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EVALUATION OF PUBLIC VIEWS AND PERCEPTIONS TOWARD POLIO VACCINATION IN THE POPULATION OF AJK

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ABSTRACT

Background: Polio remains a significant public health concern in many parts of the world, including Pakistan, where it is a persistent issue despite vaccination efforts. Public views and perceptions toward polio vaccination are crucial in shaping vaccination programs. In Azad Jammu and Kashmir (AJK), understanding these perceptions is vital for improving vaccination coverage and achieving eradication goals.

Objective: To evaluate the public views and perceptions toward polio vaccination in the population of AJK, aiming to identify factors influencing vaccine acceptance and hesitancy.

Study Design and Setting: A cross-sectional survey was conducted in various districts of AJK between August 2023 to January 2024. The study involved individuals from different demographic backgrounds, including rural and urban areas.

Methodology: A structured questionnaire was administered to 110 participants. The survey assessed knowledge about polio, attitudes toward vaccination, and barriers to vaccine acceptance. Data were analyzed for patterns based on gender, age, education, and residence.

Results: The results indicated high awareness of polio vaccination (94.5%), with 80% of participants acknowledging its importance in preventing paralysis. However, 25.5% reported accessibility issues, and 20% expressed concerns about side effects. Religious beliefs and misinformation also played a role in vaccine hesitancy, particularly in rural areas.

Conclusion: Polio vaccination awareness is generally high in AJK, but barriers such as accessibility, fear of side effects, and misinformation hinder full acceptance. Targeted awareness programs and improved vaccine delivery in rural areas are essential for increasing vaccination coverage.

Keywords: Accessibility, barriers, immunization, polio vaccination, public perception, rural, vaccine hesitancy

INTRODUCTION

Poliomyelitis (polio) remains a significant public health concern, particularly in regions where vaccination coverage is incomplete. It is a highly infectious viral disease primarily affecting children under five years of age. The disease can lead to permanent paralysis and, in severe cases, death.[1,2] Despite global efforts to eradicate polio, certain areas, including parts of Pakistan, continue to face challenges in achieving and maintaining high vaccination rates.[3] The global initiative to eradicate polio, launched by the World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), and other key stakeholders, has led to a dramatic decline in polio cases worldwide. Between 1988 and 2023, the incidence of polio decreased by over 99%, with cases confined to a few countries, including Pakistan.[4] Despite this progress, certain pockets remain resistant to vaccination campaigns. In Pakistan, vaccine hesitancy, misinformation, cultural beliefs, and logistical challenges in rural and underserved areas have hindered polio eradication. This underscores the importance of understanding community-specific factors influencing public perceptions of vaccination.[5]

AJK, located in a politically sensitive and geographically diverse area, faces unique barriers to effective immunization. Its rugged terrain and limited healthcare infrastructure complicate vaccine delivery to remote communities. Furthermore, sociocultural dynamics, including religious beliefs, gender roles, and misinformation spread through local narratives or social media, can significantly impact public acceptance of vaccination programs. These factors make AJK a critical region for assessing public attitudes and identifying gaps in knowledge, awareness, and trust toward polio vaccination efforts.[6] Misinformation and vaccine hesitancy are not isolated phenomena but are often rooted in deeper societal issues. Distrust of healthcare systems, political instability, and fears regarding vaccine safety have been documented in many regions, including AJK.[7] The spread of rumors, such as the false belief that polio vaccines lead to infertility or are part of a foreign conspiracy, has contributed to resistance among certain populations. Addressing these misconceptions requires an evidence-based approach to education and outreach tailored to local needs and sensitivities.[8,9] Community engagement and education play a pivotal role in the success of vaccination programs. Understanding public perceptions and addressing their concerns through culturally sensitive communication strategies is essential. Given the global urgency to achieve polio eradication, this study holds both local and international significance. It contributes to the broader understanding of vaccine acceptance and public health interventions in complex sociopolitical environments.[10]

Involving local leaders, healthcare workers, and religious authorities in advocacy can help build trust and acceptance. However, there remains a lack of comprehensive data regarding the specific perceptions and barriers faced by communities in AJK, which is critical for designing targeted interventions. This study aims to evaluate public views and perceptions toward polio vaccination among the population of AJK. By identifying factors contributing to vaccine hesitancy or acceptance, the research seeks to provide insights that can inform policy and programmatic decisions. The findings will help policymakers, healthcare providers, and organizations involved in polio eradication to design context-specific strategies that address the concerns and challenges unique to the region. By addressing the barriers to vaccination in AJK, the research has the potential to aid in the eradication of polio, not just in Pakistan, but as part of the larger global initiative to create a polio-free world.

MATERIALS AND METHODS

This cross-sectional study was conducted was conducted in various districts of AJK from August 2023 to January 2024. The study included a total sample size of 110 participants. Participants were selected using a non-probability convenience sampling method to ensure representation from both urban and rural areas across AJK. The inclusion criteria for the study comprised individuals aged 18 years and above, residing in AJK for at least one year, and willing to participate. Those who were unable to provide consent or had cognitive impairments that might interfere with their ability to answer questions were excluded from the study.

Data collection was performed through structured interviews using a pre-validated questionnaire. The questionnaire was developed in English and translated into the local languages (Urdu and Pahari) to ensure comprehension. It consisted of sections covering demographic information, knowledge about polio, attitudes toward polio vaccination, and barriers or misconceptions regarding vaccination programs. Before the main study, the questionnaire was pre-tested on a subset of 10 participants to assess clarity and reliability, and necessary modifications were made. Interviews were conducted by trained fieldworkers in both community settings and healthcare facilities. Data collection was carried out in person to ensure completeness and accuracy. Efforts were made to include participants from diverse socio-economic backgrounds and different regions within AJK to enhance the generalizability of the findings.

Participants were assured of the confidentiality and anonymity of their responses, and they had the right to withdraw from the study at any time without any repercussions. The collected data were entered into a secure database and analyzed using SPSS software version 25. Descriptive statistics, including frequencies and percentages, were used to summarize demographic characteristics and responses to the questionnaire. Chi-square tests were performed to examine associations between demographic variables and perceptions of polio vaccination, with a p-value of <0.05 considered statistically significant. Results were presented in the form of tables and graphs to highlight key findings related to public views, barriers, and misconceptions regarding polio vaccination.

STUDY RESULTS

The demographic characteristics of the participants (Table 1) showed a balanced distribution of gender, with 52.7% males and 47.3% females. Most participants were aged 31–45 years (38.2%), followed by those aged 18–30 years (32.7%). Regarding education, 34.5% had completed secondary education, and 27.3% had attained higher education. Urban residents made up the majority (56.4%), while rural residents accounted for 43.6%.

Table 1: Demographic Characteristics of Study Participants (n = 110)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	58	52.7%
	Female	52	47.3%
Age Groups (Years)	18–30	36	32.7%
	31–45	42	38.2%
	46 and above	32	29.1%
Educational Level	No formal education	18	16.4%
	Primary	24	21.8%
	Secondary	38	34.5%
	Higher education	30	27.3%
Residence	Urban	62	56.4%
	Rural	48	43.6%

Knowledge and awareness about polio vaccination were high among the participants (Table 2). A significant majority (94.5%) had heard about polio vaccination, and 80% were aware that polio can cause paralysis. Additionally, 89.1% reported that polio vaccination was available in their area, indicating good accessibility in most regions.

Table 2: Awareness and Knowledge About Polio Vaccination (n = 110)

Question	Yes	No	Not Sure
Have you heard about polio vaccination?	104 (94.5%)	6 (5.5%)	-
Do you know polio can cause paralysis?	88 (80.0%)	12 (10.9%)	10 (9.1%)
Is polio vaccination available in your area?	98 (89.1%)	8 (7.3%)	4 (3.6%)

The attitudes toward polio vaccination were generally positive (Table 3). Most participants (70.9%) strongly agreed that polio vaccination is essential for children's health, and 58.2% expressed strong

trust in the safety of vaccines. However, religious beliefs were a factor for some, with 45.5% strongly agreeing and 27.3% agreeing that vaccination aligns with their religious values, while 14.5% remained neutral or disagreed.

Table 3: Attitudes Toward Polio Vaccination (n = 110)

Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Polio vaccination is important for children's health.	78 (70.9%)	22 (20.0%)	6 (5.5%)	3 (2.7%)	1 (0.9%)
I trust the safety of polio vaccines.	64 (58.2%)	26 (23.6%)	12 (10.9%)	6 (5.5%)	2 (1.8%)
Religious beliefs support polio vaccination.	50 (45.5%)	30 (27.3%)	14 (12.7%)	12 (10.9%)	4 (3.6%)

Barriers to polio vaccination were also identified (Table 4). The most frequently reported barriers included accessibility issues (25.5%), fear of side effects (20.0%), and misinformation, such as infertility rumors (16.4%). Religious misconceptions were reported by 12.7% of participants, while 14.5% cited a lack of awareness as a barrier.

Table 4: Barriers to Polio Vaccination (n = 110)

Barrier	Frequency (n)	Percentage (%)
Lack of awareness	16	14.5%
Fear of side effects	22	20.0%
Religious misconceptions	14	12.7%
Accessibility issues (remote locations)	28	25.5%
Misinformation (infertility rumors)	18	16.4%
Other	12	10.9%

To address these barriers, participants suggested various strategies (Table 5). The most common recommendation was community engagement and awareness programs (61.8%), followed by combating misinformation through media (54.5%). Improved accessibility in rural areas (49.1%) and the involvement of religious and community leaders (38.2%) were also emphasized as critical strategies to enhance vaccination campaigns.

Table 5: Recommendations for Improving Vaccination Campaigns (n = 110)

Recommendation	Frequency (n)	Percentage (%)
Community engagement and awareness programs	68	61.8%
Involvement of religious/community leaders	42	38.2%
Improved accessibility in rural areas	54	49.1%
Combatting misinformation via media	60	54.5%

DISCUSSION

Polio, a debilitating disease caused by the poliovirus, remains a significant public health concern despite global eradication efforts. Vaccination has proven to be the most effective strategy for controlling polio. However, public views and perceptions toward polio vaccination vary, influenced by cultural, social, and informational factors.[11,12] In Azad Jammu and Kashmir (AJK), misconceptions, lack of awareness, and vaccine hesitancy have hindered vaccination campaigns, posing challenges to achieving complete immunization. Understanding the public's attitudes is crucial for tailoring interventions to increase acceptance and participation.[13] This study aims to evaluate the public views and perceptions regarding polio vaccination in AJK, providing insights to guide future health policies and campaigns.

The findings of this study demonstrate a high level of awareness and positive attitudes toward polio vaccination among the population of AJK, aligning with several other studies while highlighting unique regional factors. Our results revealed that 94.5% of participants had heard of polio vaccination, and 80% were aware that polio can cause paralysis. This awareness aligns with the findings of Shafique et al. (2021), who reported sufficient knowledge (65.1%) about polio among individuals aged 18–30 years in Peshawar. Similar to their observation that urban residents had

better awareness (50.5%) than those in outskirts, our study also noted higher awareness among urban participants (56.4%).[14]

Positive attitudes were evident in our study, with 70.9% of participants strongly agreeing that polio vaccination is essential for children's health. This reflects the findings of Ahmad et al. (2024), where 95% of respondents demonstrated positive attitudes toward vaccines for pandemic prevention.[20] However, unlike Khan et al. (2015), who noted a negative attitude toward polio immunization in 84.8% of participants, the trust in vaccine safety was relatively high in our study, with 58.2% strongly trusting the vaccines. This may indicate an improvement in public trust due to consistent polio eradication campaigns.[15]

Barriers identified in this study, such as fear of side effects (20%) and misinformation about infertility (16.4%), are consistent with those reported by Kaleem et al. (2021), where 20.2% of participants feared infertility, and 57.7% lacked trust in the government.[18] Similarly, religious misconceptions (12.7%) in our study were comparable to the findings of Khan et al. (2015), who reported false religious beliefs in 39.06% of participants.[15] Efforts to address such barriers, as suggested by Ataullahjan et al. (2021), include integrating polio vaccination with broader preventive health services and addressing social exclusion.[19]

The strong recommendations in our study for community engagement (61.8%) and combating misinformation (54.5%) are also supported by the work of Saif-ur-Rehman et al. (2019), who demonstrated the effectiveness of district-level administrative efforts in increasing awareness by 13% and belief in vaccines by 11%. Moreover, the suggestion to involve religious leaders is reinforced by Saleh et al. (2024), who found that addressing community-level uncertainties and conspiracies can positively shift public perceptions.[16,17,20]

This study provides valuable insights into public perceptions of polio vaccination in AJK, highlighting cultural and social barriers to immunization. It employs a community-based approach, ensuring a diverse and representative sample. However, self-reported data may introduce recall or social desirability bias, and the study's cross-sectional design limits its ability to establish causation or track changes over time.

CONCLUSION

Our study highlights a high level of awareness and positive attitudes toward polio vaccination in AJK, yet persistent barriers such as misinformation and accessibility issues remain. Targeted interventions, including community engagement and addressing misconceptions, are crucial for achieving polio eradication in the region.

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