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Acceptance and Hesitancy for Childhood Vaccination among Parents in Jalal-Abad, Kyrgyzstan

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ABSTRACT

Background: Vaccination is one of the most cost-effective child survival interventions which is practiced throughout the world to reduce child mortality and morbidity associated with infectious diseases. Child health is recognized as one of the significant components of the family welfare. The focus seems to be the quality and level of utilization of services which are linked to knowledge and availability of these services to the target population. Therefore, the investigator planned to conduct the study to assess the knowledge among community on child vaccination and child health care.

Objective: The objective of this study is to understand parents' vaccination decision making for children and to see the impact of child health care.

Methods: An observational analytical cross-sectional study was carried by survey in community of different areas in Jalalabad to determine the information regarding the acceptance and hesitancy towards their childhood vaccination. The study area contained family with children. Data were recorded and entered in the software using SPSS version 26 for analysis.

Results: Out of total 130 respondents 83.8% of respondents answered that they were not hesitated towards their child vaccination whereas remaining 16.2% of respondent's responses that they were hesitated towards their child vaccination. Regarding age distribution of respondents, the highest percentage falls in the category "above 35" i.e (49.2%). Similarly 88.5% of the respondents were mother who has provided the information regarding their child vaccination. The majority of the respondents had not completed their secondary level" (41.5%) education who had provided information.

Conclusion: This study offers important perspectives on immunization. These results emphasize the importance of implementing specific interventions like mother education, proper awareness to target hesitancy and enhance trust in vaccination among new parents.

Keyword: *Child health care, immunization, knowledge of vaccination, type of vaccines.*

INTRODUCTION

Immunization is the process whereby a person is made resistant to a disease, typically by the administration of a vaccine. Vaccines have significantly contributed to worldwide reductions in morbidity and mortality by reducing the incidence of serious infectious diseases. Today, people all over the world experience the benefits of immunizations, beginning in infancy. Vaccination is a significant component of primary health care services to prevent and control infectious disease outbreaks. Among children, death caused by infectious diseases is reduced by 2-3 million each year by using vaccines(1).

Immunizations are often widely stated as less risky and an easier way to become immune to a particular disease than risking a milder form of the disease itself. They are important for both adults and children in that they can protect us from the many diseases out there. Immunization not only protects children against deadly diseases but also helps in developing children's immune systems. Through the use of immunizations, some infections and diseases have almost completely been eradicated throughout the World (2).

A healthy child's development actually begins before conception with the parents' health and their genetic legacy. It continues on to conception and through the prenatal period. During this time, there is naturally considerable overlap between paediatric concerns for the foetus and obstetrical concerns for the mother (3).

Immunization is one of the most cost- effective public health interventions, with considerable impacts on people's health. It is quite fortunate that each year, the lives of more than a million people (especially very young children) around the globe are saved with the help of immunization(4).

According to global health data, immunization saves the life of nearly three million people each year. About 30 million children in Latin America, sub-Saharan Africa, and Asia still do not have access to basic immunization services, due to which a child dies from a vaccine- preventable disease every ten seconds. Therefore, immunization is a method to prevent children from dying of infectious childhood diseases(5).

A look at the infant mortality rate (IMR) of developed as well as developing/transitional countries (including Pakistan), shows an increased incidence of mortality and morbidity among children globally. Therefore, increasing the general population's access to immunization services may reduce IMR at large. However, to meet the goal of increased immunization coverage, barriers to immunization should be identified and addressed (6).

In order to achieve higher immunization rates, it is important to identify and address obstacles to immunization(7). Multiple mechanisms can lead to variations in the barriers to vaccination and subsequent under-immunization, as shown by studies conducted in various countries. A US study found that social and cultural aspects, such as consulting traditional healers and the demographics of the population, were significant obstacles to vaccination(8).

METHODS AND METHODOLOGY

An observational analytic cross-sectional study was carried by survey in community of different areas in Jalalabad to determine the factors affecting hesitancy for childhood vaccination among respondents. Purposive sampling technique was used to collect information from 130 sample size from random people.

A structured and pretested questionnaire was adopted and used consisting of close – ended questions. The research data were collected through questionnaire method. The first part of the questionnaires were about socio-demographic characteristics, IEC related to child immunization and health care, whereas the 2nd part of the questionnaires contents childhood vaccination hesitation and the factors that might affect respondents decision regaing the vaccination . The questionnaire was done in Russian language.

Data were recorded and entered in the software using SPSS version 26 for analysis, Frequency, means, standard deviation were calculated. $P < 0.05$ was considered statistically significant in all evaluations.

RESULT

In the study we have total of 130 respondents as a parent of having children who had children less than 10 years of age.

TABLE1: Socio demographic information of the respondents

	Responses	Percentage	Frequency
Marital status	Married	85.3%	111
	Single parent	14.6%	19
How old are you?	18-25	19.2%	25
	26-35	31.5%	41
	Above 35	49.2%	64
Number of children	1	6.9%	09
	2	34.6%	45
	More than 2	58.5%	76
Relation with your child?	Mother	88.5%	115
	Father	7.7%	10
	Grand parents	3.8%	05
	Others	0.0%	00
Age of your younger child?	0-2 years	11.5%	15
	2-5 years	39.2%	51
	More than 5 years	49.2%	64
Occupation	Government employee	17.7%	23

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	Business	8.5%	11
	Agriculture	29.2%	38
	Housewife	44.6%	58
Family income (Per month)	Less than 20,000	43.8%	57
	More than 20,000	55.4%	72
Type of family	Nuclear	46.2%	60
	Joint	53.1%	69
Level of educational	Illiterate	3.1%	04
	Literate	40.8%	53
	Below secondary level	41.5%	54
	Above secondary level	14.6%	19

majority of respondents are married (85.3%), and single parents (14.6%). Age distribution of respondents shows the highest percentage falls in the category "above 111" (85.3%) and "18-25" (19.2%). According to the number of children respondents have majority have more than two children (58.5%), followed by two children (34.6%), and one child (6.9%). The age range of the children's respondents have the highest percentage falls under "2-5 years" (39.2%) and "more than 5 year (49.2%), with a smaller percentage under "0-2years" (11.5%). Depicts the primary sources of income for respondents the largest group relies on "others" (44.6%) like, followed by "Agriculture" (29.2%), "Government Employee" (17.7%), and "Business" (8.5%). The majority have a family income of "More than 20,000" (55.4%), followed by "Less than 20,000" (43.8%). The distribution shows a slightly higher percentage of "Joint" families (53.1%) compared to "Nuclear" families (46.2%). The majority fall under "Below Secondary Level" (41.5%), followed by "Literate" (40.8%), "Above Secondary Level" (14.6%), and a small percentage under "Illiterate" (3.1%).

TABLE 2: Distribution of respondents according to their hesitancy towards their child vaccination?

RESPONSES	Frequency	Percentage
Yes	21	16.2
No	109	83.8
Total	130	100.0

The total number of respondents were 130 where (109) 83.8% of respondents answered said that they were not hesitated towards their child vaccination whereas remaining 16.2% of respondents responses that they were hesitated towards their child vaccination.

TABLE 3 Have you had any pre-information about child immunization and health care?

RESPONSES	Frequency	Percentage
YES	107	82.3
NO	23	17.7
Total	130	100.0

Above table shows 82.3% of respondents (107 individuals) answered "YES," whereas 17.7% of respondents (23 individuals) answered "NO," this data indicates that a majority of respondents are informed about child immunization and health care.

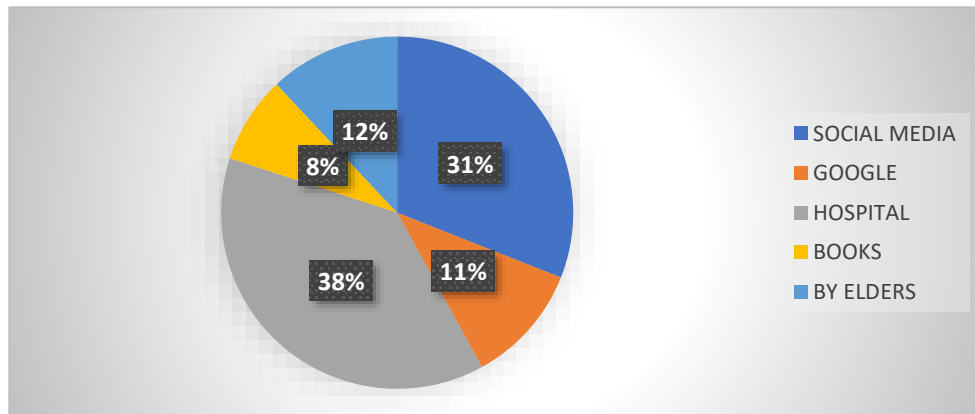


FIGURE 1: Source of knowledge for child immunization and health care

Above figure shows that 31% of the respondent's rely on social media as a source of information about child immunization and health care whereas, 11.00% of respondents use google for information and majority of respondents that is 38% rely on hospitals for information and guidance although least number of respondent's that is 8% use books as source of information.

Table 4: Distribution of respondents according to different schedule vaccine given to their child

Schedule	Vaccine	Frequency/Percentage
At the time of Birth	BCG, OPV-0, Hepatitis B	102 / 78%
6, 10, 14 Weeks,	DPT, OPV, Hepatitis B	98 / 75%
2mth, 4mth, 6mth	Rota Virus	69 / 53%
16mth, 24tmth	Japanese Encephalitis	52 / 40%
9mth, 12mth	MMR	76 / 58%
9mth, 12 mth	Yellow fever	56 / 43%

Above table shows that 78% of the respondents' children has been vaccinated against BCG (Bacillus Calmette-Guérin), OPV-0 (oral polio vaccine) and Hepatitis B. BCG likely indicating a relatively high level of protection against tuberculosis. A significant portion of the population has been vaccinated against hepatitis B, which are viral infections affecting the liver. Whereas 75% coverage of vaccine DPT (diphtheria, pertussis, tetanus), protection against these diseases, including bacterial infections. Where 53% coverage suggests a moderate level of protection against rotavirus infections, a common cause of diarrheal illness, particularly in young children

At 40% coverage of Japanese encephalitis vaccine which protect against infections caused by infected mosquitoes. With 58% coverage, there's a fair level of protection against MMR (measles, mumps, rubella), a highly contagious viral disease. However, higher coverage rates are essential to prevent outbreaks. 43% coverage, protection against yellow fever, a viral haemorrhagic fever transmitted by mosquitoes, appears relatively low. Vaccination is crucial for preventing outbreaks in endemic regions.

Table 5: Distribution of respondents according to their attitudes regarding vaccines

Responses	Frequency	Percentage
Do you have to pay for vaccine		
Yes	28	22%
No	102	78%
Are you satisfied with performance of health care workers at vaccination center		
Yes	88	68%
No	42	32%
Are you aware of health risks that may emerge when the vaccine is not administered		

Yes	110	85%
No	20	15%
Do you think you have enough information about the vaccination		
Yes	100	76%
No	26	20%
Not sure	04	4%
Do you think the Place of immunization is too far from your residency		
Yes	20	15%
No	110	85%
Do you think you are scared of side effect of vaccine		
Yes	34	26%
No	96	74%
Do you think you have to wait too long to get vaccine for you child		
Yes	20	15%
No	110	85%

The distribution of respondents' attitudes towards vaccines reveals a mix of perspectives. While the majority (78%) do not have to pay for vaccines, indicating accessibility, a notable portion (22%) still do. Satisfaction with healthcare workers at vaccination centers is relatively high at 68%, suggesting confidence in the system. Awareness of health risks associated with not getting vaccinated is widespread (85%), yet some respondents (15%) remain unsure. Similarly, a majority (76%) feel adequately informed about vaccination, but a significant minority (20%) express uncertainty. Most respondents (85%) find the immunization location convenient, though a small percentage (15%) disagree. Concerns about vaccine side effects are present among 26% of respondents, while the majority (74%) do not report such fears. Regarding wait times for child vaccinations, a similar trend emerges, with 85% indicating no issues, while 15% express concern. Overall, the data portrays a nuanced landscape of attitudes towards vaccines, reflecting varying levels of trust, awareness, and accessibility.

Table 6: Distribution of respondents according to the hesitancy for childhood vaccination with socio demographic information.

Characteristics	Hesitancy (21)	No Hesitancy (109)	P value
Age			0.023*
18-25	2(9.52)	23(21.10)	
26-35	7(33.33)	34(31.19)	
above 35	12(57.14)	52(47.70)	
Occupation			0.008*
Government employee	1(4.76)	22(20.18)	
Business	1(4.76)	10(9.17)	
Agriculture	5(23.80)	33(30.27)	
House wife	14(66.66)	44(40.36)	
Education			0.025*
Illiterate	4(19.04)	0(0)	
Literate	15(71.42)	38(34.86)	
Below secondary level	2(9.52)	52(47.70)	

Above secondary level	0(0)	19(17.43)	
Income			0.003*
Less than 20,000	18(85.71)	39(35.77)	
More than 20,000	3(14.28)	69(63.30)	
Are you satisfied with performance of health care workers at vaccination center			0.010*
Yes	17(80.95)	71(65.13)	
No	4(19.04)	38(34.86)	

*Statistically Significant

We found that the hesitancy rate was greater among house wife respondents than other respondents with ($P < 0.008$).

Among those who were satisfied with the information received from healthcare professionals, vaccine hesitancy was significantly lower than it was among those who said they were not satisfied ($P < 0.010$)

In the age range 18-25years, hesitancy is relatively low at 9.52%, while it increases to 33.33% among individuals aged 26-35year and further escalates to 57.14% among those above 35years. There was association found with age group more than 35 years with p value 0.023

Among government employees and business individuals, hesitancy rates stand relatively low at 4.76% each. In contrast, individuals in the agriculture sector exhibit a substantially higher hesitancy rate of 23.80%. However, the most notable disparity emerges among housewives, where an overwhelming 66.66% express hesitancy towards vaccination. ($P < 0.008$)

The illiterate group demonstrates the highest hesitancy rate at 19.04%, followed closely by the below secondary level group at 9.52%. conversely, individuals with higher levels of education with above secondary level, display notably lower hesitancy rates. ($P < 0.025$)

Individuals earning less than 20,000 exhibit a substantially higher hesitancy rate at 85.71% contrasting sharply with those earning more than 20,000, demonstrate a markedly lower hesitancy rate of 14.28%. ($P < 0.003$)

DISCUSSION

The research findings from our research shows, there's a notable disparity in the distribution, with only 6.9% of respondents have a single child, 34.6% having two children, and a majority 58.5%, having more than 2 children.

The research conducted in Ethiopia reveals a notable trend in maternal educational levels, with a significant majority having attained primary education (95%), followed by a substantial proportion with higher education (42.28%), and a comparatively lower percentage with secondary education (36.06%). In contrast, our research indicates a diverse distribution among educational levels, with the largest group falling under below secondary level (41.5%), followed closely by literate individuals (40.8%). A smaller but still considerable as above secondary level (14.6%), while a minority were classified as illiterate (3.1%) this comparison underscore distinct disparities in educational attainment (9).

Nearly 26% of our study participants agreed that their children will experienced short-term side effects after taking vaccines and they are likely to follow the immunization schedule. This findings are similar with another study carried out in Pakistan indicating the occurrence of mild side effects such as rashes, pain, fever, and swelling after immunization is acceptable(10).

In the West African context, traditional mediums such as television, radio, and newspapers play significant roles, with hospitals emerging as the primary source for a substantial portion of respondents, accounting for 40% to receive information regarding immunization. However, this research underscores the growing influence of digital platforms, particularly social media and Google, with 30.8% and 10.8% of respondents respectively, in shaping perceptions and decisions regarding child immunization (11).

According to the data, BCG vaccination coverage stands at a high of 87.4%, while hepatitis A and B coverage is reported at 57.3%. The completion rate for DPT is noted at 59.4%, and measles vaccination coverage is reported at 36%. In contrast, this research reveals slightly different figures, with BCG coverage at 78%, hepatitis A and B coverage at 75%, and measles vaccination coverage at 58%. These findings emphasize the importance of continuous monitoring and improvement of vaccination programs to achieve higher coverage rates and safeguard the population from vaccine-preventable illnesses.

Findings in our study demonstrates that contact with health care workers and a better understanding of vaccinations and who are satisfied with performance of health care workers at vaccination cente has positive influence for vaccinating their children has given the similar findings from a study done in West Africa (12).

The comparison between health risks that may emerge when the vaccine is not administered, a study done in Turkey suggests that parents informed about the potential health problems without vaccination were were stated around 95% towards childhood vaccinations. In same line, our research findings 85%

parents were aware regarding potential health problems if not completed the childhood vaccination. This highlights a similar pattern of hesitancy for childhood vaccination (13).

The findings of our study highlights that not having enough information about the vaccination, Place of immunization is too far from residency, too long waiting time to get vaccine at health center as the main contributing factors to delays in immunization. Similarly a study done in Colombia the attitude of the healthcare staff unavailability of vaccines in immunization centers at the time of vaccination, access to the immunization centers, long waiting times, the non-cooperative attitude of the medical staff, and lack of awareness regarding immunization timings were considered as the main contributing factors to delays in immunization (14)

CONCLUSION

In conclusion, this research provides valuable insights towards vaccination. While accessibility and awareness are generally positive, concerns about side effects and uncertainty persist among a notable minority of respondents. These findings highlight the need for targeted interventions aimed at addressing hesitancy and improving trust in vaccination. By leveraging these insights, policymakers and healthcare providers can tailor strategies to promote broader acceptance of vaccines and ultimately enhance public health outcomes.

RECOMMENDATION

While there are positive indicators such as high vaccination rates as well as higher acceptance and lower hesitancy rate for childhood vaccination among parents in Jalal-abad, Kyrgystan. As the sample size was limited with limited variables were crossed examined, so for further researcher it would be better to conduct research in larger sample size and with other different variables which might interfere with the acceptancy and hesitancy of vaccination among children in Jalal-abad Kyrgystan so that it could be addressed in a proper way.

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