International Journal of Community Medicine and Public Health
Rangaraju SM et al. Int J Community Med Public Health. 2024 Dec;11(12):4829-4834
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20243650

Original Research Article

Assessment of knowledge, attitude and practices regarding immunization among mothers of under-five children in Chitoor district, Andhra Pradesh

Sai Madhuri Rangaraju*, Saddala Alivelu Ravi, Patra Abhilash, A. Y. Nirupama, Agiwal Varun, Vemula Sai Guru Datta, Buniyad Anjali, Karpuram Sai Srinivas, Gudapati Princy Bennett

Indian Institute of Public Health, Hyderabad, Telangana, India

Received: 16 September 2024
Accepted: 12 November 2024

***Correspondence:**
Dr. Sai Madhuri Rangaraju,
E-mail: 999saimadhuri@gmail.com

ABSTRACT

Background: Immunization is a vital public health strategy to protect children from infectious diseases, achieved through the administration of vaccines. India's universal immunization program (UIP) provides free vaccines against 11 life-threatening diseases for children under the age of five. Despite its importance, immunization coverage in many areas remains inadequate due to various factors, including limited awareness, accessibility challenges, and misconceptions.

Methods: This cross-sectional study, conducted in PHC Pedda Upparpalli, Chitoor district, Andhra Pradesh, aimed to assess the knowledge, attitudes, and practices of mothers with children under five regarding immunization. A structured interview questionnaire was used to collect data, and scoring methods were applied to categorize knowledge levels.

Results: Results indicated that while awareness of the importance of vaccination was high, knowledge regarding specific vaccines and contraindications was limited. Attitudes toward vaccination were generally positive, with mothers acknowledging its importance and safety. Most mothers exhibited good vaccination practices, with a majority following the immunization schedule. Interestingly, the study found no significant association between knowledge and sociodemographic factors except for income. This suggests that income level may influence mothers' knowledge of immunization.

Conclusions: This study highlights the importance of improving knowledge and addressing misconceptions surrounding immunization to achieve complete vaccination coverage. Strategies such as targeted health education and awareness campaigns are essential, especially in underserved communities. Further research on a larger scale and in different geographic settings is recommended to gain a comprehensive understanding of immunization practices in India.

Keywords: Knowledge, Attitude, Practice, Mothers, Immunization

INTRODUCTION

Immunization is the process of making a person immune or immune to an infectious disease, usually by administering a vaccine. India's UIP provides free vaccination against 11 life-threatening diseases-tuberculosis, diphtheria, pertussis, tetanus, polio, hepatitis B, pneumonia and *Haemophilus influenza* type b (Hib) meningitis, measles, rubella, Japanese encephalitis (JE)

and rotavirus diarrhoea. (Rubella, JE and rotavirus vaccine in some states and regions).[1]

Vaccines prevent more than 20 life-threatening diseases and help people of all ages live longer, healthier lives. Vaccinations currently prevent 3.5 to 5 million deaths each year from diseases such as diphtheria, tetanus, pertussis, influenza, and measles.[2]

Many parents have a poor understanding of vaccine-preventable diseases (VPD), and many believe that there is misinformation about vaccine content, side effects, and effectiveness.[3] Mothers' knowledge of vaccination, a public health measure that has significantly reduced mortality and morbidity worldwide, is very important because they play an important role in child care. Their ability to obtain correct information improves their practice and attitude towards immunization.[4]

This study aims to assess the knowledge, attitudes and practices of immunization among mothers of under five children and also to correlate the knowledge and attitude of immunization and find out the association between knowledge and attitude of immunization with the selected demographic variables.

METHODS

Study design

It was a cross sectional study

Study setting

The study was conducted in one of the PHC of Chitoor district, Andhra Pradesh.

Study population

Study population included mothers who are having children below five years of age and comes under the jurisdiction of PHC.

Inclusive criteria

All the mothers located near PHC who have under five aged children and willing to participate in the study.

Exclusive criteria

The mothers who are having the children aged above 5 years and not willing to participate in the study.

Sample size

Sample size for estimated proportion[5]

$N=(Z1-\alpha/2)2\ p\ (1-p)/d^2$

Where,

P-Proportion of knowledge regarding immunization among mothers of under five children=53%

D=absolute precision=0.12

Z1-α/2=1.96 at 5% level of significance

N=with a non-response rate of 0.1 (10%)

Calculated sample size is 66.4

Hence, the minimum required sample size from above calculations is computed to 66.4 participants; however, 80 participants samples were collected.

Sample technique

The study was done using purposive sampling technique.

Study duration

Study carried out for three months (May 2022 to July 2022).

Data collection method

Structured interview questionnaire was developed from the data of MCP card and immunization schedule, that includes demographic data and other part consists of questions on knowledge, attitude, and practice of mothers on immunization.[6,7] Paper-based data collection method was followed to collect the information on knowledge, attitude and practice.

Data analysis

Collected data was entered in MS-excel and analysis was carried out using Stata 14.0 version. Results were described in terms of frequency, percentage for qualitative variables and scoring method is used to determine the distribution of knowledge of mothers and chi-square test was conducted to find the association of demographic variables with the knowledge scores.

The scoring method was used to determine the percentage of the knowledge among the participants by using modified blooms cut off method-<60%=poor knowledge, 60-79%=moderate knowledge and 80-100%=good.

RESULTS

In total, 80 mothers consented to participate in the study and were interviewed. Mothers were grouped based on their age. Mothers aged up to 25 years were 17.5% (n=14), 26-30 years were 47.5% (n=38) and over 30 years were 35% (n=28). Majority of mothers were literate with mother's completed their secondary education was 42.5%

(n=34). Majority of mother's, worked as daily wage earners that is 45% (n=36). More than half of the mothers had single families 57.50% (n=46), with 78.7% (n=63) of them being Hindu. over half of the families 53.75% (n=43) yearly income ranged between Rs. 50,001 to Rs. 100,000.

Knowledge of mothers towards child vaccination

All the mothers were aware of the importance of vaccinations however just 52.5% (n=42) of them knew about the measles vaccine and 67.5% (n=54) about the polio vaccines and had very limited knowledge about PCV, Hepatitis-B, IPV and Rota virus. More than two-fifths of the mother's had knowledge about contraindications such as malnutrition, diarrhoea, minimal infection and immune disorder. The 77.5% (n=58) of mothers who were aware of vaccination card but 66.25% (n=53) of mothers were knowledgeable about intervals between vaccine doses. Nearly half of mothers had knowledge regarding vaccine sites.

Attitude of mothers towards child vaccination

All the mothers agreed that vaccine is important, safe and maintain child health. Also, they would recommend others to vaccinate their child. More than half of the mothers agreed that vaccination have severe side effects but almost all the mother's considered that vaccination was important for both boys and girls 98.75% (n=79).

Practice of mothers towards child vaccination

Majority of the mothers had good practice towards their child vaccination. Nearly 87.5% (n=70) of mothers vaccinate their child as per schedule and more than three fourth of mothers reported vaccine side effects, more than half of the child suffered with high temperature and also managed fever, pain and swelling. More than three fifth of the mothers reported pain and swelling and all the mothers vaccinate both their boys and girls equally.

Overall mothers' knowledge and factors associated

Knowledge of mother were further categorised into good, moderate and poor based on the scores received by each mother. Only 8.75% (n=7) of mothers had good knowledge regarding their child vaccination and 46.25% (n=37) mothers are having moderate knowledge whereas 45% (n=36) are having poor knowledge. Further association of the mother's knowledge was done with all the demographic variables. It was observed that income per year was significantly associated with mother's knowledge (p=0.014).

Table 1: Demographics of the study population.

Demographic variables		N	Percentage (%)
Age (in years)	Up to 25	14	14.50
	26-30	38	47.50
	More than 30	28	35.00
Mother education	Illiterate	11	13.75
	Primary	13	16.25
	Secondary	34	42.50
	Intermediate and above	22	27.50
Occupation	House wife	27	33.75
	Daily wages	36	45.00
	Government job	6	7.50
	Private job	11	13.75
Religion	Hindu	63	78.75
	Muslim	6	7.50
	Christian	11	13.75
Type of family	Single family	46	57.50
	Joint family	34	42.50
Marital status	Married	79	98.75
	Divorced	1	1.25
No of children below 5 years	One	8	10.00
	Two	51	63.75
	Three	21	26.25
Father education	Illiterate	12	15.00
	Primary	8	10.00
	Secondary	33	41.25
	Intermediate and above	2	33.75
Income per year (in INR)	10,000-50,000	16	20.00
	50,001-100,000	43	53.75
	Above 100,000	21	26.25

Table 2: Knowledge of mothers towards child vaccination (n=80).

Knowledge based questions		Agreed/Yes	
		N	%
Importance of vaccination	Vaccination can prevent infectious diseases	78	97.50
	Vaccines can maintain child health	78	97.50
	Vaccines reduce child mortality	75	93.75
	Vaccines can protect children from complications	78	97.50
Diseases controlled by vaccines	Measles	42	52.50
	Polio	54	67.50
	DPT	38	47.50
	Hepatitis-B	16	20.00
	IPV	10	12.50
	PCV	1	1.25
	Rota	12	15.00
Contra-indications	Malnutrition	34	42.50
	Diarrhoea	34	42.50
	Minimal infection	33	41.25
	Immune disorders	38	47.50
Health care facility	Do you know about the vaccination card/MCP card	58	77.50
	Do you know about intervals between vaccine doses	53	66.25
	Do you know 5 key points in immunization	26	32.50
	Do you know about vaccinations sites	39	48.75

Table 3: Attitude of mothers towards child vaccination.

Attitude based questions	Agree, N (%)	Disagree, N (%)	Uncertain, N (%)
Vaccination is important for children	80 (100)	0	0
Vaccines are safe for children	80 (100)	0	0
Vaccines can maintain child health	80 (100)	0	0
Do you recommend others to vaccinate their children	80 (100)	0	0
Vaccination must be done according to schedule	80 (100)	0	0
Vaccinate is effective in prevention of diseases	80 (100)	0	0
Vaccination reduces child mortality	80 (100)	0	0
Vaccination has severe side effects	52 (65)	27 (33.75)	1 (1.25)
Vaccination is important for both boys and girls	79 (98.75)	1 (1.25)	0

Table 4: Practice of mothers towards child vaccination.

Practice questions	Good, N (%)	Bad, N (%)
Your child received vaccines according to schedule	70 (87.5)	10 (12.5)
Ever reported vaccine side effects	61 (76.25)	19 (23.75)
High temperature	57 (71.25)	23 (28.75)
Pain and swelling in vaccine site	54 (67.5)	26 (32.5)
Do you managed fever, pain and swelling by using anti-pyretic	57 (71.25)	23 (28.75)
Vaccines are received by both boys and girls equally	80 (100)	0

Table 5: Factors associated with respondent mother's knowledge regarding immunization.

Description		Good, n=7 (%)	Moderate, n=37 (%)	Poor, n=36 (%)	P value[a]
Age (in years)	Up to 25	0	4 (10.81)	10 (27.78)	0.151
	26-30	3 (42.86)	18 (48.65)	17 (47.22)	
	More than 30	4 (57.14)	15 (40.54)	9 (25.00)	
Mother education	Illiterate	2 (28.57)	5 (13.51)	4 (11.11)	0.504
	Primary	1 (14.29)	5 (13.51)	7 (19.44)	
	Secondary	1 (14.29)	15 (40.54)	18 (50.00)	
	Intermediate and above	3 (42.86)	12 (32.43)	7 (19.44)	

Continued.

Description		Good, n=7 (%)	Moderate, n=37 (%)	Poor, n=36 (%)	P value[a]
Occupation	House wife	2 (28.57)	10 (27.03)	15 (41.67)	0.467
	Daily wages	4 (57.14)	17 (45.95)	15 (41.67)	
	Government job	1 (14.29)	2 (5.41)	3 (8.33)	
	Private job	0	8 (21.62)	3 (8.33)	
Religion	Hindu	4 (57.14)	28 (75.68)	31 (86.11)	0.289
	Muslim	1 (14.29)	2 (5.41)	3 (8.33)	
	Christian	2 (28.57)	7 (18.92)	2 (5.56)	
Number of children below 5 years	One	1 (14.29)	3 (8.11)	4 (11.11)	0.916
	Two	5 (71.43)	23 (62.16)	23 (63.89)	
	Three	1 (14.29)	11 (29.73)	9 (25.00)	
Type of family	Nuclear family	5 (71.43)	19 (51.35)	22 (61.11)	0.517
	Joint family	2 (28.57)	18 (48.65)	14 (38.89)	
Income per year (in INR)	10000-50000	2 (28.57)	13 (35.14)	1 (2.78)	0.014*
	50000-100000	3 (42.86)	17 (45.95)	23 (63.89)	
	Above-100000	2 (28.57)	7 (18.92)	12 (33.33)	
Father education	Illiterate	1 (14.29)	6 (16.22)	4 (11.11)	0.638
	Primary	2 (28.57)	3 (8.11)	4 (11.11)	
	Secondary	1 (14.29)	18 (48.65)	14 (38.89)	
	Intermediate and above	3 (42.86)	10 (27.03)	14 (38.89)	

[a]Chi-square test; *<0.05 significance level.

DISCUSSION

The aim of the study was to assess the knowledge, attitude and practice of mothers towards vaccinating their children and it was found that most of the mothers are aware of the importance of vaccination which may be due to the ongoing awareness programs of the government. achieve complete vaccination. Although maternal awareness is good, knowledge about vaccination per se and contraindications is limited. Knowledge on each topic was found to be above average, but mothers' general knowledge about their child was limited. An in-hospital study conducted at Indore rural medical college showed that mothers' knowledge about vaccination was inadequate, but their attitude towards immunization was good.[8] On the contrary, a study conducted on mothers with at least one child under the age of 5 who attended paediatric polyclinics and immunization clinics at the university of Nigeria teaching hospital, Enugu found that most of the mothers studied had good knowledge and positive perception and practice of immunization.[9] Similarly, a grey literature review found that the main reasons for under vaccination were related to vaccination services and the knowledge and attitudes of parents.[10]

In this study, sociodemographic variables have no significant relationship with maternal knowledge, except for the income variable. Similarly, a review that sought to identify and examine factors associated with disparities in routine childhood vaccination in India found an almost direct relationship between household wealth and vaccination rates. Vaccination rates are lower in infants whose mothers have little or no literacy and in families with insufficient female influence, while a community-based cross-sectional study of eligible caregivers found that lack of access to information and low maternal knowledge about routine immunization reported low community vaccination rates.[11,12]A community-based study in Ethiopia showed low childhood vaccination coverage and demographic variables also showed a significant association with complete childhood immunization.[13]

As facility delivery increases, vaccination awareness has increased, but greater vaccination awareness is yet to be achieved, which will further help in achieving the goal of full immunization in India. In addition, misunderstandings and rumours related to vaccination are spreading on the internet, social media and society, especially during COVID-19.[14] These rumours and misconceptions need to be addressed to improve maternal knowledge, attitudes and practices. The national family health survey-4 (NFHS-4) found that delayed vaccinations are high in India. Vaccine timeliness should be a key indicator of the vaccination program and focus more on groups that are more likely to receive delayed vaccination, i.e., home births, low-birth-weight newborns, poorer households, children of less educated mothers and children of Muslim families.[15]

That is why we focus on providing information to mothers and society about each vaccination and its importance, as was done with the COVID-19 vaccine to fight the pandemic. Similar strategies can be implemented to improve maternal knowledge about a particular vaccine, its importance, indications and contraindications.

Limitations are the small or limited sample size, so we cannot generalize the results of the study. This is limited to a rural geographic area, so further research can be done to compare urban and rural geographic areas.

CONCLUSION

Most of the mothers were aware of the importance of the vaccine and had a good attitude towards the vaccination of their children. However, the general knowledge of mothers was limited. The present study also shows that there was no association between the mother's knowledge and socio-demographic aspects, except annual income, which was found to be statistically significant.

The proposed recommendations are measures to convey the right message to mothers about the importance of timely vaccination with all scheduled vaccines to improve both knowledge and use of vaccination services. In high-risk areas, health education through IEC should be approached specifically and intensively. All doses must achieve universal vaccination coverage, and any gaps must be identified and vaccinated. Similar studies can be done on a large scale among different communities.

ACKNOWLEDGEMENTS

The authors would like to thank to medical officer of PHC Pedda Upparpalli Chittoor district, AP for giving the permission to conduct the study and also the staff of the PHC for cooperating in conducting the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee TRC-IEC No: IIPHH/TRCIEC/290/2022; Dtd:10/5/2022.

REFERENCES

1. Immunization. National Health Mission. Available at: https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=824&lid=220. Accessed on 17 September 2024.
2. Vaccines and immunization. Available at: https://www.who.int/health-topics/vaccines-and-immunization. Accessed on 15 September 2024.
3. Lamiya KK, Mundodan JM, Haveri SP. Knowledge, attittude and practice among mothers of under five children on immunization. Int J Community Med Public Health. 2019;6(3):1252-7.
4. Jayaraj J, Ganesan S, Geminiganesan S. Knowledge, attitude and practices regarding immunization among parents with children in the age group 12 to 24 months. Int J Community Med Public Health. 2023;10(7):2541-8.
5. Vaithilingan S. Knowledge regarding immunization among mothers of under-five children. Int J Curr Res. 2023;9(10):59558-60.
6. mcp_card_english.pdf. Available at: https://nhm.assam.gov.in/sites/default/files/swf_utility_folder/departments/nhm_lipl_in_oid_6/menu/document/mcp_card_english.pdf. Accessed on 21 September 2024.
7. 24545352106148966387 3.pdf. Available at: https://main.mohfw.gov.in/sites/default/files/24545352106148966387 3.pdf. Accessed on 21 September 2024.
8. Ramawat DP, Goswami DVP. Astudy of knowledge about immunization amongst mothers of children below 5 years of age. Pediatr Rev Int J Pediatr Res. 2018;5(3):109-12.
9. Tagbo BN, Uleanya ND, Nwokoye IC, Eze JC, Omotowo IB. Mothers' knowledge, perception and practice of childhood immunization in Enugu. Niger J Paediatr. 2012;39(3):90-6.
10. Favin M, Steinglass R, Fields R, Banerjee K, Sawhney M. Why children are not vaccinated: A review of the grey literature. Int Health. 2012;4:229-38.
11. Inequity in Childhood Immunization in India: A Systematic Review. Available at: https://www.indianpediatrics.net/mar2012/mar-203-223.htm. Accessed on 21 September 2024.
12. Taiwo L, Idris S, Abubakar A, Nguku P, Nsubuga P, Gidado S, et al. Factors affecting access to information on routine immunization among mothers of under 5 children in Kaduna State Nigeria, 2015. Pan Afr Med J. 2017;27:186.
13. Meleko A, Geremew M, Birhanu F. Assessment of Child Immunization Coverage and Associated Factors with Full Vaccination among Children Aged 12-23 Months at Mizan Aman Town, Bench Maji Zone, Southwest Ethiopia. Int J Pediatr. 2017;2017:e7976587.
14. Skafle I, Nordahl-Hansen A, Quintana DS, Wynn R, Gabarron E. Misinformation About COVID-19 Vaccines on Social Media: Rapid Review. J Med Internet Res. 2022;24(8):e37367.
15. Choudhary TS, Reddy NS, Apte A, Sinha B, Roy S, Nair NP, et al. Delayed vaccination and its predictors among children under 2 years in India: Insights from the national family health survey-4. Vaccine. 2019;37(17):2331-9.

Cite this article as: Rangaraju SM, Ravi SA, Abhilash P, Nirupama AY, Varun A, Datta VSG, et al. Assessment of knowledge, attitude and practices regarding immunization among mothers of under-five children in Chitoor district, Andhra Pradesh. Int J Community Med Public Health 2024;11:4829-34.