



Assessment of knowledge, Attitude and practice of compliance regarding child immunization among guardians attending immunization centre at military hospital Roorkee, Uttarakhand

¹Maj Tania Bose, ²Brig VV Tewari and ³Col Rajasree V

¹ MNS Officer Military Hospital Roorkee, Uttarakhand, India

² Guide, Commandant, Military Hospital Roorkee, Uttarakhand, India

³ Co-Guide, Principal Matron Military Hospital Roorkee, Uttarakhand, India

Corresponding Author: Maj Tania Bose

DOI: <https://www.doi.org/10.33545/nursing.2025.v8.i2.E.564>

Abstract

This descriptive cross-sectional study at Military Hospital Roorkee assessed guardians' knowledge, attitude, and practice (KAP) regarding child immunization using Schwartz's KAP model (1976). A total of 380 participants were selected via convenience sampling. Data were collected through structured interviews and questionnaires. Findings revealed 81.1% had fully immunized their children per government schedule. While knowledge and practice were average, attitudes were positive but showed resistance to additional vaccines. Significant associations were found between knowledge, practice, and socio-demographic factors like age, education, and income. The study recommends targeted educational interventions for lower-income and less-educated groups to improve immunization compliance. The study was conducted in the year 2024, samples were collected wef. 10 May 2024 to 12 Aug 2024.

Keywords: Knowledge, attitude, practice, guardian, child immunization, immunization centre

Introduction

Immunization prevents 3 million deaths annually. India's Mission Indradhanush (2014) targets 90% coverage for 12 diseases, supported by WHO, UNICEF, and others. Ongoing research is crucial for success ^[1].

Ndaki P *et al.* (2024) studied 216 mothers, finding 27.3% had good knowledge and 64.8% showed positive attitudes toward child immunization. Measles (90.7%) and polio (81.9%) were widely recognized. 84.3% recommended vaccination, 50.9% of children were fully immunized, and 26.4% experienced side effects ^[2].

Despite immunization preventing 3 million deaths annually, India's coverage stalled at 76.1% (2019-21), leaving 1 in 4 children unvaccinated. Uttarakhand improved from 57.7% (2015-16) to 81.1% (2019-21), yet 2 in 10 children remain uncovered. Strengthening outreach and continuous monitoring is vital to close these gaps ^[3].

India's Universal Immunization Programme (UIP) is one of the largest and most cost-effective public health initiatives, offering free vaccines against 12 diseases including TB, polio, hepatitis B, measles, and pneumonia. Launched in 2014, Mission Indradhanush aims for 90% full immunization, supported by WHO, UNICEF, and other global partners ^[4].

In India, limited awareness and high costs of optional vaccines lead to indecision and negative attitudes among

families, hindering uptake. Strengthening education and outreach is key to improving acceptance ^[5].

Need for the study

As the mortality rate of children under 5 years of age is high in the state of Uttarakhand (46.5 per 1000 live births according to NFHS-5 2019-2021), most of the deaths are caused by vaccine-preventable diseases ^[7]. Post-pandemic, many Uttarakhand parents avoided hospitals fearing COVID-19, missing child immunizations. Hilly terrain worsens access, contributing to a high under-five mortality rate (46.5/1000, NFHS-5), mostly from vaccine-preventable diseases. Assessing guardians' knowledge, attitude, and practices is vital to plan strategies that improve immunization coverage in remote areas ^[8].

In 2023, 14.5 million children globally were zero-dose, missing all vaccines. DTP3 coverage was 84%, measles first dose at 83% (down from 86% in 2019), and HPV first dose in girls rose from 20% to 27%. Yellow fever vaccine coverage in at-risk countries remained low at 50% ^[9].

Immunization, alongside clean water and healthcare access, has greatly increased global life expectancy and reduced infant mortality. Recognized as a major public health achievement, vaccination campaigns prevent 4 to 5 million deaths annually worldwide, according to the World Health Organization ^[6].

In West Bengal, month-specific vaccine coverage is below 20%, while non-month-specific coverage is 75%. Key demand-side factors include child's birthplace and household religion; supply-side determinants are male health workers and equipment availability. Targeted planning addressing these barriers is crucial to improve timely immunization coverage ^[10].

A community-based cross-sectional study revealed that 65.1% of parents had good knowledge, 57.3% a favorable attitude, and 55.3% good practice toward infant immunization. Parental education, urban residency, favorable attitude, and prior immunization visits were significantly associated with better knowledge. Mothers, educated parents, and those with good knowledge showed favorable attitudes. Immunization practice was linked to education levels, good knowledge, and shorter waiting times. Binary logistic regression confirmed these factors as statistically significant predictors of immunization compliance ^[11].

A 2021 cross-sectional study in Sungai Petani, Malaysia used probability sampling and a structured questionnaire. Mean respondent age was 41.65±9.81 years. 78.3% believed vaccines prevent disease, 90.1% agreed healthy children need vaccination, and 75.9% considered immunization safe, indicating strong parental support for routine immunization ^[12].

Objective

1. To determine the knowledge of compliance regarding child immunization among guardians attending the immunization centre at MH Roorkee
2. To find out the attitude of compliance regarding child immunization among guardians attending the immunization centre at MH Roorkee.
3. To look for the practices among guardians regarding child immunization, attending the immunization centre at MH Roorkee
4. To find out the relationship between socio-demographic variables and knowledge and practice among guardians regarding child immunization, attending the immunization centre at MH Roorkee.
5. To determine how knowledge affects the practice regarding child immunization among guardians attending immunization centre at MH Roorkee.

Review of literature related to attitude, knowledge, and practice of parents affecting the immunization status of the child

Mahalingam S *et al.* conducted a study on the knowledge, attitude, and perception of mothers with children under five years of age about vaccination in Mangalore, India (2014) and found that a significant number of mothers in rural areas were unaware of the vaccination and its implications. Even in the urban areas, we found significant lacunae in the KAP of mothers towards childhood vaccination ^[13].

Chandan Kumar *et al.* (2024) found 13% mothers had poor and 63% average immunization knowledge. Maternal age, education, and socioeconomic status influenced scores. Education on immunization and risks is needed. ¹⁴

Sandeep S *et al.* (2024) found rural parents had poor vaccination knowledge, average attitudes, and improved practices due to MoHFW and Anganwadi efforts. Low maternal literacy was concerning, with some unaware of vaccine schedules or target diseases, despite following immunization cards. Awareness gaps remain a key

challenge in rural areas ^[15].

Sankar *et al.* (2018) studied mothers in a South India hospital and found satisfactory vaccination knowledge, attitude, and practice, yet many children were partially immunized. Maternal education was a key factor. The study emphasized boosting UIP coverage and using media to raise awareness on complete vaccination adherence ^[16].

A study was conducted by Jolsna Joseph *et al.* (2015) on Parents' Knowledge, Attitude, and Practice on Child Immunization. This study showed that socio-demographic factors had a significant influence on the immunization status of children ^[17].

Bijay Laxmi Mallick *et al.* (2023) studied mothers of under-five children in a tertiary hospital, finding 94.9% received immunization info from health personnel. Education, caste, and religion significantly influenced immunization status. 85% of mothers with high school education fully immunized their children, underscoring education's impact on vaccine compliance ^[18].

Ramawat *et al.* (2018) found 77% children fully immunized. Incomplete vaccination was due to illness, distance, and lack of awareness. Mothers showed positive attitudes; health workers were key information sources ^[19].

In a 2023 study by Jayaraj *et al.*, I found that while 90 children were fully immunized, 60% missed scheduled vaccines. I observed that educated parents trusted vaccines more, yet 17.89% doubted their safety. I noted one-fifth feared long-term effects, despite good overall coverage in our locality ^[20].

Methodology

Study Design and Setting

A descriptive cross-sectional study was conducted at the immunization centre and pediatric OPD of Military Hospital (MH) Roorkee, a 400-bed zonal hospital in Uttarakhand. Data collection occurred during weekly immunization clinics held on Wednesdays and Fridays, serving defense personnel, retired servicemen, and local civilian families.

Population and Sampling

The study targeted guardians accompanying children for immunization. A total of 380 participants were recruited using non-probability convenience sampling, based on willingness and informed consent. Sample size was calculated using Cochran's formula with a 95% confidence level and 5% margin of error.

Variables

Primary Variables: Knowledge, attitude, and practice (KAP) regarding child immunization.

Socio-demographic Variables: Age, relation to child, education, occupation, economic status, religion, child's age, number of children, birth order, and family type

Data Collection Tools

- **Tool I:** Structured questionnaire for socio-demographic data
- **Tool II:** 3-point scale for knowledge assessment
- **Tool III:** 5-point Likert scale for attitude measurement
- **Tool IV:** Dichotomous (Yes/No) items for practice evaluation
- **Tool V:** Multiple-choice questions to identify sources of immunization information

Results of the study

Tables and graphs

Section I: Finding related to demographic Characteristics of participants

Table 1: Frequency & percentage distribution of Demographic variables (Relationship of participant with child) n=380

Relation	Frequency	Percentage
Father	175	46.1
Mother	167	43.9
Other	38	10.0

Out of 380 guardians, 175(46.1%) were father, 167 (43.9%) were mother and 38(10%) were other.

Table 2: Frequency & percentage distribution of Demographic variables (age of the Participant) n=380

Age (in years)	Frequency	Percentage
<20	8	2.1
20 to<30	136	35.8
30 to<40	182	47.9
40 to<50	23	6.1
>50	31	8.2

Out of 380 guardians, 182 (47.9%) were in the age group 30-<40 years, 136 (35.8%) were in the age group 20-<30, 31 (8.2%) were >50 years, 23(6.1%) were 40-<50 years and 8(2.1%) were of <20 years.

Table 3: Frequency & percentage distribution of Demographic variables (Educational qualification of participants) n=380

Education	Frequency	Percentage
No Formal Education	8	2.1
Primary Education only & Below 10 th Pass	22	5.8
10 th Pass	42	11.1
12 th Pass	112	29.5
Graduate & Diploma	128	33.7
Post Graduate	68	17.9

Out of 380 guardians, 128 (33.7%) were Graduate & Diploma followed by 112 (29.5%) 12th pass, 42 (11.1%) 10th pass, 68 (17.9%) were post graduate, 8 (2.1%) were with no formal education, 22 (5.8%) were with either primary education only & below 10th pass

Table 4: Frequency & percentage distribution of Demographic variables (Occupation of participants) n=380

Occupation	Frequency	Percentage
Defence	134	35.3
Govt Servant	65	17.1
Private Sector	25	6.6
Self Employed	45	11.8
Unemployed	88	23.2
Retired	23	6.1

Out of 380 guardians, 134 (35.3%) were defence staff followed by 88 (23.2%) unemployed, 65(17.1%) Govt servants, 45(11.8%) self-employed, 23 (6.1%) retired, 25 (6.6%) working in private sectors

Table 5: Frequency & percentage distribution of Demographic variables (Family Income of participants) n=380

Family income	Frequency	Percentage
<1 LPA	1	0.3
1 to<5 LPA	85	22.4
5 to<10 LPA	183	48.2
10 to<15 LPA	64	16.8
>15 LPA	47	12.4

Out of 380 guardians, 183 (48.2%) were having family income of 5 to<10 LPA followed by 85 (22.4%) 1 to<5 LPA, 64 (16.8%) 10 to<15 LPA, 47 (12.4%) >15 LPA, 1(0.3%) <1 LPA

Table 6: Frequency & percentage distribution of Demographic variables (Religion Of participants) n=380

Religion	Frequency	Percentage
Hindu	335	88.2
Muslim	24	6.3
Christian & Others	21	5.5

Out of 380 guardians, 335 (88.2%) were Hindu followed by 24 (6.3%) Muslim and 21 (5.5%) of other religion

Table 7: Frequency & percentage distribution of Demographic variables (age of the child) n=380

Age of the child	Frequency	Percentage
<1 year	153	40.3
1 to <2	105	27.6
2 to 5	122	32.1

Out of 380 guardians, 153 (40.3%) were having age of the child <1 year followed by 122 (32.1%) 2to 5 years and 105 (27.6%) 1 to <2 years.

Table 8: Frequency & percentage of demographic variables (No. of Children) n=380

No. of Children	Frequency	Percentage
1	196	51.6
2	159	41.8
3	24	6.3
4	1	0.3

Out of 380 guardian s, 196 (51.6%) were having 1 child, 159 (41.8%) having 2 children, 24(6.3%) having 3 child and 1 (0.3%) were having 4 children.

Table 9: Frequency & percentage of demographic variables (Family composition) n=380

Family composition	Frequency	Percentage
Nuclear	121	31.8
Joint	259	68.2

Out of 380 guardians, 121 (31.8%) were having family composition nuclear and 259 (68.2%) joint family

Table 10: Frequency & percentage of demographic variables (Order of Birth) n=380

Order of Birth	Frequency	Percentage
1 st	226	59.5
2 nd	137	36.1
3 rd	17	4.5

Out of 380 guardians, 226 (59.5%) brought their 1st child, 137 (36.1%) brought their 2nd child and 17 (4.5%) brought their 3rd child

Section II: Finding related to immunization status of the child

Table 11: CHILD Immunization Status n=380

Child Immunization Status	Frequency	Percentage
Fully Immunized	308	81.1
Partially Immunized	37	9.7
Not Immunized	35	9.2

Table 12: Question wise percentage of knowledge regarding child immunization among guardians attending immunization centre at MH Roorkee n=380

SL no	Knowledge questions	Ye %	No %	No idea%
1	Is vaccination important to prevent some disease?	86.57	6.31	7.12
2	Are you aware about the immunization schedule up to 5 years of your child?	73.95	15	11.05
3	Are you aware about the correct age at which child vaccination starts?	79.21	12.11	8.68
4	Do you know vaccine reduce death and disability in child?	73.41	14.21	12.38
5	Do you know male and female have same vaccination schedule?	66.58	20.53	12.89
6	Have you heard about child having problem related to vaccine?	34.47	48.42	17.11
7	Is optional vaccine necessary for your child?	45.53	36.84	17.63
8	Is it important to start vaccination at birth?	83.95	8.68	7.37
9	Can vaccination keep children healthy?	83.68	9.47	6.85

Table 13: The knowledge score regarding child immunization among guardian attending immunization centre at MH Roorkee (Total score 18) n=380

Knowledge score	Characteristics	Frequency	Percentage
Poor knowledge (Score <10)	< MEAN-1 SD	55	14.5
Average knowledge (Score 10-17)	Mean \pm 1 SD	259	68.1
Good knowledge (Score >17)	>MEAN + 1 SD	66	17.4

Out of 380 guardians, 55 (14.5%) were having poor knowledge, 259 (68.2%) were having average knowledge and 66 (17.4%) were having good knowledge.

Section IV: Finding related to attitude of participants

Table 14: Attitude of compliance regarding child immunization among guardians Attending immunization centre at MH Roorkee

Statements to assess attitude	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	Frequency	Frequency	Frequency	Frequency	Frequency
Q1. I feel that vaccine is a safe way to build immunity in my child.	194 (51.1%)	138 (36.3%)	45 (11.8%)	2(0.5%)	1(0.3%)
Q2. I feel that the vaccine schedule designed by the ministry of health and family welfare is safe and of international standard	164 (49.2%)	149 (39.2%)	56 (14.7%)	11(2.9%)	0(0.0%)
Q3. I feel that it is important to follow the vaccination schedule	189 (49.7%)	141 (37.1%)	48(12.6%)	1(0.3%)	1(0.3%)
Q4. I feel that I will stop vaccinating my child if any temporary side effect occurs.	38 (10.0%)	105 (27.6%)	105(27.6%)	94 (24.7%)	38(10.0%)
Q5. I feel that I won't stop my child vaccination based on adverse opinion from my friends and family regarding some side effects of vaccination.	128 (33.7%)	124 (32.6%)	85(22.4%)	30(7.9%)	13 (3.4%)
Q6. I feel that vaccine has more benefits than harmful side effects.	141 (37.1%)	156 (41.1%)	59 (15.5%)	23 (6.1%)	1(0.3%)
Q7. I feel that optional vaccine is necessary for my child's better health and immunity.	68 (17.9%)	78 (20.5%)	21 (5.5%)	194 (51.1%)	19 (5.0%)

Among 380 guardians, Q1-Q3 showed strong agreement, indicating positive attitudes toward immunization. Q4-Q6 revealed mixed responses with notable neutrality and disagreement. Q7 showed a negative attitude, with 51.1% disagreeing. Overall, early questions reflected support, while later ones exposed concerns and varied perceptions about immunization in the population.

Out of 380 under 5 years of children, 308 (81.1%) were fully immunized followed by 37 (9.7%) partially immunized and 35 (9.2%) not immunized.

Section III: Finding related to knowledge of participants regarding child immunization

Objective 1: To determine the knowledge of compliance regarding child immunization among guardians attending immunization centre at MH Roorkee

regarding child immunization

Objective 2: To find out the attitude of compliance regarding child immunization among guardians attending immunization centre at MH Roorkee.

Section V: Finding Related to practice of participants regarding child immunization

Objective 3: To look for the practices among guardians regarding child immunization attending immunization centre at MH Roorkee

Table 15: Question wise percentage of answers of practice among guardians attending immunization centre at MH Roorkee

SL. No	Practice Questions	Yes %	No %
1	Have your child received vaccines till date?	76.32	23.68
2	Will you temporarily withheld vaccinating your child if he/she has fever?	62.37	37.63
3	Have you ever looked for optional vaccines other than those are in routine vaccination schedule?	36.58	63.42
4	Do you use/ will use pain relievers to relieve pain and swelling after vaccination?	58.15	41.85
5	Do you enquire about the next date of following dose of vaccine to the concerned health worker post vaccination?	83.68	16.32
6	Will you advise your friends and family to vaccinate their child?	93.68	6.32

Table 16: The practices score among guardians regarding child immunization attending immunization centre at MH Roorkee (Total score 6) n=380

Practice score	Characteristics	Frequency	Percentage
Poor practice (Score <3)	< MEAN-1 SD	45	11.8
Average practice (Score 3-5)	Mean \pm 1 SD	270	71.1
Good practice (Score >5)	>MEAN + 1 SD	65	17.1

Out of 380 guardians, 45 (11.8%) were having poor practice, 270 (71.1%) were having average practice and 65 (17.1%) were having good practice.

Section VI A: Finding Related to relationship of selected demographic variables with knowledge regarding

immunization

Objective 4: To find out relationship between socio demographic variables and knowledge and practice among guardians regarding child immunization attending immunization centre at MH Roorkee.

Table 17: Relationship between socio demographic variables and knowledge and practice among guardians regarding child immunization attending immunization centre at MH Roorkee.

Demographic variables	Knowledge score			Chi square	DF	Critical value	Significance
	< Median	≥ Median	Total				
Relation							
Father	62	113	175	0.711	2	5.99	Not Significant
Mother	64	103	167				
Other	16	22	38				
Age							
<20	5	3	8	11.098	4	9.39	Significant
>50	18	13	31				
20-<30	43	93	136				
30-<40	70	112	182				
40-<50	6	17	23				
Education							
10th Pass	18	24	42	10.808	5	11.07	Not Significant
12th Pass	48	64	112				
Graduate & diploma	35	93	128				
No Formal EDU	4	4	8				
Post Graduate	25	43	68				
Primary EDU & Below 10th	12	10	22				
Occupation							
Defence	49	85	134	5.454	5	11.07	Not Significant
Govt SEVNT	18	47	65				
Private Sec	12	13	25				
Retired	11	12	23				
Self EMP	16	29	45				
Unemployed	36	52	88				
Family Income							
>15 LPA	16	31	47	6.370	3	7.39	Not Significant
<1L & 1-<5 LPA	36	50	86				
10-<15 LPA	31	33	64				
5-<10 LPA	59	124	183				
Religion							
Hindu	123	212	335	1.843	2	5.99	Not Significant
Mus	12	12	24				
Other	7	14	21				
Age of the child							
<1 yr	58	95	153	0.781	2	5.99	Not significant
1 TO <2	42	63	105				

2 TO 5	42	80	122				
No of child							
One	67	126	196	2.473	3	0.480	Not Significant
Two	65	94	159				
Three	10	14	24				
Four	0	1	1				
Family composition							
Joint	101	158	259	0.921^a	1	0.337	Not Significant
Neuclear	41	80	121				
Order of birth							
1 st	75	151	226	4.719	2	0.094	Not Significant
2 nd	61	76	137				
3 rd	6	11	17				

From the table it was observed that there were statistically significant relation between socio demographic variable (Age) and knowledge as the calculated value of chi square (Yates' correction done wherever applicable) was higher than table value of chi square/ critical value at 0.05 level of

significance.

Section VI B: Finding Related to relationship of selected demographic variable with practice regarding child immunization.

Table 18: Relationship between socio demographic variables and practice among guardians regarding child immunization attending immunization centre at MH Roorkee.

Demographic variables	practice score			Chi square	DF	Critical Value	Significance
	< median	≥ Median	Total				
Relation							
Father	60	115	175	0.964	2	5.99	Not Significant
Mother	49	118	167				
Other	12	26	38				
Age							
<20	3	5	8	1.877	4	9.39	Not significant
>50	12	19	31				
20-<30	43	93	136				
30-<40	58	124	182				
40-<50	5	18	23				
Education							
10th Pass	21	21	42	22.754	5	11.07	Significant
12th Pass	44	68	112				
Graduate & diploma	25	103	128				
No Formal EDU	5	3	8				
Post Graduate	18	50	68				
Primary EDU & below 10th	8	14	22				
Occupation							
Defence	48	86	134	3.708	5	11.07	Not Significant
Govt Sevnt	16	49	65				
Private SEC	7	18	25				
Retired	6	17	23				
Self EMP	13	32	45				
Unemployed	31	57	88				
Family Income							
>15 LPA	5	42	47	13.642	3	7.39	Significant
<1L & 1-<5 LPA	31	55	86				
10-<15 LPA	17	47	64				
5-<10 LPA	68	115	183				
Religion							
Hindu	103	232	335	2.372	2	5.99	Not Significant
Mus	11	13	24				
Other	7	14	21				
Age of the child							
<1 yr	52	101	153	3.565	2	5.99	Not Significant
1 TO <2	38	67	105				
2 TO 5	31	91	122				
No of child							
ONE	56	140	196	2.634	3	0.452	Not Significant
TWO	57	102	159				
THREE	8	16	24				

FOUR	0	1	1				
Family composition							
Joint	88	171	259	1.708	1	0.191	Not Significant
Nuclear	33	88	121				
Order of Birth							
1 st	65	161	226	2.865	2	0.239	Not Significant
2 nd	51	86	137				
3 rd	5	12	17				

From the table it was observed that there were statistically significant relation between socio demographic variables (education & Family income) and practice as the calculated value of chi square (Yates' correction done wherever applicable) was higher than table value of chi square at 0.05 level of significance but not with other variables

Section VII: Finding related to relationship between knowledge and practice regarding child immunization

Objective 5: To determine how knowledge affects the practice regarding child immunization among guardians attending immunization centre at MH Roorkee.

Table 19: knowledge affects the practice regarding child immunization among guardians attending immunization centre at MH Roorkee. n=380

Variables	Mean	SD	Corr. Coeff (r)	t-value	significance
Knowledge	13.56	4.01	0.238	4.765	Significant
Practice	4.11	1.43			

t (table) = 1.96 with df=378 at 0.05 level of significance
From the above table it was observed that the mean knowledge score was 13.56 with SD 4.01 and the mean practice score was 4.11 with SD 1.43 There were statistically significant relation between knowledge score and practice score as obtained from calculated value of t (4.765) which was higher than table value of t (1.96) with df 378 at 0.05 level of significance. As the value of correlation coefficient r (0.238) knowledge affected, practice.

Section VIII: Finding related to source of information regarding child immunization among participants

Table 20: Source of Information about Child Vaccination. n=380

Source Of Information	Frequency	Percentage
Doctor	164	43.2
Nursing officers	104	27.4
Local Other Health Care personals	66	17.4
Social Media	23	6.1
Friends/ Family	23	6.1

Discussion with other studies

The study at MH Roorkee found most guardians were fathers (46.1%), aged 30-40 years (47.9%), graduates (33.7%), and from middle-income joint families. These findings align with studies by Sebastian *et al.* and Upadhye *et al.* showing similar demographics. Knowledge and practice were mostly average (68.1% and 71.1%), consistent with Jelly *et al.* and Sandeep *et al.* Attitudes were positive toward routine vaccines but skeptical of paid ones, echoing Jayaraj *et al.* Doctors were the main information source

(43.2%), as supported by multiple KAP studies across India.

Conclusion

Despite 81.1% full immunization, most guardians at MH Roorkee showed average knowledge (68.1%) and practice (71.1%). Attitudes were positive toward routine vaccines but hesitant about paid ones. Age, education, and income influenced KAP outcomes, highlighting the need for targeted awareness and multi-channel information to reduce vaccine hesitancy.

Recommendation

Future research should explore child immunization compliance across diverse populations and settings, including urban-rural and defense-civilian comparisons. Correlation studies on socio-demographic factors influencing knowledge, attitude, and practice (KAP) are recommended. Evaluating the impact of community health awareness programs can guide targeted interventions. Educational initiatives should focus on parents with lower income and education levels to improve immunization outcomes. Multi-channel information dissemination—especially through trusted sources like healthcare providers can reduce vaccine hesitancy and enhance awareness. These strategies will help bridge gaps in KAP and support broader immunization coverage in varied communities.

Nursing Implications

Ensuring high child immunization compliance requires education, accessibility, and community engagement. Nurses play a vital role through direct counseling, community-based awareness programs, and advocacy. Structured education for low-income and less-educated parents can bridge knowledge gaps. Identifying and addressing barriers like myths and logistical challenges is essential. Nurses should support policy integration of immunization education into prenatal and school health programs and collaborate with public health officials to expand outreach. These multifaceted strategies, led by nursing professionals, can improve vaccine adherence, reduce hesitancy, and enhance public health outcomes across diverse populations.

Acknowledgement

Not available

Author's Contribution

Not available

Conflict of Interest

Not available

Financial Support

Not available

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How to Cite This Article

Bose MT, Brig Tewari VV, Rajasree CV. Assessment of knowledge, Attitude and practice of compliance regarding child immunization among guardians attending immunization centre at military hospital Roorkee, Uttarakhand. Suicidal behavior among Iranian psychiatric patients. *International Journal of Advance Research in Nursing*. 2025; Page No. 350-357

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