

SOCIOECONOMIC AND CULTURAL FACTORS INFLUENCING CHILDHOOD VACCINATION UPTAKE AMONG PARENTS IN ALIPUR

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ABSTRACT

Vaccination of children is an important public health intervention to prevent vaccine preventable diseases and to decrease child morbidity and mortality. In this study, socioeconomic and cultural barriers that affect parents' decision to vaccinate their children in Alipur, District Muzaffargarh, South Punjab, Pakistan have been discussed. 284 parents of children under five years of age were used with the quantitative cross sectional survey design. A detailed questionnaire was used to gather the data, which included the following sections: sociodemographic data, socioeconomic data, cultural data, knowledge and attitudes, and vaccination behaviors. Descriptive statistics, Cronbach's alpha, Pearson correlation, and Kruskal–Wallis test were used to analyze the data. The results indicated that 97.9% of the respondents stated their children were vaccinated, 78.5% said fully vaccinated and 15.5% said they were partially vaccinated, and 6.0% did not know. 94.4% of children had a vaccination card. The internal consistency of the four study constructs as measured by Cronbach's alpha were high, ranging from .966 to .988. Practice/Attitude recorded the highest mean score ($M = 3.34$, $SD = 1.33$), followed by Social/Economic Factors ($M = 3.15$, $SD = 1.41$), Knowledge/Attitude ($M = 3.12$, $SD = 1.31$), and Cultural Factors ($M = 3.00$, $SD = 1.41$). All four constructs had strong positive correlations ($r = .983-.993$, $p < .001$). Also significant differences were observed among complete vaccine, incomplete vaccine and no vaccine groups for socioeconomic factors, cultural factors, knowledge/attitude factors and practice/attitude factors (all $p < .001$). The study indicates that the level of child vaccination levels in the study area is high, however incomplete vaccination is a concern. Better health education in the home, tackling socioeconomic and cultural challenges and enhancing community immunization assistance could help ensure that childhood immunisation schedules are completed more consistently.

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INTRODUCTION

Vaccination of children is one of the most cost-effective and most effective public health interventions to prevent infectious diseases and to save children's lives globally. The World Health Organization estimates that vaccination saves 3.5-5 million lives each year from diseases including measles, diphtheria, tetanus, pertussis, and polio (WHO, 2024). Vaccination benefits the child but also helps to provide a level of community immunity, which helps to limit the spread of infectious diseases in communities (CDC, 2023). Despite the availability of safe and effective vaccines, many countries still have difficulties to reach optimal coverage of immunization.

The availability of vaccination services are global public health problem now a days (WHO, 2019). Parents' attitudes toward vaccination are a key factor in ensuring timely vaccinations for children (Larson et al., 2014; Dubé et al., 2013).

Childhood immunization continues to be an important public health challenge in Pakistan. The Expanded Programme on Immunization (EPI) is a programme of the government that offers free vaccination services to children throughout the country. But vaccination rates are still variable, especially in remote and underserved areas (NIPS & ICF, 2019). The studies have revealed that the factors such as misconceptions of parents, lack of awareness, low level of literacy, poverty and poor access to health services are found to be responsible for incomplete vaccination among children (Siddiqui et al., 2014; Khan et al., 2015).

Alipur is one of the tehsils of District Muzaffargarh in South Punjab which has a different social and demographic background which could impact the attitudes of parents towards childhood immunization. A knowledge of these attitudes is critical to recognizing immunization challenges and designing interventions to maximize the uptake and coverage of immunization.

Vaccines have played a key role in decreasing the prevalence of infectious diseases and have been responsible for significant reduction in child morbidity and mortality globally (World Health Organization [WHO], 2024). Vaccination helps keep children healthy and healthy enough to attend school and protects them from diseases that could have been prevented like measles, polio, diphtheria, pertussis and hepatitis B (Centers for Disease Control and Prevention [CDC], 2023). Although vaccines have been proven to be effective, the uptake of vaccination has become a major global challenge due to vaccine hesitancy (WHO, 2019). Factors influencing parents' attitudes to childhood vaccination range from knowledge, beliefs, cultural norms, trust in health systems, perceived vaccine safety, to the presence of misinformation (Larson et al., 2014).

Childhood immunization is an important public health problem in developing countries like Pakistan. The government has put in place the Expanded Programme on Immunization (EPI) and offers free vaccines to children, but many families do not adhere to recommended vaccination schedules (National Institute of Population Studies [NIPS] & ICF, 2019). Parental education, socioeconomic status, access to health-care and knowledge about vaccination have been associated with uptake of childhood immunizations as demonstrated in research (Rainey et al., 2011; Siddiqui et al., 2014).

In addition, wrong beliefs about vaccine side effects, religious beliefs, and mistrust of health workers are also significant factors that lead to vaccine refusal or delay (Dubé et al., 2013). Accurate information and lack of knowledge about health is the top hurdle for childhood immunization in Pakistan (Khan et al., 2015). Accurate vaccine knowledge is linked to timely vaccination for children when parents possess this type of knowledge (Brown et al., 2010). Thus, this study is designed to discuss the attitude of parents towards

childhood immunization in Alipur, and determine the factors influencing them to accept childhood vaccination. The results could help inform the child immunization and vaccine-preventable disease reduction strategies of policymakers, health care providers, and public health officials.

RESEARCH METHODOLOGY

This study was employed a quantitative research design using a cross-sectional survey method to investigate parents' attitudes toward childhood vaccination in Alipur. The target population was consist of parents who have children under the age of five years residing in Alipur. A sample of 284 respondents were selected through purposive sampling. After data collection, data was analysed by using the Statistical Package for Social Sciences (SPSS).

Data Analysis and Discussion

Table 1. Demographic Characteristics of Respondents

Variable	Category	n (%)	Variable	Category	n (%)
Age	18–25 years	93 (32.7)	Occupation	House wife	240 (84.5)
	26–35 years	108 (38.0)		Private job/ Business	30 (10.6)
	36–45 years	83 (29.2)		Govt. Job	14 (4.9)
Marital status	Married	260 (91.55)	Number of Children	1–2	108 (38.0)
	Widowed	16 (5.63)		3–4	106 (37.3)
	Divorced	10 (3.52)		5–6	70 (24.6)
Education	Illiterate	84 (29.6)	Monthly income (PKR)	<30,000	133 (46.8)
	Primary	110 (38.7)		30,001–50,000	57 (20.1)
	Middle	32 (11.3)		50,001–70,000	36 (12.7)
Residence	Matric and above	58 (20.4)		Above than 70,000	58 (20.4)
	Urban	103 (36.3)			
	Rural	181 (63.7)			

Table No. 1. Depicted that there were 93 (32.7) percent of the respondents age 18-25; 108 (38.0) percent of the respondents 26-35 years old; 83(29.2) percent of the respondents 36-45 years old. There were 260 (91.55) percent of the respondents married; 16 (5.63) percent of the respondents widowed; 10 (3.52) percent of the respondents divorced. There were 84 (29.6) of the respondents illiterate; 110 (38.7) of the respondents who were primary; 32 (11.3) percent of the respondents middle qualification and 58 (20.4) of the respondent who were matric and above qualification. There were 103 (36.3) percent of the respondents belongs to urban and 181 (63.7) percent of the respondents were belonged to rural background. There were 240 (84.5) percent housewife; 30 (10.6) percent of the respondents did private jobs or business; 14(4.9) percent of the

respondent did government jobs. There were 108 (38.0) percent of the respondents who had 1-2 children; 106 (37.3) percent of the respondent who had 3-4 children and 70 (24.6) percent of the respondents who had 5-6 children. There were 133 (46.8) percent of the respondents whose monthly income was <30,000; 57 (20.1) of the respondents whose monthly income was 30,001–50,000; 36 (12.7) percent of the respondents whose monthly income was 50,001–70,000 and 58 (20.4) percent of the respondents whose monthly income was above than 70000.

Table 2. Childhood Vaccination Status

Vaccination indicator	Response	n (%)
Child vaccinated	Yes	278 (97.9)
	No	6 (2.1)
Complete vaccination	Yes	223 (78.5)
	No	44 (15.5)
	Not sure	17 (6.0)
Vaccination card available	Yes	268 (94.4)
	No	16 (5.6)

Table No. 2 indicated that 278 (97.9) percent of the respondent received vaccination; 6(2.1) percent of the respondent. However, the proportion reporting complete vaccination was lower 223 (78.5%), with 15.5% reporting incomplete vaccination and 6.0% being unsure. A vaccination card was available for 94.4% of children.

Table 3. Descriptive Statistics and Reliability of Major Study Constructs

Construct	Items	Mean	SD	Cronbach's α
Social/Economic Factors (SEF)	6	3.15	1.41	.988
Cultural Factors (CF)	6	3.00	1.41	.986
Knowledge/Attitude (KA)	6	3.12	1.31	.966
Practice/Attitude (PA)	6	3.34	1.33	.981

Table No. 3 depicted that all four constructs demonstrated excellent internal consistency, with Cronbach's alpha values ranging from .966 to .988. Practice/Attitude had the highest mean score (M = 3.34, SD = 1.33), followed by Social/Economic Factors (M = 3.15, SD = 1.41), Knowledge/Attitude (M = 3.12, SD = 1.31), and Cultural Factors (M = 3.00, SD = 1.41). The exceptionally high reliability coefficients also warrant examination of item redundancy before final publication.

Table 4. Pearson Correlations Among Major Study Constructs

Variable	1	2	3	4
1. Social/Economic Factors	1			
2. Cultural Factors	.993***	1		
3. Knowledge/Attitude	.983***	.985***	1	
4. Practice/Attitude	.987***	.986***	.985***	1

*** $p < .001$

Table No. 4 depicted that all four constructs were very strongly and positively correlated. Correlations ranged from $r = .983$ to $r = .993$ ($p < .001$). These exceptionally high correlations suggest substantial statistical overlap among the constructs. Consequently, a conventional multiple regression model containing all four constructs simultaneously should not be reported without first assessing multicollinearity and construct distinctiveness.

Table 5. Differences in Study Constructs by Complete Vaccination Status

Construct	Complete (n=223) M	Incomplete (n=44) M	Not sure (n=17) M	Kruskal-Wallis H	p
Social/Economic Factors	2.67	5.00	4.75	131.22	<.001
Cultural Factors	2.49	4.97	4.53	138.81	<.001
Knowledge/Attitude	2.65	4.95	4.50	136.90	<.001
Practice/Attitude	2.90	5.00	4.75	129.90	<.001

Table No. 5 shows that significant differences were observed across all four constructs according to complete vaccination status. Social/economic factors, cultural factors, knowledge/attitude, and practice/attitude all differed significantly across the three vaccination groups (all $p < .001$). The very large differences, particularly the near-maximum scores among respondents reporting incomplete vaccination, should be verified against the original questionnaires and raw data before publication.

DISCUSSION

The present study aimed to examine the socioeconomic and cultural determinants of childhood vaccination among parents' community in Alipur, District Muzaffargarh. The results show generally high levels of reported childhood vaccination uptake with 97.9% of respondents indicating their child had been vaccinated. But 78.5% reported full vaccination, 15.5% incomplete vaccination and 6.0% were not sure. A key difference between vaccine uptake and commitment to the full vaccination schedule is important as a high uptake at the first dose doesn't necessarily mean that children are also completing the schedule. The discovery implies that the main hurdle in the study area is to keep vaccination going, not to gain initial uptake of vaccination.

The demographic data is important for giving a socioeconomic background to the understanding of vaccination behaviour. More than half of the

respondents resided in rural regions (63.7%) and PKR 46.8% of them were earning less than PKR 30,000 per month. Furthermore, 29.6% did not receive any formal education and 38.7% received primary education only. These characteristics suggest a significant percentage of the population in this study may have factors that could influence their ability to access health information or persist in using preventive health services, such as socioeconomic and informational factors (Khan et al., 2020). The rural concentration of the study sample is especially important since the physical proximity to the site, transportation, access to health facilities, and a service provider's availability and continuity of care may affect vaccination completion.

Vaccination cards were widely available, with 94.4% of those who responded indicating that a vaccination card was available. The finding is encouraging as the vaccination cards can help parents and health workers track children's vaccination status. However, the gap between the availability of vaccination cards (94.4%) and vaccination completion (78.5%) indicates that card availability does not imply vaccination completion (Akhter et al., 2024). This could suggest the need for more robust follow-up systems via health facilities and immunisation workers in the community. All four study constructs were highly reliable with good internal consistency.

Cronbach's alpha values ranged from .966 to .988 which was an evidence of a high consistency among the items of each scale (Social/Economic Factors, Cultural Factors, Knowledge/Attitude and Practice/Attitude). Practice/Attitude had the highest mean score ($M = 3.34$, $SD = 1.33$), followed by Social/Economic Factors ($M = 3.15$, $SD = 1.41$), Knowledge/Attitude ($M = 3.12$, $SD = 1.31$), and Cultural Factors ($M = 3.00$, $SD = 1.41$). The results indicate a relatively high level of salience of the reported vaccination-related practices and attitudes measured among the dimensions (Nisar et al., 2023). The correlation analysis showed that all four constructs were highly correlated with each other. Social/Economic Factors were strongly correlated to each other with Cultural Factors ($r = .993$), Knowledge/Attitude ($r = .983$), and Practice/Attitude ($r = .987$); Cultural Factors were strongly correlated with Knowledge/Attitude ($r =$

$.985$) and Practice/Attitude ($r = .986$). These relationships suggest that the SES, cultural factors, knowledge and attitudes, and vaccination-related practices are very interconnected in the study population. These factors are even more important when analysed by the completion of vaccination. There were significant differences between the complete and incomplete vaccination groups and not-sure vaccination group for all three areas: Social/Economic Factors ($p < .001$), Knowledge/Attitude ($p < .001$), and Practice/Attitude ($p < .001$). The mean score for the complete vaccination group were significantly lower than the incomplete and not sure groups on all four constructs. The results indicated that there was a statistically significant relationship between the factors measured and the vaccination-completion status (Mumtaz et al., 2021). The very large differences should be viewed with caution, however, as maximum mean scores for several constructs were reported by those who said that they had vaccination status of less than full vaccination. Also, there is a very high level of correlation between the four constructs, which creates an important methodological problem. The degrees of correlation range from .983 to .993, which is a very high degree of statistical overlap. This shows that there are very strong correlations but it also exposes concerns with the uniqueness of the constructs as well as possible item overlap. Likewise, the high Cronbach's alpha coefficients could be partly due to the high similarity between the items of the questionnaires. In the future, item-total correlations, factor structure and multicollinearity analyses should be conducted before a multivariable predictive model. Overall, the results indicated that vaccination in Alipur is high in terms of reporting, and there is a significant gap in completion (Ashfaq et al., 2026). The results also suggest that the vaccination behavior is part of a larger socioeconomic, cultural, attitude and behavioral context. Therefore, interventions should not be limited to encouraging parents to start vaccinations, but should aim to assist families to finish the vaccination program. In rural and economically disadvantaged communities, communication at the community level, parental education, reminder systems and better follow-up may be especially important.

CONCLUSION

The present study examines the socioeconomic and cultural determinants of vaccination of children among the parents of Alipur, District Muzaffargarh. The results suggest that the level of vaccination uptake reported among children was generally high, with 97.9% of respondents reporting vaccination of their children. But only 78.5% indicated their baby was fully immunized, 15.5% were partially immunized, and 6.0% were unsure. It is important to distinguish between taking the vaccine and getting the full vaccination schedule because a high initial uptake does not imply good adherence to the complete vaccination schedule. The discovery indicates that continuity of vaccination may be a bigger challenge as opposed to getting the initial acceptance of vaccination in the study area. Demographic data are important economic background information to explain vaccination behavior. More than half of the respondents resided in rural areas (63.7%) and 46.8% indicated an income of less than PKR 30,000 per month. Moreover, 38.7% of them had primary education, and 29.6% didn't receive any formal education. The characteristics within this study suggest that there might be a significant portion of persons in the study who may be at risk for socioeconomic and informational status that may impact their ability to receive health information and the ability to continue using preventive health services. Vaccination cards were available in high proportion with 94.4% of respondents stating that a vaccination card was available but gap between the percentage of children with vaccination cards and the percentage with complete vaccination records indicates that having a vaccination card does not imply that the recommended vaccination schedule has been completed. Cronbach's alpha values were in the range of .966 to .988 which showed that there was high consistency among the items included in the Social/Economic Factors, Cultural Factors, Knowledge/Attitude, and Practice/Attitude scales. Practice/Attitude had the highest mean score ($M = 3.34$, $SD = 1.33$), followed by Social/Economic Factors ($M = 3.15$, $SD = 1.41$), Knowledge/Attitude ($M = 3.12$, $SD = 1.31$), and Cultural Factors ($M = 3.00$, $SD = 1.41$). The findings indicate that the dimensions measured

were rather salient in terms of the reported vaccination-related practices and attitudes of the respondents. The correlations showed very high positive correlations for all the four constructs. There was strong correlation among Social/Economic Factors with Cultural Factors ($r = .993$), with Knowledge/Attitude ($r = .983$), and also with Practice/Attitude ($r = .987$), there was strong correlation of Cultural Factors with Knowledge/Attitude ($r = .985$) and Practice/Attitude ($r = .986$). These relationships demonstrate the strong interdependency between aspects of socioeconomic and cultural factors, knowledge and attitudes, and vaccination-related practices in the study population. The Social/Economic Factors, Cultural Factors, Knowledge/Attitude and Practice/Attitude groups were significantly different between the complete, incomplete and not-sure vaccination groups ($p < .001$ for all comparisons). The mean scores for those who completed the vaccination were lower than the mean scores of those who had a partial vaccination and the not-sure vaccination group on all four constructs. The results show that there is a statistically significant relationship between vaccine completion status and the factors measured. The very large differences must, however, be read with caution, since the mean scores for some constructs for the respondents who felt they had not been fully vaccinated were near to the upper limit of the scale. A methodological problem also arises in the very high correlation values of the four constructs. A correlation between .983 and .993 means there is significant statistical overlap. While this shows good associations, it also poses questions regarding the vaccination uptake of the parents surveyed in Alipur, since 97.9% of the parents reported that their children had been vaccinated. The lower proportion of those who reported being fully vaccinated, however (78.5%), suggests incomplete immunization is important for public health. The results also indicate that the socioeconomic, cultural, knowledge/attitude as well as practice/attitude aspects are significantly associated with the vaccination completion status. There is a high correlation among these constructs, suggesting that parents' vaccine uptake is affected by a complex array of social, economic, cultural and attitudinal factors rather than by any one

factor. Therefore, the study concluded that to improve childhood vaccination in Alipur, more attention needs to be paid on completion of the vaccination schedule.

It is recommended that immunization services should focus not only on initiating vaccination but also on ensuring that children receive all required doses according to the recommended schedule. Health education programs should provide parents with simple and culturally appropriate information about vaccination schedules, vaccine-preventable diseases, vaccine safety, and the importance of completing all doses. Although vaccines are provided through public immunization programs, indirect barriers such as transportation costs, distance to health facilities, work responsibilities, and lack of information may affect completion. Outreach services should therefore be designed around the circumstances of low-income families.

REFERENCES

- Akhter, N., et al. (2024). Trends in childhood vaccination in Pakistan and associated factors; 2006–2018. *Vaccine*, 42(8), 1955–1962. <https://doi.org/10.1016/j.vaccine.2024.01.014>
- Ashfaq, J., Ullah, K., Khattak, F. A., Hakim, M., et al. (2026). Barriers and facilitators of childhood immunization: Sociodemographic and knowledge-related determinants among parents in rural and urban Khyber Pakhtunkhwa, Pakistan. *Epidemiology and Infection*, 154, e41.
- Centers for Disease Control and Prevention. (2023). *Vaccines and immunizations*. CDC.
- Dubé, E., Laberge, C., Guay, M., Bramadat, P., Roy, R., & Bettinger, J. A. (2013). Vaccine hesitancy: An overview. *Human Vaccines & Immunotherapeutics*, 9(8), 1763–1773. <https://doi.org/10.4161/hv.24657>
- Khan, M. T., Zaheer, S., & Shafique, K. (2020). Decomposing socio-economic inequality in vaccination coverage among Pakistani children: A population-based cross-sectional study. *Health & Social Care in the Community*, 28(6), 2093–2101. <https://doi.org/10.1111/hsc.13163>
- Khan, M. U., Ahmad, A., Aqeel, T., Salman, S., Ibrahim, Q., Idrees, J., & Khan, M. U. (2015). Knowledge, attitudes and perceptions towards polio immunization among residents of two highly affected regions of Pakistan. *BMC Public Health*, 15, 1100. <https://doi.org/10.1186/s12889-015-2471-1>
- Larson, H. J., Jarrett, C., Eckersberger, E., Smith, D. M., & Paterson, P. (2014). Understanding vaccine hesitancy around vaccines and vaccination. *Vaccine*, 32(19), 2150–2159. <https://doi.org/10.1016/j.vaccine.2014.01.081>
- Mumtaz, H., et al. (2021). Unveiling and addressing implementation barriers to routine immunization in the peri-urban slums of Karachi: A mixed-methods study. *BMC Public Health*, 21, Article 1822.
- National Institute of Population Studies (NIPS), & ICF. (2019). *Pakistan demographic and health survey 2017–18*. Islamabad, Pakistan: NIPS and ICF.
- Nisar, M. I., et al. (2023). Differential coverage for vaccines in the expanded program on immunization (EPI) among children in rural Pakistan. *BMC Public Health*, 23, Article 494.
- Siddiqui, T. R., Nisar, N., Hassan, A., Hussain, S. S., & Ahmed, I. (2014). Assessment of knowledge, attitudes and practices regarding immunization among parents in Pakistan. *Journal of Pakistan Medical Association*, 64(9), 1010–1014.
- World Health Organization. (2019). *Ten threats to global health in 2019*. Geneva, Switzerland: WHO.
- World Health Organization. (2024). *Immunization agenda 2030: A global strategy to leave no one behind*. Geneva, Switzerland: WHO.