A STUDY TO ASSESS THE KNOWLEDGE AND ATTITUDE REGARDING OPTIONAL VACCINES AND BARRIERS TO USE AMONG MOTHERS OF UNDER FIVE CHILDREN IN KHEDA GUJARAT

ABSTRACT:

Introduction: Vaccination is a straightforward and reliable method to safeguard oneself from dangerous diseases before encountering them. Vaccination remains one of the most effective public health interventions in human history, significantly reducing the burden of infectious diseases and saving countless lives worldwide. **Aim:** To determine knowledge and attitude regarding optional vaccines and barriers to use among mothers of under five children in Kheda district **Methodology:** The non-experimental Descriptive Survey Research design used for this study. The study was conducted on 384 mothers of under five children from selected areas of Kheda district by systematic random sampling technique. A knowledge questionnaire tool, Likert attitude scale and barrier questionnaire was used for data collection. **Result:** 240 (63%) of mothers have low knowledge, 123 (32%) have moderate knowledge, and 21 (5%) have good knowledge regarding optional vaccination. When 1 (0.3%) mother have Unfavourable attitude, 275 (71.6%) have moderate attitude, and 108 (28.1%) have favourable attitude towards optional vaccination. The mean score of attitude is 8.7083. The Correlation-Coefficient (r) of knowledge and attitude is 0.76. **Conclusion:** The study highlights the disparity between knowledge and attitude regarding optional vaccination among mothers of under five children. Although the majority lack adequate knowledge, a considerable number still maintain a moderate attitude. This emphasizes the need for targeted interventions to improve understanding and promote positive attitudes toward optional vaccination.

KEYWORDS: Knowledge, Attitude, Optional vaccination, Under-five children

INTRODUCTION

Vaccination is a straightforward and reliable method to safeguard oneself from dangerous diseases before encountering them. By leveraging the body's innate defences, vaccines induce resistance to particular infections and enhance the immune system. They work by teaching the immune system to generate antibodies, similar to its response when encountering an actual disease. Importantly, vaccines contain only inactive or weakened versions of pathogens such as viruses/subunits, bacteria, or non-infectious RNA, ensuring they don't cause illness or expose individuals to its actual or potential complications.

The term "vaccine" originates from the Latin word "vaccines," meaning "from the cows." Edward Jenner, a pioneering physician and scientist, conducted the first documented scientific attempt to prevent smallpox in 1796. While he didn't create the method, his systematic study established its effectiveness, earning him recognition as the father of vaccines for his rigorous scientific approach regarding vaccination.

Jenner's method entailed extracting material from a blister of a person infected with cowpox and introducing it into another person's skin, known as **arm-to-arm inoculation**. However, advancements in scientific understanding by the end of 1940s enabled the large-scale production of vaccines,

marking the beginning of significant efforts in disease control or prevention.

At the start of the 20th century, several vaccines were introduced for routine use, including those for pertussis in 1914, diphtheria in 1926, and tetanus in 1938. In 1948, these three vaccines were combined to create the DTP vaccine.

Vaccination remains one of the most effective public health interventions in human history, significantly reducing the burden of infectious diseases and saving countless lives worldwide. However, the issue of optional vaccination has sparked considerable debate in recent years, with discussions revolving around personal choice, public health responsibilities, and the balance between individual freedoms and community protection.

Optional vaccines, also known as elective or non-mandatory vaccines, are a topic of considerable debate and discussion in public health and policy circles. Unlike mandatory vaccines that are required by law for certain groups or for attending school, optional vaccines are recommended by health authorities but are not compulsory. This essay explores the concept of optional vaccines, their significance, controversies surrounding them, and their implications for public health.

Optional vaccines encompass a range of immunizations that are not universally mandated but are recommended based on individual risk factors, age, lifestyle, or occupation. These vaccines often target diseases that may not pose a significant public health threat in all circumstances but could be detrimental to specific populations. Examples include vaccines for diseases like HPV (Human Papillomavirus), meningococcal disease, and hepatitis A and B.

Moreover, optional vaccines can play a crucial role in protecting vulnerable populations. For instance, vaccines against diseases like influenza are recommended for certain groups such as the elderly and those with compromised immune systems. By choosing to vaccinate, individuals not only protect themselves but also contribute to herd immunity, reducing the overall transmission of infectious diseases within communities.

OBJECTIVE

- To assess the knowledge regarding the optional vaccines and barriers to use it among the mothers of under five children.
- To assess the attitude regarding optional vaccines and barriers for use among mothers of under five children.
- To assess the significant association between level of knowledge, attitude score and their selected demographic variables.

METHODS

This descriptive study was conducted after institutional ethical committee approval. A pre-validated knowledge questionnaire tool, Likert attitude scale And Barrier Questionnaire regarding organ donation was circulated to 384 Mothers of under-five children from selected village of Kheda district by used non probability purposive sampling technique from 25/06/2024 to 01/07/2024. Written informed consent was obtained from all mothers of under-five children, along with assent form.

For knowledge questionnaire tool regarding optional vaccination, the total minimum score is 0 and total maximum score is 18. The cut off score and category were calculated as 14-18 indicate good knowledge, 9-13 indicate average knowledge and below 9 indicate poor knowledge regarding optional vaccination. For Likert attitude scale regarding optional vaccination, the total minimum score is 10 and total maximum score is 30. The cut off score and category were calculated as 23-30 indicate favourable attitude, 15-22 indicate moderate attitude and below 15 indicate unfavorable attitude regarding optional vaccination. The mothers were included from Salun Village, Dist.: Kheda. Data of both components were distributed in percentage based on mother's age, child's age, religion, type of family, mother's education, father's education family monthly income, source of immunization, the association between knowledge regarding optional vaccination with their selected demographic variables and also between attitudes regarding optional vaccination with their selected demographic variables determined. Correlation between knowledge and attitude regarding optional vaccination is also determined.

Ethical Considerations:

Ethical considerations for this study included obtaining approval from the principal and the institute's ethical committee. Informed consent was obtained from all participants, who were fully informed that their participation was entirely voluntary.

RESULTS:

Table 1: Dimorphic variable of the participants (n=384)

Demographic Variable	Frequency	Percentage
Age of Mother:		
18-25 years	126	32.83%
25.1-30 years	175	45.57%
30.1-35 years	60	15.62%
Above 35	23	5.98%
Age of Child		
0-6 months	45	11.72%
6 months- 1year	110	28.65%
1-3 years	119	30.98%
3-5 years	110	28.65%
Religion		
Hindu	352	91.66%
Christian	25	6.51%
Muslim	7	1.83%
Other	0	0%
Type of Family		
Nuclear	150	39.06%
Joint	234	60.94%
Other	0	0%
Education of Mother		
No formal Education	48	12.50%
Primary Education	145	37.76%
Secondary Education	109	28.39%
Graduate & above	82	21.35%
Education of Father		
No formal Education	24	6.29%
Primary Education	113	29.35%
Secondary Education	128	33.37%
Graduate & above	119	30.99%
Monthly Family Income		
< ₹10,000	160	41.67%
₹10,001-₹20,000	103	26.82%
₹20,001-₹30,000	71	18.48%
>₹30,000	50	13.03%
Source of Immunization information		
Healthcare Provider	214	55.73%
Family/Friends	27	7.03%
Internet	34	8.85%
Television/Radio	6	1.56%
Govt. Health Campaign	81	21.10%
Other	22	5.73%
Has your child received any optional vaccine?		
Yes	44	11.45%
No	340	88.55%

Demographic key findings of the study:

Demographic data of 384 mothers were normally distributed. In that, 175 (45.57%) samples were between the age group of 25.1-30 years, 119 (30.98%) samples were between the age group of 1-3 years, 352 (91.66%) samples were Hindu Family, 234(60.94%) of samples were Joint Family, 145 (37.76%) mothers had primary education, 128 (33.37%) fathers had secondary education, 160 (41.67%) families had income less then ₹10,000, 214 (55.73%) family was provided information regarding vaccination by Health Caregiver and 340 (88.55%) mother did not provided information regarding optional vaccine.

Table-2: Frequency and distribution of level of knowledge and attitude regarding optional vaccines among mothers of under five children.

Knowledge		Attitude	
Poor	240 (63%)	Unfavorable	1 (0.3%)
Average	123 (32%)		275 (71.6%)
Good	21 (5%)	Favorable	108 (28.1%)

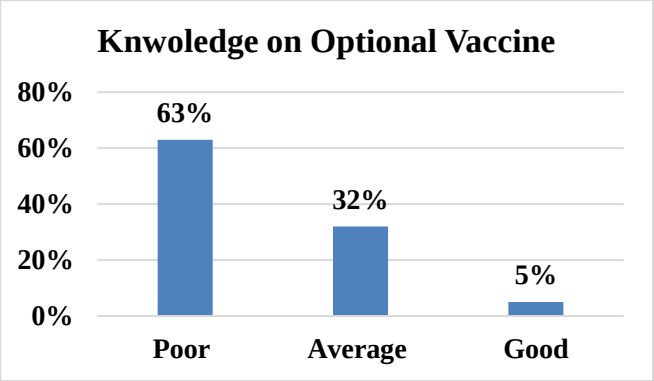
In the distribution and frequency of knowledge regarding optional vaccination among mothers of under-five children, there are 240 (63%) of mothers have low knowledge, 123 (32%) have moderate knowledge, and 21 (5%) have good knowledge regarding optional vaccination. The mean score of knowledge is 8.7083. Where the distribution and frequency of attitude regarding optional vaccination among mothers of under-five children, 1 (0.3%) mother have Unfavorable attitude, 275 (71.6%) have moderate attitude, and 108 (28.1%) have favorable knowledge. The mean score of attitude is 21.1641

Table-3: Range, Mean and Standard Deviation for Level of Knowledge and Level of Attitude.

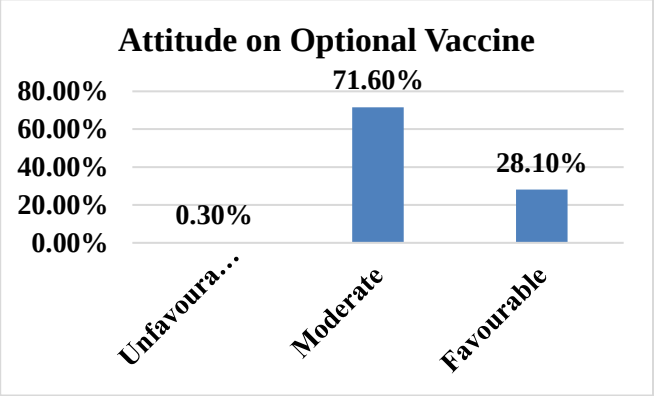
Mean and SD	Range	Mean	SD
Knowledge Score	15	8.70	2.91
Attitude Score	13	21.1	2.25

Table-3 shows Range, Mean and Standard Deviation for Level of Knowledge and Level of Attitude. Knowledge

score has Range of 15.00, Mean is 8.7083 and Standard deviation is 2.91182. Attitude score has Range of 13.00, Mean is 21.1641 and Standard deviation is 2.25795.



Graph:1 Level of knowledge on optional Vaccine among Mothers



Graph:2 Level of knowledge on optional Vaccine among Mothers

Table-4: Correlation between Knowledge and Attitude regarding optional vaccines among mothers of under five children. (n=384)

Correlation	R score
Knowledge	0.76 S
Attitude	

Table 4 illustrates the correlation between knowledge and attitude regarding optional vaccines among 384 mothers of under-five children. The analysis reveals a strong positive correlation (r = 0.76) between the two variables, which is statistically significant. This indicates that higher knowledge about optional vaccines among mothers is associated with a more positive attitude towards them, emphasizing the need for effective educational programs to improve awareness and foster favorable attitudes.

Table-5: Barriers regarding optional vaccines among mothers of under five children.

QUESTIONS	Yes		No	
	F	%	F	%
Are you adequately aware about the optional vaccine that are available?	256	67%	128	33%
Does the cost of optional vaccines affect your decision to get them to your child?	224	58%	160	42%
Do you feel that optional vaccines are safe for your child?	263	68%	121	32%
Are there any issues related to transportation to health care facilities for vaccinating your child?	199	52%	185	48%
Are you adequately informed by your health care professionals about the benefits of optional vaccines?	195	51%	189	49%
Do you worry about the pain that your child might experience during vaccination process?	251	65%	133	35%
Do you think that your local health care services should provide optional vaccines free of cost?	263	68%	121	32%
Do you require a time-to-time reminder for vaccinating your child?	221	58%	163	42%
Are there any social stigmas within your community that affects your decision to vaccinate your child?	197	51%	187	49%

Table-6: Association between level of Knowledge and Demographic variables of the study participants

Demographic Variable	x^2	df	P-Value
Age of Mother:	**13.613**	**6**	**0.034 (S)**
18-25 years			
25.1-30 years			
30.1-35 years			
Above 35			
Age of Child			
0-6 months	**12.718**	**6**	**0.048 S**
6 months- 1year			
1-3 years			
3-5 years			
Religion			
Hindu	0.813	4	0.937 NS
Christian			
Muslim			

Other			
Type of Family			
Nuclear	5.758	2	0.056 NS
Joint			
Other			
Education of Mother			
No formal Education	**35.351**	**6**	**0.000 S**
Primary Education			
Secondary Education			
Graduate & above			
Education of Father			
No formal Education	**22.240**	**6**	**0.001 S**
Primary Education			
Secondary Education			
Graduate & above			
Monthly Family Income			
< ₹10,000	**31.190**	**6**	**0.000 S**
₹10,001-₹20,000			
₹20,001-₹30,000			
>₹30,000			
Source of Immunization information			
Healthcare Provider	**21.513**	**10**	**0.018 S**
Family/Friends			
Internet			
Television/Radio			
Govt. Health Campaign			
Other			

Table-7: Association between level of Attitude and Demographic variables of the study participants

Demographic Variable	x^2	df	P-Value
Age of Mother:	9.102	6	0.168 NS
18-25 years			
25.1-30 years			
30.1-35 years			
Above 35			
Age of Child			
0-6 months	5.773	6	0.449 NS
6 months- 1year			
1-3 years			
3-5 years			
Religion			
Hindu	8.534	4	0.074 NS
Christian			
Muslim			
Other			
Type of Family			
Nuclear	2.057	2	0.358 NS
Joint			
Other			
Education of Mother			
No formal Education	14.357	6	0.026 S
Primary Education			
Secondary Education			
Graduate & above			
Education of Father			
No formal Education	8.714	6	0.190 NS
Primary Education			
Secondary Education			
Graduate & above			
Monthly Family Income			
< ₹10,000	**19.362**	**6**	**0.004 S**
₹10,001-₹20,000			
₹20,001-₹30,000			
>₹30,000			
Source of Immunization information			
Healthcare Provider	2.620	10	0.989 NS
Family/Friends			
Internet			
Television/Radio			
Govt. Health Campaign			
Other			

DISCUSSION

The study revealed significant gaps in knowledge and varying attitudes among mothers of under-five children regarding optional vaccines, with the majority demonstrating poor knowledge and moderate attitudes. A strong positive correlation between knowledge and attitude highlights the need for targeted educational interventions to improve awareness and foster favorable perceptions. Key barriers to vaccine uptake included high costs, lack of awareness, safety concerns, and logistical challenges, consistent with findings from similar studies. These barriers underscore the importance of implementing affordable vaccination programs, enhancing healthcare communication, and increasing accessibility through community-based initiatives. While the study provides valuable insights, its cross-sectional design and focus on a specific region may limit generalizability. Overall, addressing these challenges through strategic public health efforts can improve vaccine uptake and contribute to better child health outcomes.

CONCLUSION:

The study revealed a significant gap in knowledge regarding optional vaccines among mothers of under-five children, with 63% of mothers exhibiting poor knowledge, while only 5% demonstrated good knowledge. Despite this, a considerable number of mothers (71.6%) exhibited a moderate attitude toward optional vaccination, with 28.1% showing a favorable attitude. The strong positive correlation (r = 0.76) between knowledge and attitude highlights the need for targeted educational programs to bridge this knowledge gap and foster more positive attitudes toward optional vaccines. Barriers such as cost, lack of adequate information from healthcare providers, concerns about vaccine safety, transportation issues, and social stigma were identified as significant challenges in the uptake of optional vaccines. The study underscores the importance of implementing cost-effective, accessible, and community-centered vaccination awareness campaigns to address these barriers and enhance the overall immunization coverage.

These findings emphasize the crucial role of healthcare providers and public health policies in promoting awareness and ensuring that mothers are well-informed about the benefits and availability of optional vaccines, ultimately contributing to improved child health outcomes.

Statement of Informed Consent: The informed consent form was taken from the postnatal mothers prior to the data collection of the study.

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