

## A STUDY TO INVESTIGATE THE PERCEPTION REGARDING VACCINATION: EDUCATED AND UNEDUCATED PARENTS OF RURAL AND URBAN FAMILIES OF DISTRICT FAISALABAD

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### Abstract

Vaccine development is one of the most remarkable scientific breakthroughs in human history and has permanently revolutionized the field of medicine and health. Since its development in the early 20th century, vaccination has significantly reduced the burden of infectious diseases, and associated morbidity and mortality and improved average life expectancy. The current study was conducted in District Faisalabad. The current study was descriptive in nature. There were 8 towns in District Faisalabad. Out of these 8 towns, one rural town (Habib town) and one urban town (Amin town) were selected conveniently. Regarding the list obtained from the vaccinator of the related towns there were 250 households in Habib town and 180 in Amin town which were as the population of the present study. Sample size of 130 households had been drawn using website [www.surveysystem.com](http://www.surveysystem.com) by keeping confidence level 95% and confidence interval 7%. From each town 65 households were selected using simple random sampling technique thus making a sample size of 130 households. The collected data were analyzed by using Statistical Package of Social Sciences (SPSS). Large majority (61.5 %) of the respondents were from Rural areas. More than one third (36.9 %) of the respondents were between 36 to 40 years. More than one fifth (28.5 %) of the respondent's education was Primary. Children should be vaccinated against diseases in general is rank ordered on 1st position with mean value 4.15. At the 2nd ranked number respondents said about vaccinations are effective for your children immune system and over all immunity with mean value 4.14. Lack of parent's awareness regarding the vaccine's efficacy for children is rank ordered on 1st position with mean value 4.05. At the 2nd ranked number respondents said about Parents Concerns about the vaccine's safety/side effects with mean value 4.01. It was concluded that parents whose children were under the age of 3 had higher levels of vaccine literacy and were more likely to trust domestically produced vaccines than parents with children between the age 4 and 6. A possible reason for this might be their rather frequent contact with pediatricians or health workers due to the children's vaccination schedule at that age. Health professionals might be helpful sources for parents to identify correct information and to correct misbeliefs on vaccines. It was suggested that the potential of community-based should interventions to improve immunization coverage in hard-to-reach areas. The study recommended that improving vaccine education and communication to address these concerns and improve vaccine uptake.

**Keywords:** vaccination, educated and uneducated parents, rural urban

### INTRODUCTION

Vaccination stands out as the most powerful method for disease prevention and health enhancement, making them a crucial achievement among the top ten advancements in public health during the 20<sup>th</sup> century. Although vaccines offer numerous advantages, there is a prevalent issue of vaccine hesitancy among many parents, which is marked by the diversity in the approaches parents take when making decisions about vaccinating their children. A vaccine is an inoculation containing weakened, killed, or fragmented microorganisms, toxins, or other biological preparations like antibiotics, lymphocytes, or RNA, primarily administered to prevent the occurrence of diseases. A substance employed to induce

immunity against a specific infectious disease or pathogen, usually derived from a deactivated or attenuated form of the causative agent or its components and products. The flu vaccine is annually updated to address emerging strains or variations of the virus (Idris et al., 2012)

When a significant portion of the population is vaccinated, enough individuals become immune to a disease, leading to the attainment of herd immunity. If individuals within the population mix randomly, the pathogen will be unable to spread across the entire population. Herd immunity functions by either interrupting the transmission of infection or reducing the likelihood of susceptible individuals encountering an infectious person. Herd immunity offers a level of safeguard to individuals who lack personal immunity to a disease, such as those who cannot receive vaccines due to factors like age or underlying medical conditions, or those who have been vaccinated but still maintain susceptibility. Herd immunity has been a crucial factor in the successful elimination of smallpox and plays a vital role in halting the transmission of diseases like polio and measles (Khalid and Ali, 2020).

Vaccination entails a small potential for reactions, albeit adverse effects are generally extremely uncommon and tend to be very mild. Among the most frequently encountered responses to vaccines are instances of redness and tenderness in the vicinity of the vaccination site. Certain vaccines carry the potential for more serious adverse reactions, such as instances of vomiting, elevated fever, seizures, neurological impairment, or even fatalities. While such reactions are exceedingly uncommon, transpiring in fewer than one in a million individuals for the majority of vaccines. Severe reactions also tend to impact specific populations, primarily individuals with compromised immune systems due to preexisting conditions (e.g HIV/AIDS) or those undergoing chemotherapy (Anthony et al., 2020).

Allegations have been raised suggesting a potential link between vaccines and specific negative health conditions, notably autism, speech disorder, and inflammatory bowel disease. Certain assertions have specifically targeted thimerosal, a compound containing mercury that is utilized as a preservative in vaccines, as a potential factor contributing to adverse health conditions. There is a belief held by some individuals that autism is a manifestation of mercury poisoning, specifically attributed to thimerosal found in vaccines administered during childhood. Those claims have been debunked and found to be without merit or scientific validity. Nevertheless, the dissemination of misinformation and the fear instilled by baseless claims linking autism with vaccines have greatly influenced public perceptions regarding the safety of vaccines. Furthermore, the majority of individuals residing in countries with high vaccination rates have not encountered vaccine-preventable diseases firsthand in their personal experiences. As a result, the attention and concern of certain individuals shifted from the potential adverse consequences of vaccine-preventable diseases to the potential adverse effects associated with the vaccines themselves (Bahn, 2020).

The decline in vaccination coverage in certain regions of the world can be attributed to a combination of complacency towards vaccine-preventable diseases and apprehensions regarding the potential impacts of immunization. Consequently, the decline in vaccination

rates not only left individuals vulnerable to vaccine-preventable diseases but also led to a significant loss of herd immunity at the population level, ultimately resulting in the occurrence of disease outbreaks. These outbreaks imposed substantial burdens on societies, particularly in terms of healthcare expenses, disability and economic burdens and loss of life. In the 20<sup>th</sup> century countries, like Japan, England, and Russia experienced a significant decrease in the number of children receiving vaccinations against whooping cough, reaching a level that allowed disease outbreaks to occur. These outbreaks affected thousands of children and tragically led to the loss of hundreds of lives (Basilaia et al., 2020).

Vaccines operate through two distinct mechanisms. Firstly, vaccines provide direct protection against diseases by inducing immunity in the majority of vaccinated individuals. Secondly, vaccines safeguard individuals against the transmission of diseases from person to person by leveraging the concept of herd immunity. Herd immunity emerges when a significant portion of individuals within a community acquire immunity to a degree where the introduction of a disease would be unable or highly improbable to propagate due to the low likelihood (Birman et al., 2020).

## LITERATURE REVIEW

Jegede (2007) conducted a study and found that the factors that led to the Nigerian boycott of the polio vaccination campaign in 2003. The study found that the boycott was primarily driven by concerns about the safety of the vaccine and conspiracy theories surrounding the campaign. The study highlights the importance of addressing vaccine safety concerns and improving community engagement in vaccination campaigns.

Uddin et al. (2009) identified that identify alternative strategies to improve child immunization coverage in rural hard-to-reach Haor areas of Bangladesh. The study found that a combination of community-based education, mobilization, and immunization campaigns led by trained volunteers was effective in improving immunization coverage. The study highlights the potential of community-based interventions to improve immunization coverage in hard-to-reach areas.

Odusanya (2009) found that maternal education, household income, and proximity to healthcare facilities were significant predictors of vaccination coverage. The study emphasizes the importance of improving access to healthcare and education to improve vaccination coverage in rural areas.

Dabas (2010) assessed the perception of rural women towards immunization in Haryana, India. The study found that most women had positive attitudes towards immunization and understood the benefits of vaccines. However, the study also found that fear of side effects and lack of awareness about the vaccination schedule were barriers to vaccine uptake. The study highlights the importance of addressing barriers to vaccine uptake and improving vaccine education in rural areas.

Malik (2011) examined the gain insight into Malaysian public perception towards childhood immunization. The study found that while most parents had positive attitudes towards vaccines, some had concerns about vaccine safety and efficacy. The study

recommends improving vaccine education and communication to address these concerns and improve vaccine uptake.

Ratzan (2011) identified one factor that has still received limited attention regarding vaccine hesitancy in the context of childhood vaccines has been the concept of health literacy. Even though there has been a growing call to address health literacy or “vaccine literacy to counter growing vaccine hesitancy evidence on the relationship between health literacy and vaccination-related outcomes is still relatively limited.

Leask et al. (2012) found that parents whose children were under the age of 3 had higher levels of vaccine literacy and were more likely to trust domestically produced vaccines than parents with children between the age 4 and 6. A possible reason for this might be their rather frequent contact with pediatricians or health workers due to the children’s vaccination schedule at that age. Health professionals might be helpful sources for parents to identify correct information and to correct misbeliefs on vaccines. The literature has shown that communicating with health professionals is a key factor for maintaining parental trust and decision-making toward vaccination.

Hasnain and Sheikh (2012) cultural beliefs and attitudes towards vaccines also emerged as important factors influencing the perception of households about vaccination. A study conducted in Pakistan found that religious beliefs influenced vaccine acceptance, with some communities expressing concern about the use of vaccines containing porcine gelatin.

Ahmed (2014) found that most mothers had knowledge about immunization and its importance but faced barriers such as lack of transportation and vaccine availability. The study emphasizes the importance of addressing infrastructure and supply chain issues to improve immunization coverage in rural areas.

## **METHOD**

The current study was conducted in District Faisalabad. This research was descriptive in nature. There are 8 towns in District Faisalabad. Out of these 8 towns, one rural town (Habib town) and one urban town (Amin town) were selected conveniently. Regarding to the list obtained from the vaccinator of the related town there are 250 households in Habib town and 180 in Amin town which were serve as the population of the present study. Sample size of 130 households had been drawn using website [www.surveysystem.com](http://www.surveysystem.com) by keeping confidence level 95% and confidence interval 7%. From each town 65 households were selected using simple random sampling technique thus making a sample size of 130 households. The data were collected by using a survey technique. The collected data were analyzed by using Statistical Package of Social Sciences (SPSS) and t-test were applied to draw comparison between educated and uneducated families (households).

## **RESULTS AND DISCUSSION**

### **Demographic Characteristics**

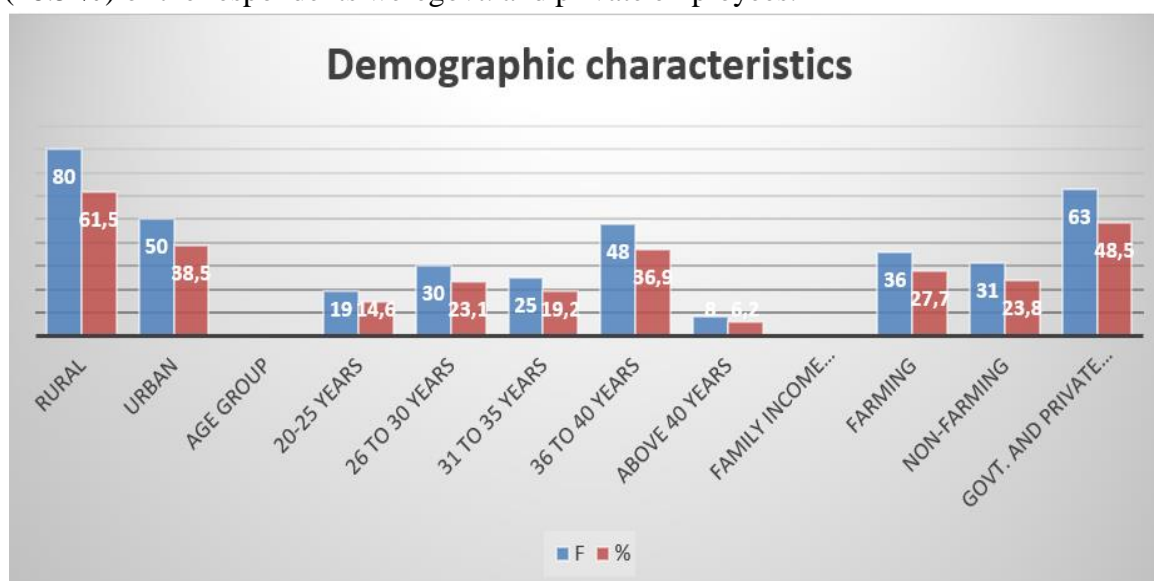
There is no one dimension to demographic characteristics; rather, they are a collection of attitudes that are interconnected. In order to identify a person's socioeconomic status, it is important to look at the average cultural procession, the person's effective income, their

material procession, and their involvement in community activities. Socioeconomic and demographic traits were evaluated using the following factors: Each society has its own unique set of norms and beliefs that influence how it produces socio-economic features; thus, socioeconomic characteristics are made up of a range of components (Harsha, 2010).

**Table 1. Participants' Distribution According To Demographic Characteristics**

Family Background	F	%
Rural	80	61.5
Urban	50	38.5
Age group		
20-25 years	19	14.6
26 to 30 years	30	23.1
31 to 35 years	25	19.2
36 to 40 years	48	36.9
Above 40 years	8	6.2
Family income source		
Farming	36	27.7
Non-farming	31	23.8
Govt. and Private employees	63	48.5
<b>Total</b>	<b>130</b>	<b>100.0</b>

Table 1 contains the frequency distribution about the Family background. A large majority (61.5 %) of the respondents were from rural areas. More than one third (38.5 %) of the respondents belonged to Urban. More than one tenth (14.6 %) of the respondents were 20-25 years. Less than one fifth (23.1 %) of the respondents were between 26 to 30 years. Less than one fifth (19.2 %) of the respondents were between 31 to 35 years. More than one third (36.9 %) of the respondents were between 36 to 40 years. Only (6.2 %) of the respondents were over 40 years. More than one fifth (27.7 %) of the respondents were Farming. Less than one fifth (23.8 %) of the respondents were non-farmers. Less than half (48.5 %) of the respondents were govt. and private employees.



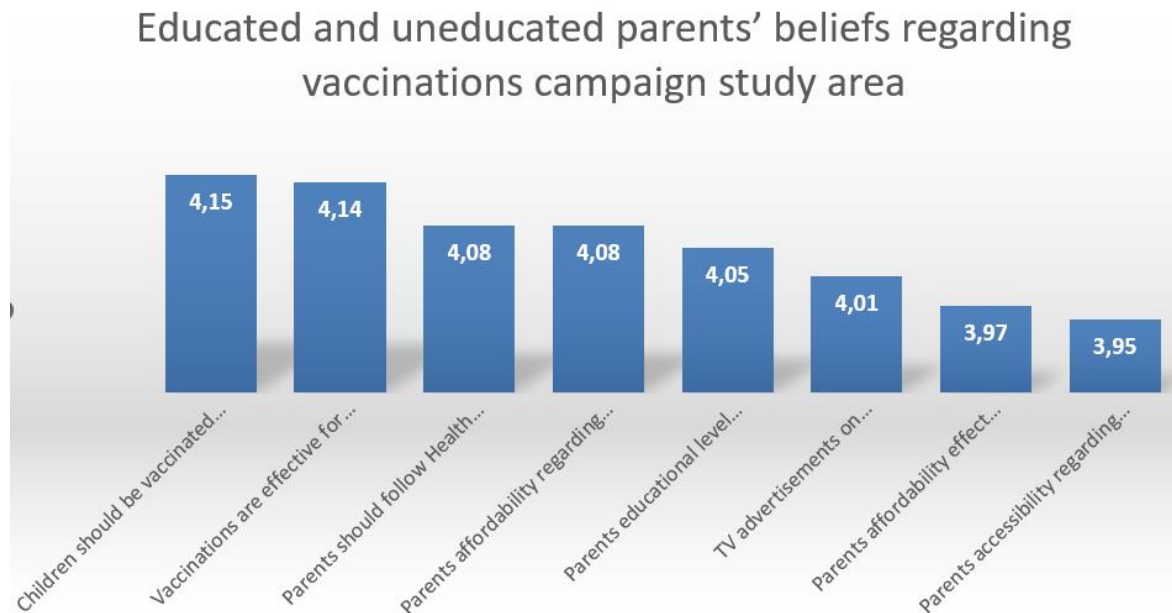
**Table 2. Mean Value, Standard Deviation, Weighted Score and Rank Order According to Educated and Uneducated Parents' Beliefs Regarding Vaccinations Campaign Study Area**

Educated and uneducated parents' beliefs regarding vaccinations campaign study area	Mean	S.D.	Weighted score	Rank order
Children should be vaccinated against diseases in general	4.15	0.82	535	1
Vaccinations are effective for your children immune system and over all immunity	4.14	0.82	534	2
Parents should follow Health department recommendations for vaccination schedule	4.08	0.87	526	3
Parents affordability regarding vaccination for their children	4.08	0.88	526	4
Parents educational level regarding vaccination effect their beliefs for vaccination	4.05	0.74	523	5
TV advertisements on vaccination schedule changed parents' perspective/idea for vaccination	4.01	0.78	517	6
Parents affordability effect vaccination for their children	3.97	0.93	512	7
Parents accessibility regarding vaccination schedule for their children	3.95	0.95	509	8

Table 2 indicates that the distribution and the descriptive statistic about educated and uneducated parents' beliefs regarding vaccinations campaign study area where mean, standard deviation and weighted score are discussed in the above table. Children should be vaccinated against diseases in general is at first ranked with the mean value 4.15 and weighted score 535. The responses tended towards agree to strongly agree. Vaccinations are effective for your children's immune system and overall immunity is at second ranked with the mean value 4.14 and weighted score 534. The mean value tended towards agree to strongly agree. Parents should follow Health department recommendations for vaccination schedule it at third ranked with the mean value 4.08 and weighted score 526. The responses falling towards agree to strongly agree. Parents affordability regarding vaccination for their children is at fourth ranked 4.08 and weighted score 526. The responses fall between agree to strongly agree, but it is tending towards to agree. Parents educational level regarding vaccination effect their beliefs for vaccination is at fifth ranked with the mean value 4.05 and weighted score 523. The responses fall between agree to strongly agree, but it is tending towards to agree. TV advertisements on vaccination schedule changed parents' perspective/idea for vaccination is at sixth ranked with the mean value 4.01 and weighted score 517. The responses fall between agree to strongly agree, but it is tending towards to agree. Parents affordability effect vaccination for their children, Parents accessibility regarding vaccination schedule for their children is at ranked 7th respectively with the mean value 3.95 and weighted score 509. The responses fall between Neutral to agree, but it is tending towards to agree.

Ahmed (2014) found that most mothers had knowledge about immunization and its importance but faced barriers such as lack of transportation and vaccine availability. The

study emphasizes the importance of addressing infrastructure and supply chain issues to improve immunization coverage in rural areas.



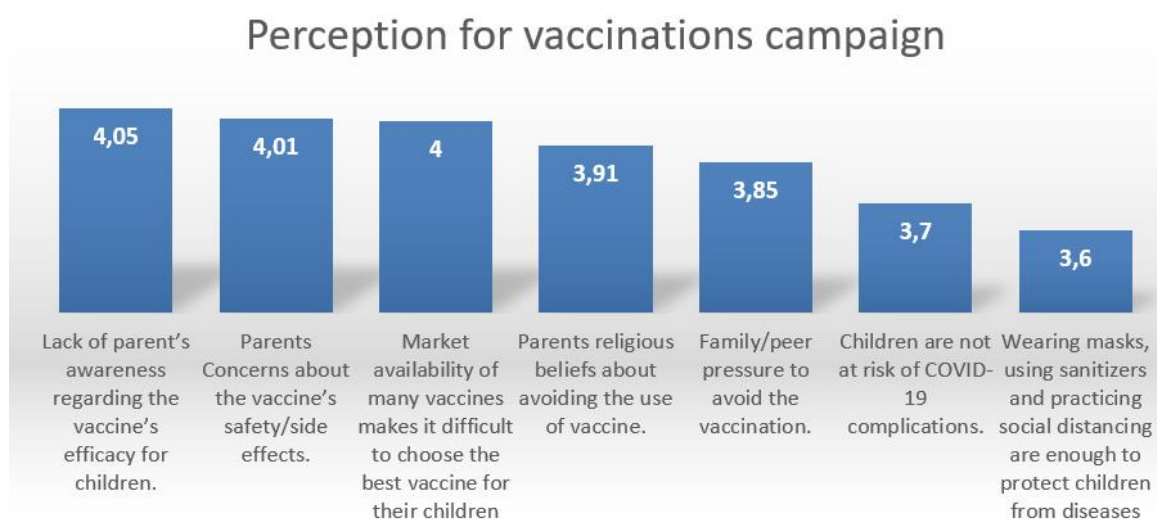
**Table 3. Mean Value, Standard Deviation, Weighted Score and Rank Order Regarding to Perception for Vaccinations Campaign**

Perception for vaccinations campaign	Mean	S.D.	Weighted score	Rank order
Lack of parent's awareness regarding the vaccine's efficacy for children.	4.05	0.89	523	1
Parents Concerns about the vaccine's safety/side effects.	4.01	0.80	517	2
Market availability of many vaccines makes it difficult to choose the best vaccine for their children	4.00	0.99	516	3
Parents religious beliefs about avoiding the use of vaccine.	3.91	0.98	505	4
Family/peer pressure to avoid the vaccination.	3.85	0.98	497	5
Children are not at risk of COVID-19 complications.	3.70	1.02	477	6
Wearing masks, using sanitizers and practicing social distancing are enough to protect children from diseases	3.60	1.12	464	7

Table 3 indicates that the distribution and the descriptive statistic about thinking for vaccinations campaign where mean, standard deviation and weighted score are discussed in the above table. Lack of parent's awareness regarding the vaccine's efficacy for children, Parents Concerns about the vaccine's safety/side effects, Market availability of many vaccines makes it difficult to choose the best vaccine for their children is at third ranked with the mean value 4.00 and weighted score 516. The responses fall between agree to strongly agree, but it is tending towards to agree. Parents religious beliefs about avoiding the use of vaccine is at forth ranked with the mean value 3.19 and weighted score 505. The responses fall between agree to strongly agree, but it is tending towards to agree. Family/peer pressure

to avoid the vaccination is at fifth ranked with the mean value 3.85 and weighted score 497. The responses fall between agree to strongly agree, but it is tending towards to agree. Children are not at risk of COVID-19 complications is at sixth ranked with a mean value of 3.70 and weighted score 477. The responses fall between Neutral to agree, but it is tending towards to agree. Wearing masks, using sanitizers and practicing social distancing are enough to protect children from diseases is seventh ranked with a mean value of 3.60 and weighted score 464. The responses fall between Neutral to agree, but it is tending towards to agree.

Hasnain and Sheikh (2012) cultural beliefs and attitudes towards vaccines also emerged as important factors influencing the perception of households about vaccination. A study conducted in Pakistan found that religious beliefs influenced vaccine acceptance, with some communities expressing concern about the use of vaccines containing porcine gelatin.



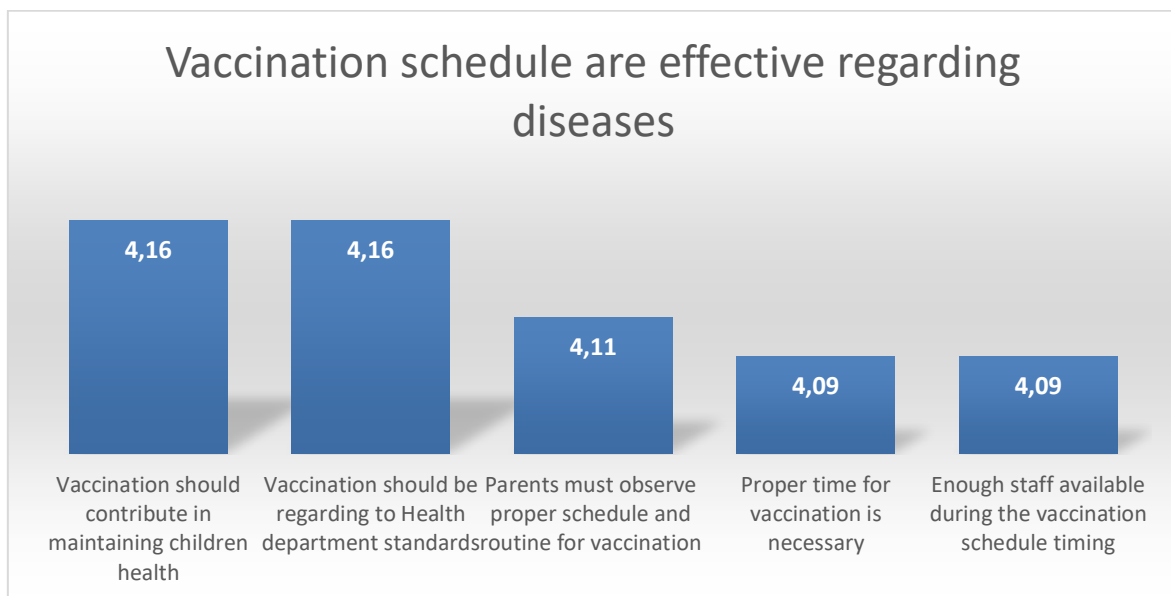
**Table 4. Mean value, standard deviation, weighted score and rank order according to vaccination schedule are effective regarding diseases.**

Vaccination schedules are effective regarding diseases	Mean	S.D.	Weighted score	Rank order
Vaccination should contribute to maintaining children health	4.16	0.80	537	1
Vaccination should be regarding to Health department standards	4.16	0.72	536	2
Parents must observe proper schedule and routine for vaccination	4.11	0.90	530	3
Proper time for vaccination is necessary	4.09	0.81	527	4
Enough staff available during the vaccination schedule timing	4.09	0.81	527	5

Table 4 indicates that the distribution and the descriptive statistic about vaccination schedule are effective regarding diseases where mean, standard deviation and weighted score



are discussed in the above table. Vaccination should contribute to maintaining children health is rank ordered on 1st position and it shows that the responses fall between Neutral to agree, but it was tended towards agree with mean value 4.16. The 2nd ranked number respondents said about. Vaccination should be regarding to Health department standards, and it was tended to agree with mean value 4.16. Parents must observe proper schedule and routine for vaccination is rank ordered on 3rd position and it shows that the responses fall between Neutral to agree, but it was tended towards agree with mean value 4.11. At the 4th ranked number respondents said about. Proper time for vaccination is necessary and it was tended to agree with mean value 4.09. Enough staff available during the vaccination schedule timing is rank ordered on 5th position and it shows that the responses fall between Neutral to agree, but it was tended towards agree with mean value 4.09. Uddin et al. (2009) identified that identify alternative strategies to improve child immunization coverage in rural hard-to-reach Haor areas of Bangladesh. The study found that a combination of community-based education, mobilization, and immunization campaigns led by trained volunteers was effective in improving immunization coverage. The study highlights the potential of community-based interventions to improve immunization coverage in hard-to-reach areas.



## CONCLUSION

Researcher found that parents whose children were under the age of 3 had higher levels of vaccine literacy and were more likely to trust domestically produced vaccines than parents with children between the age 4 and 6. A possible reason for this might be their rather frequent contact with pediatricians or health workers due to the children's vaccination schedule at that age. Health professionals might be helpful sources for parents to identify correct information and to correct misbeliefs on vaccines. The literature has shown that communicating with health professionals is a key factor for maintaining parental trust and decision-making toward vaccination.

Regarding to researcher cultural beliefs and attitudes towards vaccines also emerged as important factors influencing the perception of households about vaccination. A study conducted in Pakistan found that religious beliefs influenced vaccine acceptance, with some communities expressing concern about the use of vaccines containing porcine gelatin.

It is concluded that most mothers had knowledge about immunization and its importance but faced barriers such as lack of transportation and vaccine availability. The study emphasizes the importance of addressing infrastructure and supply chain issues to improve immunization coverage in rural areas.

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