z	=	95% Confidence interval of Z ²

Inclusion criteria

- Mothers of 0 months- 5 years old children.

Exclusion criteria

- Mothers who are not willing to participate.

Data collection procedure

Participants who were willing to participate and who have given a written informed consent were taken into study and were asked to fill a prepared questionnaire to determine their knowledge regarding immunization of their child. Questionnaires were filled through face-to-face interviews with participants and data were collected. Later counselling was given to mothers and their

knowledge regarding immunization of their child was again collected, after that leaflet regarding the same were given to mothers. After one month of data collection, their knowledge regarding immunization was again monitored and recorded.

RESULTS

The study focused on obtaining data on awareness of mothers regarding immunization of children in Urban and Rural areas. This was a cross sectional study conducted in Eraviperoor Grama Panchayath and Thiruvalla municipality of Pathanamthitta District. The data were collected using a structured questionnaire.

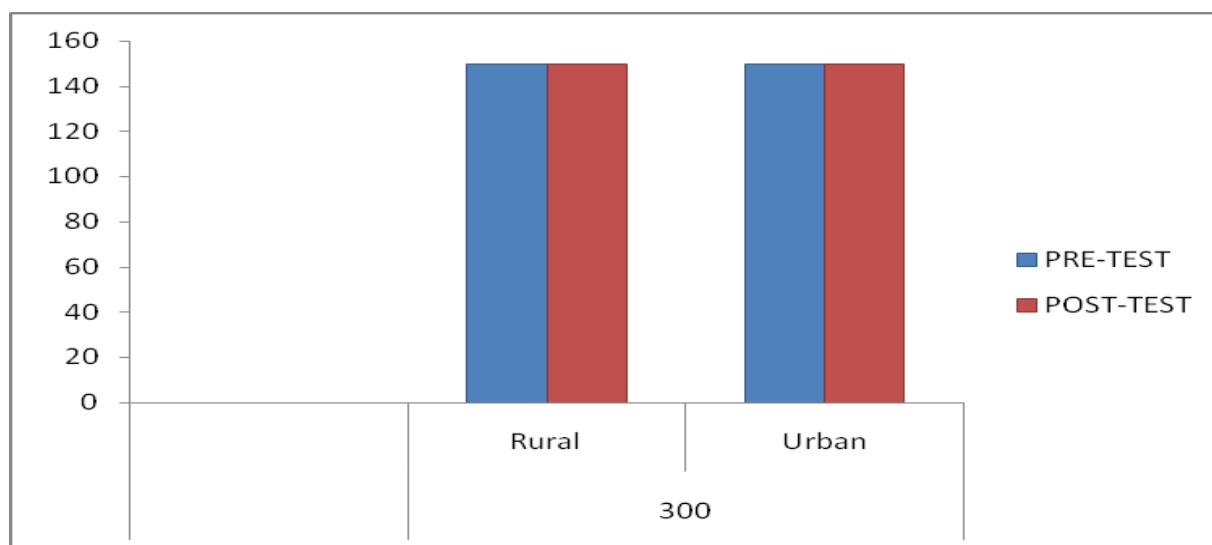


Figure1: Distribution of subjects enrolled in the study.

In our study the total population was 300 mothers, 150 test study.
mothers each in urban and rural group pre-test and post

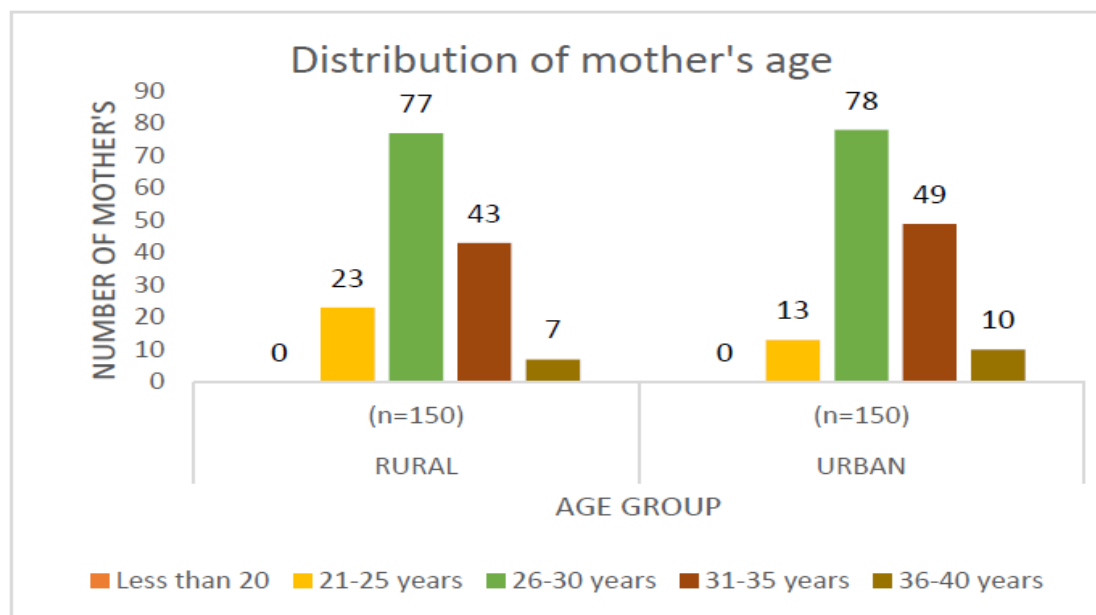


Figure 2: Distribution of mother's age group.

300 participants in our study was divided into 5 groups based on their age, out of which the maximum respondents were from the age group 26-30 (77 were from Rural area and 78 were from Urban area) followed by the age groups 31-35, 21-25, 36-40 years. There were no participants from both urban and rural area that belong to the group of less than 20.

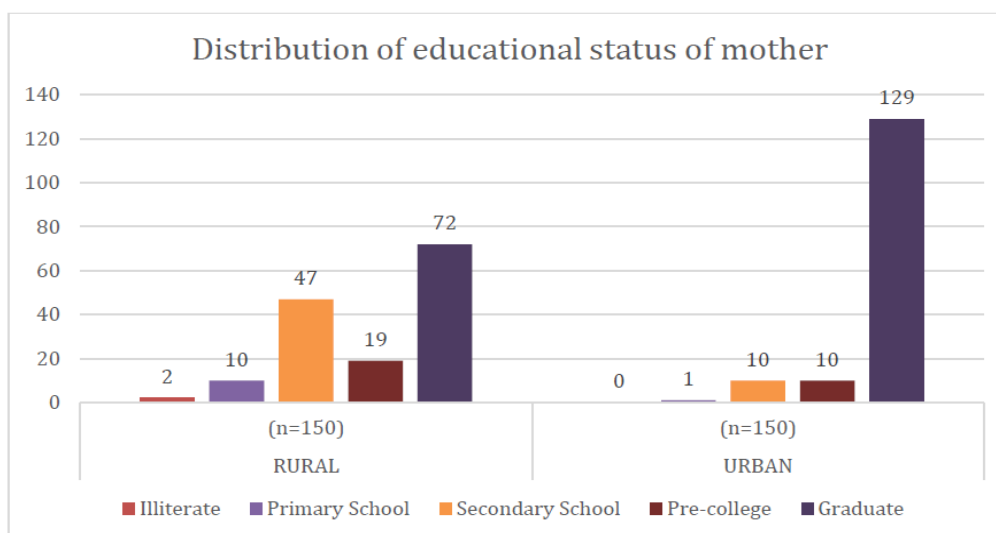


Figure 3: Distribution of educational status of mother.

The figure shows that the total population of 300 was divided into urban and rural groups each having 150 samples, which was again divided into 5 groups based on their educational status. Here the number of graduate mothers were 72 in rural area and 129 in urban area followed by mothers with secondary school education which was 47 in rural area and 10 in

urban area followed by mothers with primary school education which was 10 in rural area and 1 in urban area followed by mothers with pre-college school education which was 19 in rural area and 10 in urban area. The number of illiterate mothers in rural areas was 2 and there were no such mothers in urban areas.

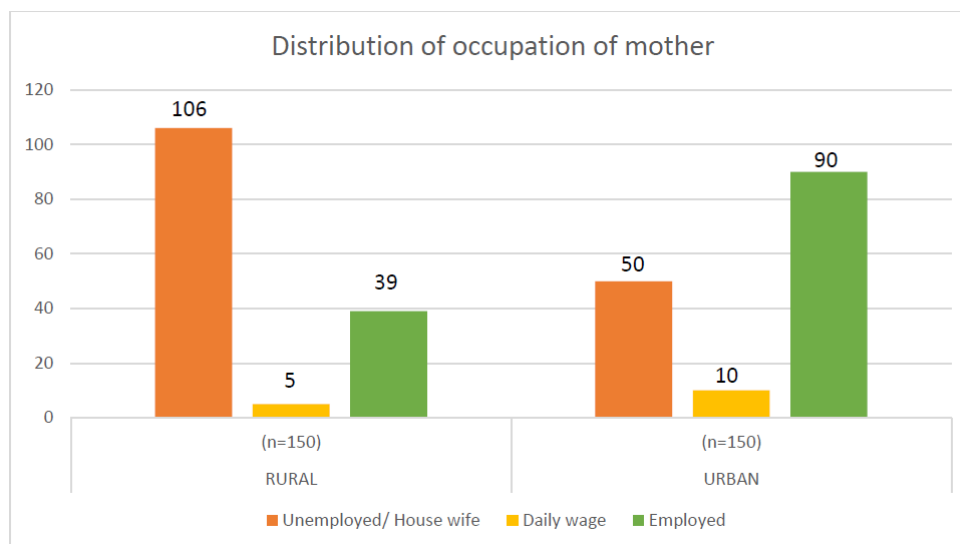


Figure 4: Distribution of occupation of mother.

The above figure reveals that the total study population of 300 was divided into urban and rural groups each having 150 samples, which was again divided into three groups (Unemployed /Housewife, Daily wage, Employed). Here the number of unemployed mothers/Housewife were 106 in Rural area and 50 in Urban area, the number of daily wage mothers were 5 in Rural area and 10 in Urban area and the number of employed mothers were 39 in Rural area and 90 in Urban area.

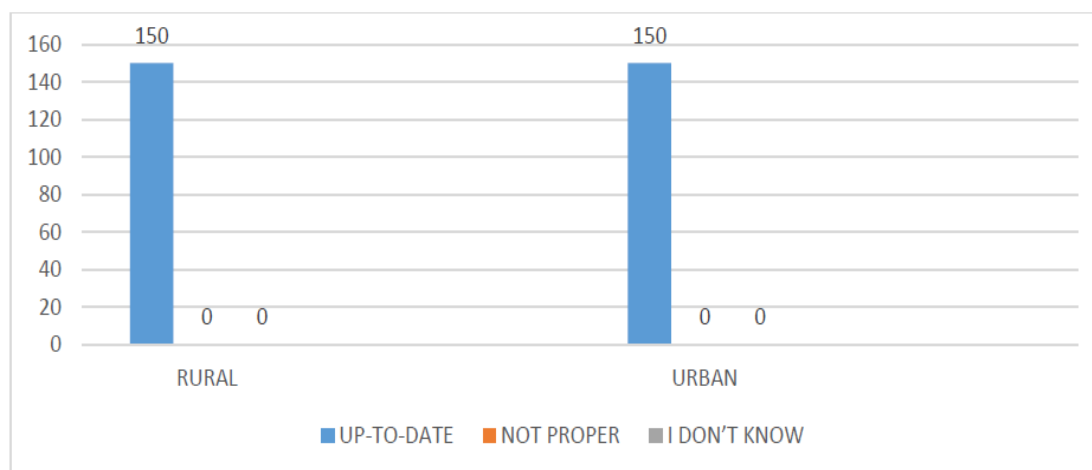


Figure 5: Distribution based on vaccination history of child.

This figure illustrates that the number of children who had an up-to-date vaccination history was 150 in rural and urban areas.

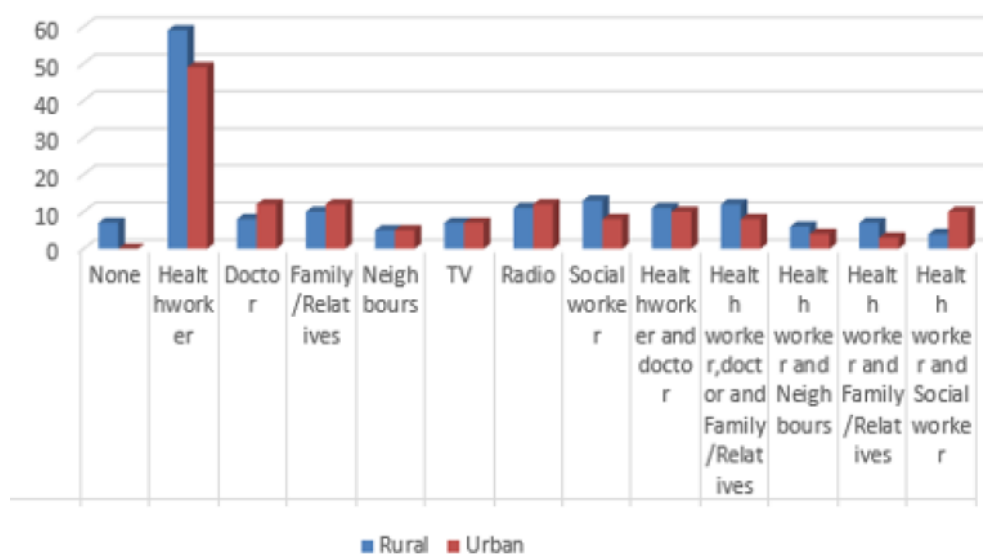


Figure 6: Distribution of source of information on immunization.

The Figure illustrates Distribution of source of information on immunisation. In the total study population of 300 the information on immunisation was obtained from 13 different sources(Health workers, doctors, Family or relatives, Neighbours, TV, Radio, Social worker etc). Here majority of mothers obtained information from Health workers, that is about 59 rural mothers and about 49 of urban mothers get information from Health workers.

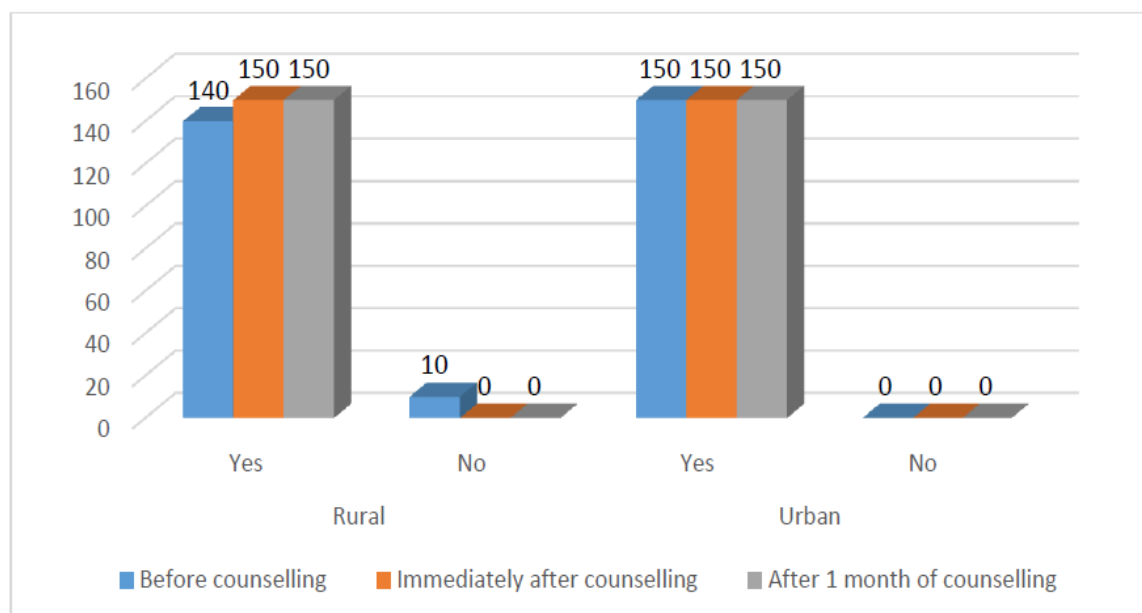


Figure 7: Distribution of response of providing timely vaccination to the child.

The above graph illustrates out of 150 mothers each in urban and rural area, the number of mothers who gave positive response was 140 before counselling and 150 immediately after counselling and one month after

counselling in rural areas whereas in urban areas the positive response was given by 150 mothers before as well and after counselling.

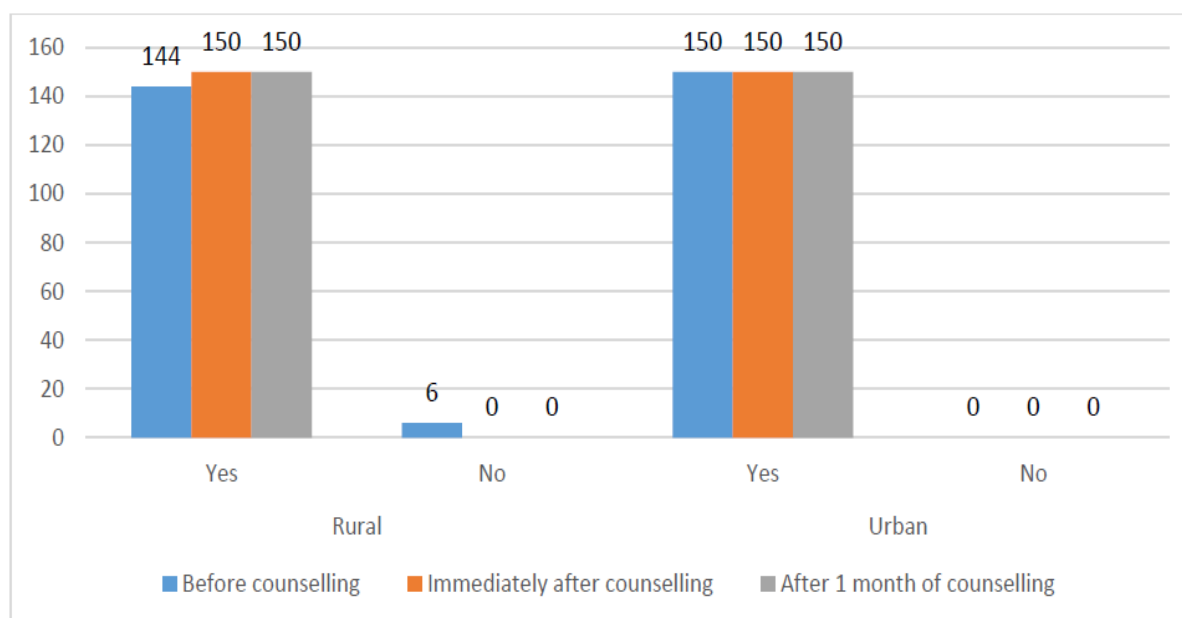


Figure 8: Distribution on response of awareness about vaccine preventable diseases.

This graph demonstrates that out of 150 mothers each in urban and rural area, the number of mothers who gave positive response was 144 before counselling and 150 immediately after counselling and one month after counselling in rural areas whereas in urban areas it was 150 before as well and after counselling.

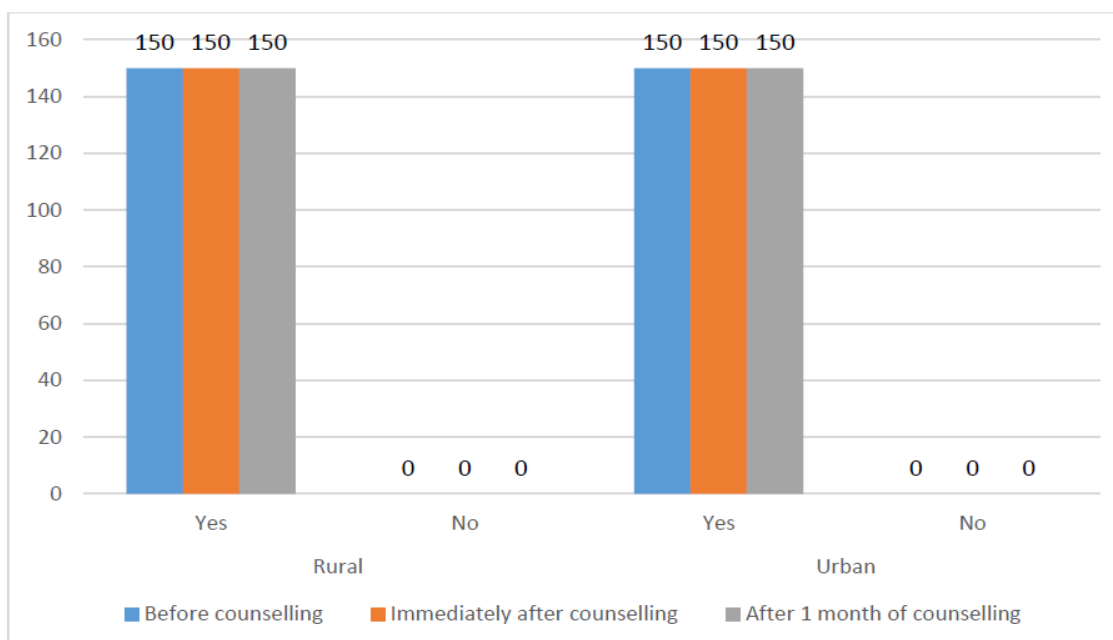


Figure 9: Distribution on whether the child has an immunization card.

The figure illustrates that the number of mothers who gave positive response was 150 before as well as after

counselling both in Urban and Rural areas.

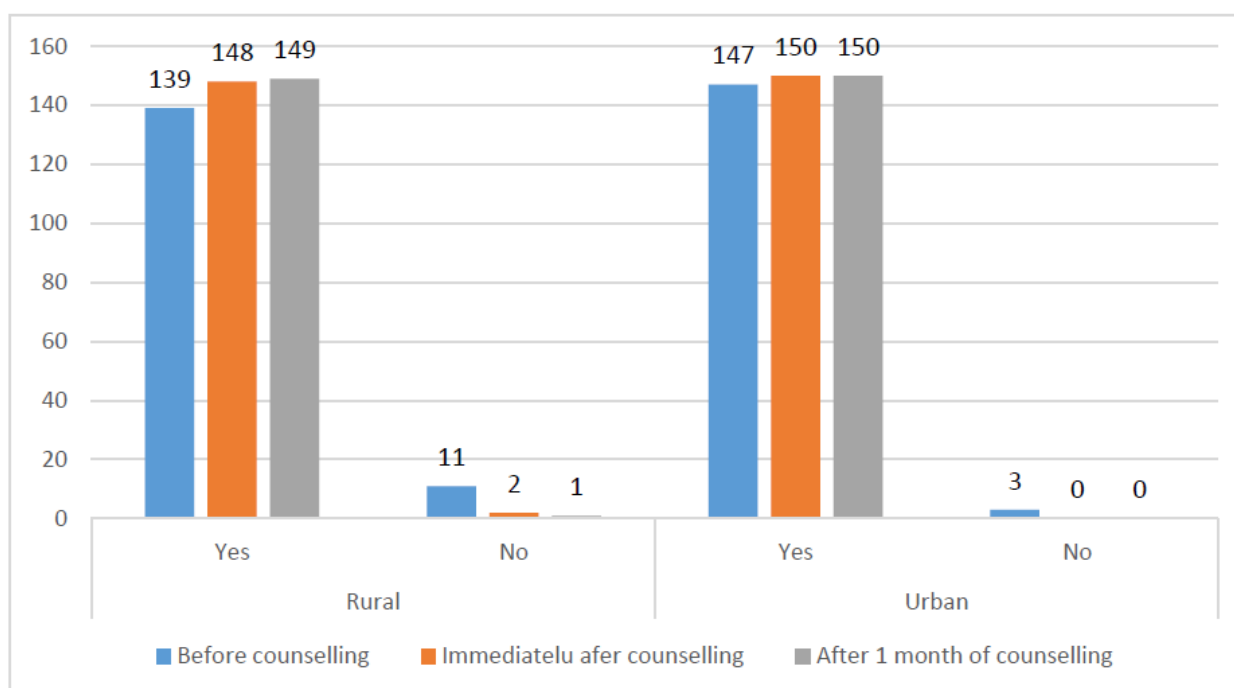


Figure 10: Distribution of response of awareness on vaccine related adverse reactions occurring in children.

This figure reveals that out of 150 mothers each in urban and rural areas, the number of mothers who gave positive response was 139 before counselling, 148 immediately after counselling and 149 one month after

counselling in rural areas whereas in urban areas it was 147 before counselling and 150 both immediately and one month after counselling.

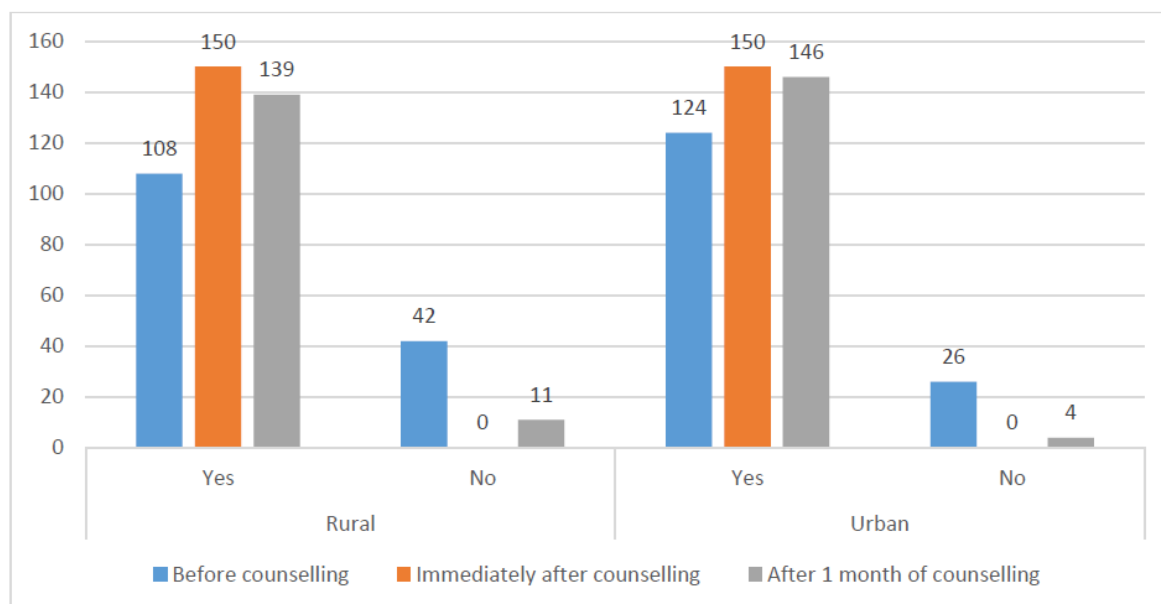


Figure 11: Distribution of awareness of standard doses of vaccines to be taken for children.

This figure reveals the distribution of awareness on standard doses of vaccines to be taken for children. Out of 150 mothers each in urban and rural area, the number of mothers who gave positive response was 108, 150, 139 before counselling, immediately after counselling and after one month of counselling respectively and the negative response was given by 42, 0, 11 mothers before counselling, immediately after counselling and after one

month counselling respectively in rural areas whereas in urban areas the positive response was given by 124 mothers before counselling, 150 immediately after counselling and 146 after one month of counselling and negative response was given by 26 mothers before counselling, 0 mothers immediately after counselling and 4 mothers after one month of counselling.

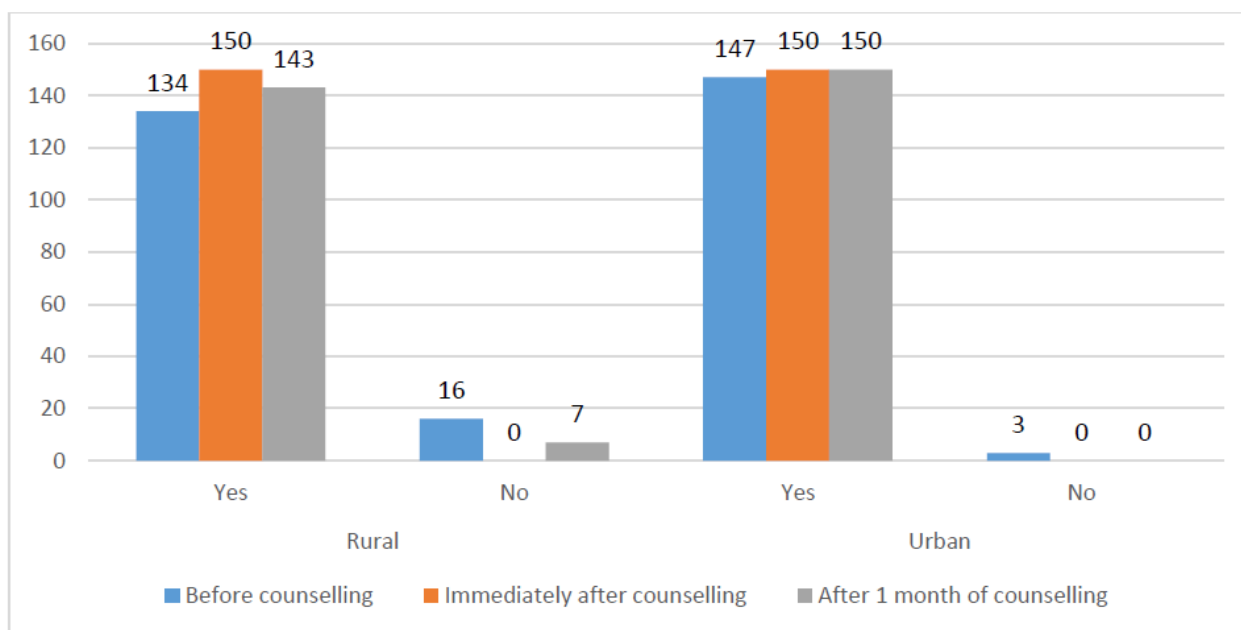


Figure 12: Distribution of awareness on importance of providing vaccination at the correct time.

This graph demonstrates the distribution of awareness on the importance of providing vaccination at the correct time. In this, the number of mothers who gave positive response was 134 before counselling, 150 immediately after counselling and 143 after one month of counselling

in rural areas as well as the negative response was given by 16 before counselling, 0 immediately after counselling and 7 after one month of counselling. Whereas in urban areas the number of mothers who gave positive response 147 before counselling and 150

immediately after counselling and one month after counselling as well as negative response was given by 3

before counselling, 0 immediately after counselling and after one month of counselling.

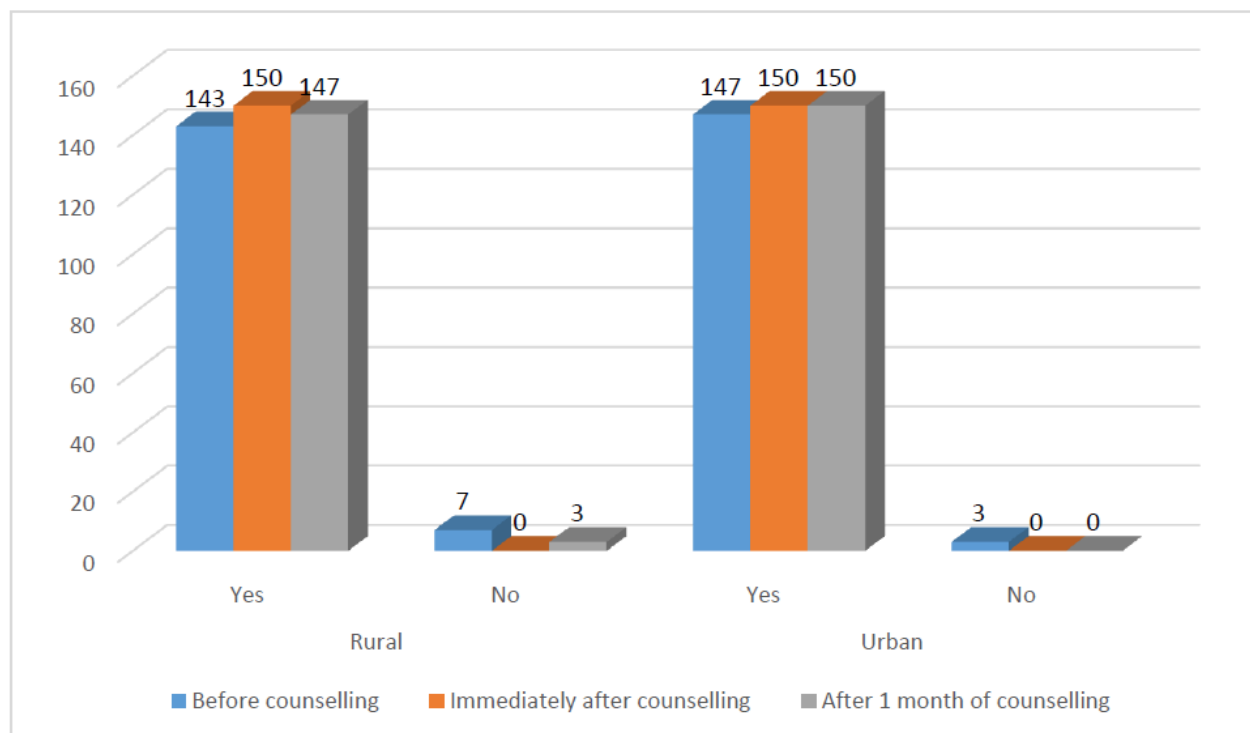


Figure 13: Distribution of awareness on whether to vaccinate a child having fever, cough and running nose etc or not.

The above figure shows the distribution of awareness on whether to vaccinate a child having fever, cough, running nose etc or not. Out of 150 mothers each in urban and rural area, number of mothers who gave positive response was 143 before counselling, 150 immediately after counselling and 147 after one month of counselling in rural areas and the negative response was given by 7 before counselling, 0 immediately after counselling and 3 after one month of counselling. Whereas in urban areas the positive response was given by 147 before counselling and 150 immediately and after 1 month of counselling as well as the negative response was given by 3 before counselling and 0 immediately and after 1 month of counselling.

FINDINGS

The salient features of the study were:

- Our study was carried out in 300 mothers, 150 mothers each from urban and rural areas.
- Most of the mothers fall in the age group 26-30 years. The mean age of rural participants was 29.13(±3.82) and that for urban ones was 29.87(±3.65).
- The percentage of graduate mothers in urban areas was 86% which was much higher compared to that of mothers in rural areas which was 48%.
- Considering the employment status, most women in rural areas were unemployed compared to that of women in urban areas.

- Timely vaccination was done in urban children before and after counselling whereas in rural areas it was only 93% before counselling which was increased to 100% after counselling.
- All children both in Urban and Rural areas had immunisation cards.
- Urban mothers had satisfactory knowledge about vaccine preventable diseases, various vaccine related ADRs, standard doses of vaccination, timely vaccination etc whereas among Rural mothers' knowledge regarding the above was increased after providing proper counselling.
- 95.3% of rural mothers and 98% of urban mothers know that their children should be vaccinated while their child experiences fever, cough, running nose etc.

DISCUSSION

The role of the mother is pivotal for good health of an under five year child. Therefore, the mother's knowledge about the basic health care needs of their child is important. Knowledge and attitude of mothers towards the basic healthcare needs of their children especially vaccination is important and essential for proper growth and development of children and thereby contributes positively for the economic growth as the future is in their hands. This study describes knowledge of mothers regarding the immunization of their children in rural and urban areas.

Good knowledge and positive attitude about childhood immunization are necessary to reduce the incidence of VPDs. In our study vaccination history of both urban and rural children was up-to-date. Literacy level of Kerala plays a key role in achieving this result. Among 150 mothers in rural settings; 72 mothers completed graduation (48%) followed by pre-college and secondary education (19 and 47) and about 39 of them were employed. Similarly, among the 150 mothers in urban settings 129 of them were graduates (86%) and about 90 of them were employed (60%). Even though in rural settings the mothers' educational qualification is little bit lesser as compared to urban settings; rural mothers also had sufficient knowledge regarding immunization and the need for timely vaccination.

Mothers in present study showed improved skill and responsibility for providing timely vaccination i.e. 140 rural mothers (93.3%) and 150 urban mothers (100%) provide timely vaccination to their child. They also maintain documents related to the health matters of their children i.e. our total study population had immunization card with them (100%) and this was similar to a study conducted by Mishra. B. et.al and it was found that about 97% mothers in rural and 100% in urban areas had immunization cards.

The role of health workers particularly Asha workers is really unavoidable in this case. About 59 rural mothers (39.3%) in rural settings depends Health workers as their source of information, our results were similar to the studies conducted by Mahalingam S et.al at Mangalore in their study the major source of information about immunization was health workers i.e. 49.2% of the participants got information about child immunization from Anganwadi workers. Similarly studies conducted at Madhya Pradesh by Mishra. B et.al and at Bangalore by Patel Trushitkumar B et.al showing a major portion of their rural participants got information from health workers (80% and 71.7% respectively). In our study other sources of information such as Doctors and family/relatives also act as an important information provider, this was similar to the study conducted by Mugada et.al.

According to our study mother's awareness about VPDs were satisfactory in both groups, 144 rural mothers (96%) and 150 urban mothers (100%) were aware about VPDs but our urban participants were more aware about VPDs as compared with our rural participants. Our result was similar to a study conducted by Kapoor R about the awareness and knowledge of mothers of under five children regarding immunization in Ahmedabad in which educational status of the participants was used as the basic tool for assessing the knowledge about Vaccine Preventable Diseases.

Knowledge about adverse effects of vaccination among urban and rural mothers was fair in our study. 139 rural participants (92.6%) and 147 urban participants (98.6%)

had knowledge about ADR of vaccination. Most of the urban and rural mothers said that pain at the injection site and fever were the commonly seen adverse effects among their child following vaccination and this was similar to a KAP study conducted by Dharmalingam A at Pondicherry and they found that nearly 79.6% of mothers among 501 participants knew about the ADRs of vaccination.

The commonly seen health problems in children like fever, cough, running nose etc. we're not found to be the reason to postpone the scheduled vaccinations and about 143 of rural mothers (95.3%) and 147 urban mothers (98%) had this opinion. But in a similar study conducted by Mahalingam.S at Mangalore shows poor response i.e. among 74 urban participants only 20.3% were known about whether the child with fever can be vaccinated or not?, while among 126 rural participants only 17.5% knew about this. Contrast to this opinion in a study conducted by Mishra B et.al at Madhya Pradesh shows that Pain and fever related to immunization were the main cause for avoiding it (30% in rural and 26.5% in urban locality).

In our study about 108 of rural mothers (72%) and 124 of urban mothers (82.6 %) knew about the standard doses of vaccination to be taken by their child. Our result was similar to a KAP study conducted by Dharmalingam A at Pondicherry and it was found that 96.4% of mothers know about the standard doses of vaccination. Similarly, in our study knowledge regarding the importance of providing vaccination at the correct time was more satisfactory in urban (98%) population than rural populations (89.3%) i.e. 134 rural mothers and 147 urban mothers were aware about the importance of providing vaccination at the correct time. This was similar to the study conducted by Mishra B et.al i.e. most of the mothers from urban (96%) and rural (94%) settings knew that immunizing children can prevent them from diseases.

CONCLUSION

Mother's perception and attitude towards immunization greatly influence the quality of life and future of the child. From our cross-sectional study we tried to assess the knowledge of mothers regarding Immunization in urban and rural areas. The presence of rural urban division was significant in our study. From this study we were able to find out that mothers in urban areas have better knowledge regarding vaccination than rural areas. Also educated mothers from rural areas have better knowledge. We can't say that rural mothers are less educated, as the percentages of uneducated mothers were less.

Mothers' knowledge about various vaccines, VPDs and standard doses of vaccines were found to be more satisfactory in urban settings than rural settings. Proper counselling sessions regarding healthcare were given to every mother included at the beginning of study and

proper follow up were done. With regards to counselling given, we were able to improve the knowledge of rural as well as urban mothers.

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