



## A Study to Assess Knowledge, Attitude and Practice of Parents towards Immunization and its Associated Factors in Jalalabad, Kyrgyzstan

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### ABSTRACT

**Vaccine preventable diseases (VPD)** are considered as one of the main causes of mortality and morbidity among children all over the world. Adequate and accurate knowledge as well as positive attitude behavior regarding vaccination may increase parents' compliance with their children's vaccination. The objective of this study was to assess parents, knowledge, attitude and level of practices regarding immunization to their children and the factors that are associated with immunization.

**Methods:** This is a descriptive cross-sectional study. A convenient sampling technique was used to approach this study subjects. All the variables were computerized and entered into the Statistical Package for social sciences (SPSS) version 22. The analysis result with variables with a p-value of less than 0.05 were considered to be significant association with parental knowledge, attitude and practice.

**Result:** A total of 220 respondents were included for the study. A significant proportion of the participants were aged 26-30 (44.1%) where most respondents were identified as mothers (92.3%) to provide information regarding their child immunization. The good knowledge score was 65.5%, the favourable attitude score was found to be 65% and good practices was 69.5% among the respondents. Regarding level of knowledge, Attitude & Practice of immunization, statistically significant correlation was found among respondents with Higher level of education, Housewife mother & respondent of urban areas. In addition, age groups 26-30 was significantly associated with good level of knowledge towards their children immunization.

**Conclusion:** Parental knowledge, attitude and practice towards their children immunization was found to be satisfactory. However more work needs to be done in the area of awareness, education and accessibility to healthcare for further improvement.

Keywords: Knowledge, Attitude, Practice, Parents, Mothers, Childhood Immunization, Vaccination

### Introduction

For centuries, vaccination (immunization) has been a vital public health measure that helps prevent and manage infectious diseases. It's estimated that immunizations save two to three million lives annually. (1)

The idea behind vaccination is to strengthen immunity to certain pathogens, such as bacteria or viruses, so the body can fight them off without actually causing the illness. Numerous lives have been saved by this protective mechanism, which is the mainstay of global disease prevention initiatives. The World Health Organization (WHO) has devised the Global Vaccine Action Plan, a framework with the objective of eliminating vaccine-preventable diseases by 2020. Regrettably, the majority of children worldwide—particularly those in developing nations—have not attained the intended global immunization coverage of 90%. (2)

According to a number of reports, VPDs continue to be accountable for over 25% of all pediatric deaths that occur each year.(3) VPDs place people, families, and communities at large in the midst of a serious economic and social catastrophe. Children exposed to these avoidable illnesses typically have many delays in their growth and development. (4)

Some diseases, like smallpox, have almost completely disappeared because of immunization campaigns, while the prevalence of numerous other illnesses, such as polio, measles, and influenza, has drastically decreased(5). It is estimated that vaccines against childhood diseases save 4 million lives annually worldwide. The creation and distribution of COVID-19 vaccinations in recent years have highlighted the significance of vaccines in resolving international health emergencies.(6) To combat new and emerging disease risks and guarantee a healthy future for everybody, continued research and innovation in vaccine development and distribution are crucial.(7)

More parents are beginning to doubt the need and safety of regular children vaccinations. In a research, parents demonstrated strong attitudes and good understanding on certain elements of kid immunization, while older parents, town dwellers, and highly educated people revealed gaps in their knowledge and increased concerns about the efficacy of vaccines. (8)

The uptake of the primary plus booster immunization is lower than that of the primary course alone for MMR, diphtheria, tetanus, and polio. The worldwide literature identifies a number of causes for insufficient uptake. These offer perceptions into the decision-making process of parents and possible obstacles to vaccination that would need to be overcome in an initiative to raise coverage rates. (9)

About vaccination, some parents have concerns regarding the necessity and safety of immunizations. Parents' worries range from partial reluctance to outright rejection of all vaccinations. This clinical study offers advice on how to handle vaccine-related concerns raised by parents.(10)

Kyrgyzstan has exceptionally high vaccination rates. Despite this high coverage rate, there is an increasing tendency of refusals and pockets of poorer immunization coverage in certain districts. Similarly, moms in the Jalalabad and Osh region identified improved cleanliness as a better means of preventing vaccine-preventable infections than immunization.(11)

## Methods and methodology

A cross sectional study with convenient sampling technique involving 220 mothers with children aged less than 2 years, conducted in Jalalabad region for the duration of 3month, 1st of December 2023 to 30th February 2024. A self-administered questionnaire in the regional where Kyrgyz language was utilized to evaluate the parents' vaccination-related knowledge, attitudes, and practices. The study employed descriptive statistics and the chi-square test to evaluate the correlation between sociodemographic factors and KAP.

## Result

A total of 220 respondents were included for the study. Age distribution indicates diverse representation, with a significant proportion aged 26-30 (44.1%). Most respondents were identified as mothers (92.3%) as respondents while the rest 7.7% were father, residing evenly between urban (39.1%) and rural (60.9%) areas. Educational attainment ranged from primary (3.2%) to bachelor's or higher (70%). Occupationally, respondents included students (10.9%), employees (31.8%), housewives (50.9%), and business professionals (6.4%). Family composition predominantly consisted of those with one child (69.1%). The age of the youngest child showed a concentration in the 0–5-month (80.9%). (Table 1)

Table 1: Socio-demographic information of the respondents

Characteristics	Frequency (n=220)	Percentage
Respondent Age		
18-20	41	18.6
21-25	69	31.4
26-30	97	44.1
31-40	13	5.9
Relation with child		
Father	17	7.7
Mother	203	92.3
Area the respondent from		
Urban	86	39.1
Rural	134	60.9
Sex of your youngest child		
Male	101	45.9
Female	119	54.1
Level of education of Guardian		
Primary	7	3.2
Secondary	6	2.7

High School	53	24.1
Bachelor or higher	154	70
Occupation		
Student	24	10.9
Employee	70	31.8
Housewife	112	50.9
Business	14	6.4
Number of children you have		
1 child	152	69.1
2-3 children	58	26.4
More than 3 children	10	4.5
Age of your younger child		
0-5 months	178	80.9
6-10 months	33	15
11-15 months	5	2.3
16-24 months	4	1.8

Table 2: Distribution of respondents according to the knowledge of parents regarding their children immunization (n=220)

Knowledge Factors	Responses	
	Yes	No
Vaccination prevents infectious disease	212(96.4)	8(3.6)
Infants should start a vaccination program just after birth	206(93.6)	14(6.4)
Is it necessary to vaccinate a breastfeeding infant	200(90.9)	20(9.1)
Is vaccination harmful	194(88.2)	26(11.8)
Are you agreeing to immunize your baby's full dose	204(92.7)	16(7.3)
Do you know about the side-effects of EPI vaccines	163(74.1)	57(25.9)
Do you know when the next vaccination date for your infants?	210(95.5)	10(4.5)

Table 2 provides insights into parent's knowledge regarding children immunization. The majority of respondents acknowledge the preventive nature of vaccination against infectious diseases, with 96.4% answering affirmatively. Similarly, 93.6% recognize the importance of initiating a vaccination program for infants just after birth. A significant portion (90.9%) acknowledges the necessity of vaccinating breastfeeding infants. Notably, 88.2% believe that vaccination is not harmful. Regarding commitment to completing the immunization schedule, 92.7% express agreement. However, a smaller proportion (74.1%) is familiar with the potential side effects of EPI vaccines. Impressively, 95.5% of respondents are aware of their infants' next vaccination date.

Table 3: Distribution according to the attitude of respondents towards Infants immunization

Attitude Factors	Responses		
	Agree	Disagree	I don't know
Do you think compliance with the immunization schedule is important	193(87.7)	19(8.6)	8(3.6)
Do you think vaccination side effects are dangerous	193(87.7)	20(9.1)	7(3.2)
Do you think vaccination important only for non-serious disease	132(60)	73(33.2)	15(6.8)
Do you think vaccination makes infants sick	182(82.7)	27(12.3)	11(5)

Do you think all children should be vaccinated?	191(86.8)	21(9.5)	8(3.6)
Do you think vaccination makes infants for death	139(63.2)	69(31.4)	12(5.5)
Do you know about vaccination benefits	194(88.2)	14(6.4)	12(5.5)
Do you think Infants are taking too many vaccines?	14 (6.4)	200(90.9)	6(2.7)
Have you recommended the use of vaccines to others?	181(82.3)	29(13.2)	10(4.5)

Table 3: The analysis of attitude factors among respondents regarding infant immunization (n=220) reveals a positive inclination towards vaccination. A significant majority, 87.7%, acknowledges the importance of compliance with the immunization schedule, emphasizing its significance. 87.7% were concerns about the danger of vaccination side effects to their children. Notably, 86.8% believe in the necessity of vaccinating all children. However, only 60% believe vaccination is crucial only for non-serious diseases. Encouragingly, 88.2% are aware of vaccination benefits and a substantial majority, 90.9%, believes that infants are not receiving an excessive number of vaccines. Around 82.3% who recommended vaccines to others to promote immunization.

Table 4: Distribution of respondents according to the Practice of infant immunization

Practice Factors	Responses		
	Yes	No	
Has your child received the mandatory childhood vaccines?	209(95)	11(5)	
Do you follow the compulsory vaccination programs listed in the vaccination schedule?	208(94.5)	12(5.5)	
Do you look for other vaccines available to your child?	202(91.8)	18(8.2)	
Do you use pain relievers to relieve swelling and pain after having your child vaccinated?	202(91.8)	18(8.2)	
Are you happy when your infant got a vaccine?	201(91.4)	19(8.6)	
Are you given the information about the current vaccine?	170(77.3)	50(22.7)	
How many times do you visit the health facility?	1 Time 109(49.5)	2-3 96(43.6)	4-5 15(6.8)
Problem you face with Vaccination of your infant?	Waiting Time 172(78.2)	Traveling Time 41(18.6)	Time for Immunization 7(3.2)

Table 4: The practice factors regarding infant immunization among respondents (n=220) shows 95% confirm that their child has received mandatory childhood vaccines, and 94.5% diligently follow the compulsory vaccination programs outlined in the schedule. With 91.8% are actively seeking other vaccines for their child and using pain relievers post-vaccination for alleviating swelling and pain. Positive emotional responses are prevalent, as 91.4% express happiness when their infant receives a vaccine. However, 77.3% report receiving information about the current vaccine from health care center. In terms of health facility visits, 49.5% visit once, 43.6% visit 2-3 times, and 6.8% visit 4-5 times. Challenges primarily revolve around waiting times (78.2%), with a smaller percentage facing issues related to traveling time (18.6%) and the time required for immunization (3.2%).

Table 5: Distribution of respondents according to their level of knowledge

Knowledge level	Frequency(n=220)	Percentage (%)
Good Knowledge	144	65.5
Poor Knowledge	76	34.5

Table 5: The survey of 220 respondents indicates that 65.5% have good knowledge, while 34.5% exhibit poor knowledge.

Table 6: Distribution of respondents according to their level of attitude

Attitude level	Frequency(n=220)	Percentage (%)
Favorable	143	65

Unfavorable	77	35
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Table 5: The data reveals the distribution of respondents' attitudes, with 65% holding a favorable stance and 35% expressing an unfavorable attitude among the 220 participants.

Table 7: Distribution of respondents according to their level of Practice

Practice level	Frequency(n=220)	Percentage (%)
Good	153	69.5
Poor	67	30.5

Above table shows the data demonstrates the distribution of respondents' practice levels, with 69.5% exhibiting good practices and 30.5% showing poor practices among the total 220 participants.

Table 8: Correlation between socio demographic information and level of Knowledge of Respondents

Characteristics	Level of Knowledge		P-value
	Good	Poor	
<b>Age</b>			0.035
18-20	29	12	
21-25	53	16	
26-30	54	43	
31-40	8	5	
<b>Education</b>			0.003
Primary	3	4	
Secondary	3	3	
High School	31	22	
Bachelor or High	116	38	
<b>Location</b>			0.001
Rural	69	17	
Urban	75	59	
<b>Relationship</b>			0.021
Mother	136	51	
Father	8	25	

The correlation analysis examining the interplay between socio-demographic factors and respondents' knowledge levels which reveals, a statistically significant ( $p = 0.035$ ) between age groups is evident, particularly among participants aged 26-30, exhibit good knowledge. Furthermore, educational background emerges as a crucial factor ( $p = 0.003$ ), with respondents holding a Bachelor's degree or higher displaying a markedly higher proportion of good knowledge (116) compared to counterparts with lower educational levels. Lastly, birth order demonstrates significance ( $p = 0.021$ ), with first children (136) exhibiting a higher proportion of good knowledge might be they are more concerned for their first child in comparison to 2<sup>nd</sup> born child.

Table 9: Correlation between socio-demographic information and attitude of respondents towards their children vaccination

Characteristics	Attitude		P-value
	Favorable	Unfavorable	
<b>Education</b>			0.003
Primary	1	6	

Secondary	3	3	
Higher secondary	29	24	
Bachelor or higher	110	44	
<b>Occupation</b>			0.005
Student	16	8	
Job/Service	47	23	
Housewife	80	46	

Above table shows that the correlation analysis reveals the associations between socio-demographic factors and respondents' attitudes toward their children's vaccination. A significant relationship with education levels plays a crucial role has ( $p=0.003$ ), with individuals holding a Bachelor's degree or higher had favorable attitudes. Occupation is also influential with ( $p=0.005$ ), as housewives (80) show more favorable attitudes compared to students and those in job/service might be mothers who are housewives are the primary caregivers who prioritize their children's health and well being including ensuring they receive necessary vaccinations to prevent disease

Table 10: Correlation between socio demographic and respondents Practices towards vaccination of their children

Characteristics	Practices		P-value
	Good	Poor	
<b>Living area</b>			0.031
Rural	67	19	
Urban	86	48	
<b>Education</b>			0.003
Primary	3	4	
Secondary	3	3	
Higher secondary	31	31	
Bachelor or Higher	116	38	
<b>Occupation</b>			0.047
Student	19	5	
Job/Service	50	20	
Housewife	84	42	
<b>Relationship</b>			0.001
Mother	139	48	
Father	14	19	

Above table shows the correlation analysis shows about associations between socio-demographic factors and respondents' vaccination practices for their children. Urban residents exhibit a higher proportion of good practices than those in rural areas ( $p=0.031$ ). Education plays a significant role, with individuals holding a Bachelor's degree or higher showing better practices ( $p=0.003$ ). Occupation influences practices, as housewives demonstrate higher rates of good practices compared to students and job/service individuals ( $p=0.047$ ). The order of the child is also significant, with first children displaying better practices than other children ( $p=0.001$ ).

## Discussion

In terms of the parent age distribution, the majority of parents (44.1%) in our survey fell between the ages of 26 and 30, with 31.4% falling between the ages of 21 and 25. Regarding the parents' greatest educational attainment, the majority (70.1%) had a bachelor's degree or above, while 24.1% had just completed secondary school. This result was consistent with a research conducted in Saudi Arabia, where 91.0% of the population held a university degree.

The majority of research participants (90.9%) stated that vaccinations are important for breastfed children, and 88.2% felt they are safe. A study conducted

in North East Ethiopia yielded similar results: 87.1% of respondents believed that nursing is crucial for baby immunization, and 75.8% thought that vaccinations are safe.

(12)

Mothers made up the majority of respondents (92.3%) while fathers made up the remaining 7.7% of those who submitted information for our survey. This was comparable to a study of parents in Jeddah City, Saudi Arabia, where moms made up the majority (68.1%) and fathers made up the remaining 31.9% (13). A substantial percentage (90.9%) agrees that immunizing nursing infants is essential. Interestingly, 88.2% of people think vaccinations are safe.

While 71.7% of respondents in a Bishkek study were unsure, parents strongly disagreed that their children should have less vaccines for benefits. In our survey, 88.2% of respondents stated that it is beneficial for their children to receive all the immunizations (14).

### **Knowledge**

According to this study, 65.5% of parents have an excellent level of information regarding the vaccinations that their children have received. Our study's results are consistent with a study carried out in Wadla Woreda, North East Ethiopia, where 65.1% of parents showed proficiency in their knowledge of baby immunization.

According to our research, having more education is positively correlated with knowing more about vaccinations. This may be because having greater education makes it possible to communicate with medical professionals more effectively and reduces the likelihood of developing false views about vaccinations.(15)

Parents who live in urban areas are more likely to be knowledgeable than those who live in rural areas, according to this study. This conclusion aligns with research done in Malaysia (16) and India (17). It is likely that this is due to a difference in the health services offered in terms of availability and accessibility of immunization service, or it could be because parents in urban areas were more likely to be educated than parents in rural areas, which may have increased their knowledge about the benefits of infant immunization uptake.

The results of our study showed that mothers of the kid had a higher likelihood than fathers of having a strong understanding of their child's immunization.

### **Attitude**

This study shows that, on average, 65% of respondents had positive attitudes. However, in an Indian study, a majority of the observations, 85.4% of parents expressed positive opinions regarding immunization of their children. Furthermore, our research indicates that a greater educational attainment is strongly linked to superior knowledge and a more positive attitude. This supports the findings of another study, which revealed that parents with greater levels of education had more positive attitudes regarding vaccinations mostly because they recognized the importance of vaccinations. (18)

### **Practices**

Moreover, our study's analysis shows that 69.5% of parents followed sensible immunization procedures for their kids. Whereas 87.2% of parents reported following appropriate vaccination practices in a Saudi Arabian research, the rate is higher there. Our study demonstrates a statistically significant correlation between vaccine coverage and education level, and other research supports this finding by showing a positive relationship between education level and vaccination uptake.(19)

In the same way, children with illiterate mothers had less immunization practices than those with educated mothers, according to a 2018 study conducted in Lebanon to assess vaccine coverage in children.(20) The results of our study showed that mothers of the kid had better vaccination practices than fathers.

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## **Conclusion and Recommendation**

Parental Knowledge, Attitude and Practice towards their children immunization was 65-70%. Although these numbers are somewhat encouraging, more needs to be done to promote public awareness, education, and healthcare accessibility in order to achieve higher vaccination rates and better community health overall.

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