

PARENTS PERCEPTION, EXPERIENCES AND DECISION MAKING REGARDING CHILDREN IMMUNIZATION AGED 0-5 YEARS IN RURAL AREAS OF BAHAWALPUR, PUNJAB, PAKISTAN

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Abstract

Background: Childhood immunization remains one of the most effective public health interventions for reducing morbidity and mortality among children under five years of age. Despite the availability of free vaccination services under Pakistan's Expanded Program on Immunization (EPI), immunization coverage in rural areas continues to be suboptimal. Parents' perceptions, lived experiences, sociocultural beliefs, and access-related challenges play a decisive role in shaping immunization decisions for vulnerable children. **Objective:** This study aimed to explore parents' perceptions, experiences, and decision-making processes regarding childhood immunization among children aged 0–5 years in rural areas of Bahawalpur, Punjab, Pakistan. **Methodology:** A qualitative study design was employed using in-depth, semi-structured interviews. Twenty-seven parents of children aged 0–5 years were purposively selected from three rural communities in Bahawalpur. Data were collected through audio-recorded interviews conducted in local languages and analyzed using Braun and Clarke's thematic analysis framework. **Results:** The analysis revealed eight major themes influencing parental decision-making: positive perceptions of vaccination, limited knowledge of immunization schedules, the role of religion and cultural beliefs, accessibility and

satisfaction with immunization services, logistical and systemic barriers, concerns regarding minor side effects, influence of education and media, and community-driven suggestions for improvement. Most parents viewed immunization as a life-saving and religiously acceptable practice and expressed trust in healthcare workers. However, gaps in detailed knowledge, inconsistent service delivery, misinformation from isolated religious sources, and access barriers contributed to delayed or missed vaccinations. **Conclusion:** Parents in rural Bahawalpur generally demonstrated positive attitudes toward childhood immunization, supported by religious acceptance and trust in healthcare services. Nonetheless, persistent challenges related to knowledge gaps, service accessibility, and misinformation hinder optimal immunization coverage. Strengthening community-based education, improving service delivery, and engaging trusted religious and community leaders are essential strategies to enhance childhood immunization uptake in rural Pakistan.

INTRODUCTION

1.1 Background.

Vaccination involves introducing a vaccine to stimulate the body's immune system, helping it develop resistance against specific disease, Immunization stands as one of the most efficient and affordable public health strategies, playing a crucial role in safeguarding children's well-being, By preventing diseases before they occur, immunization empowers individuals to defend themselves against harmful pathogens. Parents' understanding and attitudes toward vaccination significantly impact whether their children receive timely immunizations although when parents are well-informed, hold positive views, and have accurate perceptions about vaccines, they contribute to lowering the prevalence of preventable infectious diseases (Verulava T. et al, 2019). Vaccinating children is one of the best ways to stop the spread of infectious diseases, many of which can easily pass from one person to another, vaccines help by strengthening a child's immune system, giving the body the ability to fight off specific germs, not only do vaccines protect the child who gets them, but they also help prevent the spread of diseases to others, this creates what we call herd immunity, which benefits the entire community and by ensuring their children are vaccinated, parents are not just protecting their own kids but also helping to keep everyone in the community safer from diseases (Alshammari S.Z et al., 2021). Immunization is incredibly important for protecting children's health and saving lives, especially when it comes to preventing serious diseases, if children don't get the proper vaccinations, it can lead to a higher risk of death among young kids, according to statistics, around 30 million children from different parts of the world have missed their basic vaccinations, which has led to an increase in the number of deaths caused by infectious diseases, additionally this issue affects both developing countries and developed nations, causing a rise in both death and disease rates, it's clear that giving children their vaccinations on time can make a huge difference in reducing infant death rates, vaccinating children early can save lives and help prevent the spread of dangerous diseases that can otherwise cause harm to both individuals and communities. (Memon M.A et al., 2024). To protect young children from dangerous diseases, the World Health Organization (WHO) has created a special vaccine plan for kids under two years old, this plan starts right after birth and covers important vaccinations up until the child turns two, getting these shots on time is super important because they help build a strong immune system and prevent serious infections that could harm or even threaten a baby's life, by promoting timely vaccinations, WHO

helps keep children around the world healthy and safe.(Nassar et al., 2023).The Expanded Program on Immunization (EPI) was first introduced by the World Health Organization (WHO) to help prevent six major infectious diseases: tuberculosis, polio, diphtheria, pertussis, tetanus, and measles. Since its implementation, the EPI has played a significant role in preventing the deaths of 2 to 3 million people every year, many mothers still do not participate in the vaccination process for their children due to various reasons, such as concerns about potential side effects, fear of minor illnesses that can occur after vaccination, and a lack of proper information as this highlights the urgent need to educate both mothers and fathers about the importance of timely and complete vaccination for their children additionally it is essential to guide parents, addressing their concerns, and ensuring they understand how vaccinations can protect their children from serious diseases and save lives. (Sakila S.N et al., 2025). Many different things can shape how parents feel about vaccines. For example, when a new vaccine becomes available, some parents might feel unsure or cautious because they don't know much about it. Hearing about possible side effects—whether they are common or very rare can also make parents more worried. On top of that, false information shared by anti-vaccine groups, especially online, can confuse people and lead them to distrust medical advice. A parent's background, including their culture, income, and education level, can also affect their decisions. Some families might follow traditional beliefs, while others might not have access to reliable health information. These factors all influence whether parents choose to vaccinate their children (Szalast et al, 2025).

1.2 Statement of prevalence:

Vaccination programs have become a critical public health strategy to reduce disease prevalence and save lives globally. These programs have significantly lowered morbidity and mortality rates from infectious diseases, preventing approximately 2.5 million deaths annually by protecting against diseases like tuberculosis, poliomyelitis, diphtheria, tetanus, and measles. In 2017, about 85% of infants worldwide (116.2 million children) received the Diphtheria-Tetanus-Pertussis (DTP3) vaccine, protecting them from serious, potentially fatal diseases. Additionally, 123 countries achieved at least 90% vaccination coverage for DTP3, highlighting strong global commitment to immunization efforts. These high coverage rates are crucial for building herd immunity, which also protects vulnerable groups who cannot be vaccinated. Immunization efforts have proven to be a powerful tool in reducing the global health burden, saving millions of lives, and securing a healthier future for children. Ongoing efforts to increase vaccine accessibility and coverage remain essential to maintaining these public health achievements. (Verulava, 2019). As parents are the only primary caregiver for their children so they have a right to decide whether their children should be vaccinated or not. In this regards knowledge of the parents is very important. Almost 96.85% Parents who have awareness about vaccination, they have a strong faith that if they want to save their children from diseases vaccination should be necessary. For this purpose 91.1% parents have given the consent that vaccination are beneficial for the children. Other hand some parents 25.6% also showed that they belong to specific religion in which vaccination is restricted.66.74% parents appreciated the free vaccination services from their government. Some of them also gave certain suggestions that can

improve the vaccine delivery system. 57.5% parents for facing difficult to pay the vaccine charges, 37.4% parents had complaint of rude and not supportive health care delivery team, 78% parents did not have the knowledge about this and 58.6% were those who are unable to reach vaccination centers.(Hussain A.et al, 2021).Although vaccines are the weak or dead microorganisms that are unable to cause disease but 40% of the parents had concerns about vaccines that they can cause some type of symptoms like pain , increased temperature , inflammation , fatigue and red spot appeared on injection site. As WHO is working to prevent and stop the infectious disease through immunization process instead of it in 2019 Saudi Arabia revealed that 1035 cases of measles, 187 for mumps 326 for pertussis, 62 for rubella. (Alshammari S.Z et al, 2021). 16.4% parents stated that vaccination can cause certain physiological changes that ultimately leaves to other diseases regarding this 61.7% parents were not prepared to immunize their children due to fair of Autism progression. 38.3% parents also had a fear of other diseases like attention deficit with hyper activity disorder (ADHD) and learning disabilities. (Karlen E.luthy ,et al, 2012)

1.3 Key Variables definitions:

1.3.1 Vulnerable Children to immunization: Children, particularly those under the age of zero to five years , are the primary target group for immunization programs, as they are most vulnerable to vaccine-preventable diseases. Immunization programs aim to protect this age group from diseases such as measles, polio, and whooping cough, which can be severe and even life-threatening. (WHO, 2021).

1.3.2 Immunization:

Immunization has been a key measure in public health that has preserved many people's lives everywhere. According to WHO, every year, 2–3 million deaths may be prevented thanks to immunization (WHO, 2021). A vaccine is used to stimulate the body's immune response so it can protect from certain diseases.

1.3.3 Knowledge of Immunization :

Having information about immunization greatly affects a parent's choice to use vaccines. A study has shown that poor understanding of vaccination affects a parent's decision to let their child be vaccinated (Hussain et al., 2021). A study released by the Journal of Infectious Diseases noted that informed parents are more likely to get their children vaccinated (Gust et al., 2008).

1.3.4 Attitude on Immunization :

How a parent views vaccines is very important for determining if a vaccine will be accepted. Misleading information or fear over possible side effects frequently encourages people to avoid taking vaccines. A research paper published in Vaccine showed that people's attitudes toward immunization depend on how they see the safety and effectiveness of vaccines (Larson et al., 2018).

1.3.5 Perception about Immunization:

A child's immunization from birth-five years is perceived differently by parents according to their beliefs and the surrounding culture. If people believe untrue stories about vaccines, it often results in them rejecting vaccination (Leask et al., 2012). A research paper in the Journal of Health Communication revealed that the opinions parents have about vaccines depend a lot on their social network and information they find online (Larson et al., 2014).

1.3.6 Vaccination :

Vaccination is a critical component of preventive healthcare. According to the Centers for Disease Control and Prevention (CDC), vaccination is one of the most effective ways to prevent infectious diseases (CDC, 2020). A study published in the New England Journal of Medicine found that vaccination has led to significant declines in vaccine-preventable diseases (Plotkin, 2014).

1.4 Statement of problem:

Exploring the parents decisions regarding children immunization based on their perception and experiences towards immunization.

Research Gap

The study not only reflects the local perceptions but also brings to light the systemic and social barriers that hinder vaccination coverage in rural settings. A study conducted by Hussain A. et al, (2021) stated that, Parents from rural areas are not enough educated and does not have any information about vaccine working, its importance and benefits so due to this lack of knowledge, they sometimes do not agree to participate in children vaccination process and always afraid of vaccines. They think that vaccines are harmful for the children because of some reasons like it may develop fever, swelling on injection site and rashes on the body on the body of their children. Instead of understanding vaccine safety parents refuse get their children vaccinated.

Parents had different reasons for not participating in their children immunization. They gave their personal feelings about vaccination. Some of them said that vaccinations are not beneficial for children because it can cause serious illness. Some said that there is a no connection between the vaccination and healing process. Body itself used to heal and prevent illness naturally so that's why we should not take part in vaccination process. (Karlen E. luthy ,et al, 2012).

1.5 Statement of purpose :

Explore the possible influences that can alter the parents decision making about their vulnerable children to immunize them against communicable diseases in rural Bahawalpur, Pakistan. This qualitative study addresses the gap in understanding how parental lived experiences, sociocultural contexts, and systemic barriers shape immunization decisions for children aged 0-5 years.

A study also stated that, Providing sufficient knowledge about vaccine and disease can also increase the immunization rates. when people will have knowledge about vaccination process they will have to follow EPI schedule strictly .that is why knowledge for vaccination process is necessary .(Hussain A. et al, 2021).

1.6 Statement of Objective :

1.6.1 Explore the lived experiences and perspectives of parents influencing immunization decisions in rural Bahawalpur.

1.6.2 Understand the sociocultural factors shaping parental attitudes toward childhood immunization.

1.7 Statement of aim:

This study aims to gain in depth understanding of parents' perceptions, experiences influencing decision making of parents towards children immunization under EPI in rural Bahawalpur, Punjab, Pakistan, informing the development of specific interventions to improve vaccination coverage and equity. Another Study aims to assess the awareness and attitudes regarding routine childhood immunization among Saudi parents in Riyadh, Saudi Arabia (Alshammari S.Z et al, 2021). The study conducted by Susanti et al. (2020) was to investigate how parents' characteristics and perceptions influence the completion of basic immunization in children, The research focused on identifying the level of parental understanding and their attitudes toward immunization, as well as analyzing how these factors impact whether children receive all necessary vaccines. By examining parental perceptions, the study aimed to uncover potential barriers to full immunization and provide insights for improving immunization coverage. The findings revealed that parental perception plays a significant role in the completeness of children's immunization, suggesting that enhancing parental knowledge and awareness could positively influence immunization rates.

1.8 Statement of Hypothesis

Parental decision-making about childhood immunization in rural Bahawalpur is significantly influenced by their lived experiences, cultural beliefs, access to healthcare, and social environment. Understanding these influences can lead to better strategies for increasing vaccination rates

2. Literature review

A lot of studies exist exploring the perception and experiences of parents and families regarding children immunization and their link with children health outcomes such as preventing from diseases , reducing the morbidity and mortality rates ,childhood disabilities result from missing of recommended vaccine schedules. (Hussain. A et al,2021). Several factors such as parents educational level, Knowledge, religious and cultural background , experiences and perceived barriers towards children immunization under two years of age after birth significantly influence the parents decisions towards the acceptance or refusal of vaccination .

2.1 Parents' perceptions and knowledge in relation to compliance with their children's immunization:

Parental awareness and knowledge about immunization are essential for protecting children from preventable diseases. When parents are well-informed, they are more likely to follow the

recommended vaccination schedule, ensuring timely and complete immunization. However, a lack of knowledge can result in missed or delayed vaccines, putting children at risk. Healthcare providers and educational campaigns play a key role in increasing parental understanding and promoting positive attitudes toward vaccination. Improved awareness ultimately leads to healthier children and stronger community immunity. When parents are well-informed, they are more likely to make timely and accurate decisions about their child's health. Misinformation, however, can create fear and hesitation, ultimately affecting vaccination coverage. Parental understanding of childhood vaccines plays a crucial role in shaping their attitudes and decisions regarding immunization. Indicates that gaps in knowledge and negative perceptions among parents often result in lower vaccination rates for children. Many parents mistakenly associate vaccines with autism or minor illnesses, leading to unnecessary delays in immunization schedules. This connection highlights the importance of educating caregivers to correct misinformation and encourage timely vaccinations. Improving parents' awareness can help change their views and behaviors, ensuring more children receive essential vaccines on time. Public health initiatives should focus on culturally appropriate education to address misconceptions and build confidence in vaccination programs. (Nassar et al., 2023) While both parents share responsibility for their child's health, mothers often play a more central role in daily care giving and healthcare decisions. Since mothers spend more time with their children, their perceptions and attitudes toward vaccination significantly influence whether a child receives timely immunization. Many mothers are deeply cautious about their child's well-being and hesitate to accept medical interventions they don't fully understand. Without proper guidance, this caution can lead to vaccine hesitancy, even when vaccines are safe and necessary. A major concern for mothers is the potential side effects of vaccines, such as mild fever or discomfort. While these reactions are normal and temporary, some mothers may see them as a reason to delay or skip vaccinations, especially if they lack clear information. Additionally, misconceptions about vaccines—such as believing they weaken a child's immune system—can further discourage mothers from following the recommended schedule. Many mothers are also unaware of the full benefits of the Expanded Program on Immunization (EPI), which protects children from life-threatening diseases.

Healthcare workers need to interact with mothers openly to encourage more vaccinations through compassionate communication. Ensuring that people easily understand what vaccines involve, including information on safety, possible side effects, and ways to prevent illnesses, may put patients at ease. Community awareness programs, sessions run by counselors, and creating trust among mothers and healthcare staff are crucial. Health providers play a vital role in educating and supporting mothers, making them more likely to prioritize vaccinations for their children. Parents should consider getting their children properly vaccinated, as their knowledge of vaccine-preventable diseases (VPDs) significantly affects vaccination choices. When parents understand the risks of diseases like measles, pertussis, and polio, they are more likely to see vaccination as essential protection. However, misinformation can lead to uncertainty or doubts. Studies show that well-informed parents tend to support immunization programs and ensure their kids get vaccinated on time. Public messages highlighting the benefits and risks of immunization should be used in health education. Research on vaccine development and VPDs can help lower anxiety and reassure people,

enabling informed decision-making. With the abundance of information from social media, TV, and online sources, some parents find it difficult to decide what to believe, leading to uncertainty about vaccination (Sakila N. et al, 2025) . Unfortunately, when the media highlights rare or controversial stories about vaccine side effects without proper context, it can cause unnecessary fear. Research has shown that such media coverage is linked to an increase in cases of vaccine-preventable diseases (VPDs), which is especially concerning because these diseases are entirely avoidable with proper immunization. Additionally, healthcare providers play a crucial role in educating parents, addressing concerns, and building trust. When knowledge is paired with empathy and open communication, parents are more likely to feel supported and empowered in their choices. Ultimately, increasing awareness and understanding of VPDs helps shift vaccine hesitancy toward vaccine acceptance, fostering a healthier community for everyone.(Kestenbaum,et al. 2015)

2.2 Attitudes of healthcare staff and parents in relation to maximizing children immunization.

A study also showed that trust in healthcare providers is crucial in shaping how parents perceive vaccinations for their children. As doctors, nurses, and healthcare professionals, being open, respectful, and empathetic while communicating helps everyone relax. Trust and a sense of caring are essential. Parents usually feel relaxed asking questions about their children when they are sure the doctors are attentive to their wellbeing. This environment helps parents make informed decisions regarding vaccinations. Such a relationship with healthcare professionals reduces fears in parents and suggests that people get vaccinated on time. Parents find it easier to follow the doctor's advice when they trust them. Suggesting vaccinations, for example, makes parents feel respected. Lack of communication can make parents doubtful about vaccinations, resulting in them postponing or refusing vaccinations, which can have negative health results for the child and the public. Doctors and nurses who outline the pros and cons of each vaccine and react to stress directly and sympathetically can ease parents' worries. When parents are well-informed and satisfied with the answers, they are likely to follow vaccination schedules. Trust is crucial for making vaccines more effective and promoting public health (Szalast et al, 2025). Parents' attitudes play a significant role in ensuring children get timely and complete immunization. Although vaccines are safe and effective, some parents are unsure due to potential side effects. Common temporary symptoms include low-grade fever, pain at the injection site, and fussiness in children. Many parents find it troubling when their child experiences discomfort after vaccination, leading them to question their decision. Misinformation from social media, family, and friends can also cause confusion, making parents overly cautious and ruled by fears instead of facts. Healthcare providers have a key role in shaping positive attitudes by offering clear, empathetic communication. When doctors and nurses take time to explain common side effects, their temporary nature, and their minor health impact, parents feel more reassured. Conversely, dismissive or rushed interactions can reinforce doubts. Building trust through education, transparency, and respectful dialogue is essential. By addressing concerns proactively and providing evidence-based information, immunization programs can help parents develop confident, positive attitudes toward vaccination—ultimately improving coverage and protecting more children from preventable diseases.(Hussain et al.,2021)

2.3 Religious Factors Influencing Parents' Decisions on Children Immunization.

Many times, parents' religious beliefs help them decide whether or not to vaccinate their children. Certain parents are in favor of vaccinating their children to avoid possible health risks. A way of treating health that lines up with the religious belief of saving life. However, others some people do not get vaccinated because they are concerned about how pure or halal the vaccines are. People expressing doubt about the true objectives of vaccination. This way of thinking can cause refusing or deciding against taking vaccinations when given misinformation encourages the spread of disease their ideas are guided by different theories. For many people, the decision to vaccinate varies from person to person they may interpret problems based on people's background, their culture, and their personal beliefs. A main reason that causes some people to experience cultural shocks Some people choose not to get vaccinated as they have heard, or think, unreliable stories about vaccines. For some groups, vaccines are said to have ill intentions regarding particular groups. Products that Muslims cannot use because of their faith or because of what is included in them. For example, there are pork products. Certain people believe that vaccination is a form of spying. Another possibility is for Western countries to take control of the situation. Mistrust also appears since many people think People in the Muslim community suspect that vaccines are created by companies run by non-Muslims with malicious objectives. Worries If it is Islamically acceptable to use the ingredients in vaccines is also considered many people are not eager to join.. On top of this, many people don't fully trust pharmaceutical companies or governments, which increases doubts. To deal with these issues, it's important to share clear and honest information, get support from trusted religious leaders, and explain what's actually in vaccines. This can help people feel more confident and make informed choices about vaccination (Azhar et al., 2024; Nassar et al., 2023).

2.4 Perceived barriers to accessing vaccination contribute to poor vaccination coverage.

Parents often face difficulties in getting their children vaccinated on time due to various challenges. Long waiting times at vaccination centers are a major issue, as busy parents struggle to take time off work or adjust their schedules. When they finally visit the clinic, excessive delays discourage them from returning for follow-up doses. Another critical problem is uncooperative staff. If healthcare workers are rude, dismissive, or fail to properly guide parents, it creates frustration and distrust. Some parents may even refuse future vaccines if they feel disrespected or unheard. Other factors also contribute to low vaccination rate. Some parents could choose not to participate in vaccination programs if they feel their concerns are ignored, and future vaccines might not address their issues. Low literacy levels can also impact vaccination rates, as some parents may not understand the correct vaccination schedule, leading to skipped doses. Misinformation and false claims can make people wary of vaccines. Inadequate facilities, such as overcrowding and lack of seating, can make vaccination visits unpleasant. Additional costs, including travel fees, can create financial barriers for families. Without reminders, parents might forget about subsequent doses. Societal myths and beliefs can also affect vaccine uptake, with some communities being unconvinced about the need for vaccines. To improve vaccination coverage, these barriers must be addressed. Reducing wait times, training staff to be more supportive, and improving clinic conditions can encourage parents to

complete their child's immunization. Public awareness campaigns can correct misinformation. Making vaccination services more convenient and respectful will ensure more children receive full protection against preventable diseases.(Hussain et al.,2021).Many parents today are doing their best to make informed decisions for their children, especially when it comes to health. But when it comes to vaccines, it's not always an easy choice. For some, it's not a matter of rejecting medical advice—it's about navigating fear, uncertainty, and the overwhelming amount of information out there. Parents naturally want to protect their children, and when they don't have full clarity or confidence in something, they may start to question it. It's easy to see how vaccines, with their long names, complicated schedules, and occasional stories of side effects, can raise doubts—even in loving, responsible parents.

Sometimes, it's not just fear of what's in the vaccines, but also anxiety about timing, the number of injections, or simply feeling like they don't have enough say in the process. When parents are unsure, they tend to focus on the "what ifs" and imagine worst-case scenarios, because they care deeply about doing the right thing. That's why it's so important that they feel heard and supported, not judged. Open, respectful conversations with healthcare providers, reassurance from trusted sources, and space to ask questions without shame can help ease those fears. At the end of the day, parents just want to feel confident that they're making the best choices for their children—and that confidence often comes from feeling respected, informed, and understood (Kestenbaum, 2015).Vaccines prevent diseases that can lead to the death of children. It is also a life-saving activity and can improve children's health outcomes. If vaccine coverage is good, then it can save a lot of children from disease and enable them to live healthy lives. On the other hand, not all parents are likely to get their children vaccinated. If parents do not show a positive attitude towards vaccination, then their children are more likely to catch serious diseases, and as a result, children face a higher risk of dying before they turn 5 years old (Hussain et al.,2021).

3. Methodology:

3.1 Tool Selection.

To gain insight into parents' perceptions, experiences, and decision-making factors related to children immunization aged zero to five years in rural Bahawalpur in Pakistan, an in depth semi-structured interview guide with relevant questions was used from existing literature as the primary qualitative research tool to know the experiences and perception of parents regarding vaccination of children. Before participant selection, the research team collaborated with the community health workers such as lady health worker, doctors and the community also in the area to explain the study and to know the cultural sensitivity. One to one 27 interviews were conducted with the parents of community by providing detailed information about the study and were asked informed consent prior and were recorded in audio form to maintain the consistency of data. Key questions from existing studies were taken such as gaps and recommendations given by various authors i.e vaccine hesitancy, access to immunization services, and cultural beliefs were incorporated into the questioning framework.

The interview of 25 core questions, systematically organized into six key domains:

- 3.1.1. Demographic Information (age, education, household structure)
- 3.1.2. General Perception About Children Immunization (beliefs, trust in vaccines, cultural attitudes)
- 3.1.3. Experience with Immunization Services (interactions with healthcare providers, service quality)
- 3.1.4. Barriers to Immunization (accessibility, affordability, misconceptions)
- 3.1.5. Knowledge and Awareness (information sources, understanding of vaccine schedules)
- 3.1.6 Suggestions for Improvement (recommendations for better immunization services)

3.2 Community Selection Process:

The study focused on rural communities of southern Punjab in Bahawalpur District. The community selection process including the availability and accessibility to basic health facilities at the BHU and RHC and the homes connected with them to avail their services. By collaborating and consulting with the district health officials and local health care providers from BHU and RHCs such as local lady health visitors in the rural territory made it easy for us to gather data about perception and experiences of parents about children immunization. With the help of lady health visitors, the parents of children aged zero to five years were selected and their willingness to research participation to proceed in a culturally appropriate way.

3.3 Study Population Recruitment:

Participants were recruited from three rural villages of Bahawalpur whose population are parents who met

3.3.1 Inclusion Criteria are:

Parents (mothers and fathers) of children aged 0-5 years. At least one experience with children immunization (either completed or missed vaccines)

3.3.2 Exclusion Criteria:

Parents of children with chronic illnesses requiring specialized care. Those who have recently migrated to the area

3.3.3 Recruitment Strategy:

Local Lady Health visitors (LHVs) assisted in identifying potential participants through household surveys. Purposive sampling was used sparingly when initial participants referred peers, though primary reliance remained on purposive selection to avoid bias. 27 interviews were conducted with the participants. Parents from a diverse socioeconomic population were included in interviews to make sure the representative population for study.

3.4 Participant Approach and Community Engagement

To ensure cultural sensitivity and ethical compliance, researcher collaborated with lady health workers from Basic Health Units (BHUs) and Rural Health Centers (RHCs) to gain information

and access to community. Participants autonomy and confidentiality, informed consent were ensured by explaining the study's goals, objectives by conducting interviews at the community ease at their homes. It was necessary to explain the community about research conduct to make sure the research validity. To reach the community and their BHUS and RHCS, university vehicles were used as a transport facility. Local LHVs guided final access to community homes via motorbike or by foot.

3.5 Community Entry and Trust-Building:

Community entry and trust-building were initiated by Lady Health Workers (LHVs) who introduced researchers to male household heads to secure permission, respecting local patriarchal norms. The team conducted door-to-door visits with LHVs, where they explained the study's purpose in the local language (Saraiki) and addressed concerns related to privacy and data confidentiality. Eligible participants—parents of children under five years—were screened for inclusion. The informed consent process involved obtaining verbal consent, with a strong emphasis on voluntary participation.

3.6 Interview Protocol Implementation:

The respondent from community were mainly Saraiki, Punjabi and Urdu speaking. The interviews were conducted in their native language using a interview guide containing open ended questions that provided us framework where participants were stimulated to discuss their queries relevant to vaccination of children under zero to five years of age, to maintain consistency while allowing adaptability to participants' needs. To ensure privacy and confidentiality, conversations were held in secluded areas within homes, such as private rooms, where participants could speak freely without fear of being overheard. Each session lasted approximately 12 to 15 minutes, keeping the discussion focused yet comfortable for respondents. Safety and ethical considerations were prioritized throughout the process. To minimize discomfort—particularly given cultural sensitivities—a male research team conducted the interviews, ensuring a respectful and culturally appropriate environment. Participants were informed of their right to pause or stop the interview at any time if they felt uneasy, though no such instances occurred. This approach helped foster trust while maintaining ethical research standards.

3.7 Data Collection and Recording:

The interviews were in audio recorded form and transcribed verbatim by volunteer participation of parents meeting inclusion criteria. The interview guide contain open ended and probing questions to explore the perception and experiences of parents whether they vaccinated their children or not. To gain detailed evaluation, researcher took into considerations the both parents point of views. The interviews were recorded between 10 to 15 minutes. The recordings allows researcher to comprehensively review the audios latter for accurate transcription. After completing several interviews, researcher noticed that no new information or key points were coming up, and the same ideas kept being repeated. This indicated that data saturation had been achieved.

3.8 Response Evaluation:

The interview transcription were analyzed by using thematic analysis followed by Braun & Clarke's (2006) thematic analysis framework. After carefully reading the each transcript several times, researcher was able to identify preliminary codes which are part of raw data and viewed as unique, understandable and meaningful. The codes were categorized into major and sub themes. Researchers thoroughly examine transcripts to understand the data, applying a thematic approach to identify patterns and connections. They carefully code and analyze the data, using participants' key phrases to name themes and direct quotes to support findings. Through discussion and cross-checking with original data, researchers finalize main themes, ensuring they accurately represent participants' perspectives. This process helps build a clear interpretation of the data, highlighting relationships between major themes and sub-themes.

4. Results:

This chapter present the thematic findings of the study with in-depth interviews of parents from rural communities in Bahawalpur, Punjab. Thematic analysis of the transcribed interviews resulted in the development of eight themes which represent various but interrelated factors that determine parental decision-making concerning childhood immunization. Quotes from participants are used to support each theme and the insight into the parental experience..

4.1 Theme 1: Positive Perceptions and Beliefs About Vaccination:

Most of the parents were highly confident in vaccination as a life-saving intervention. To many, immunization was an important tool for safeguarding their children from serious diseases like polio, measles and hepatitis. The report on the perception of the vaccines as “a gift from Allah” was repeated several times, expressing the religious approval and the cultural acceptance. “Vaccines are like a shield that keeps our little ones safe from illnesses.” – Participant 16 “Islam teaches us to take care of our health... vaccines are completely allowed in our religion.” – Participant 16 Participants also associated their experiences with health improvements after vaccination, strengthening their belief in vaccine efficacy. The combined experience of immunization in their neighborhoods helped normalize and prompt participation in the national vaccine programs.

4.2 Theme 2: Knowledge and Awareness of Immunization Schedules:

Although many participants were informed that immunization should be done in early childhood and up to the age of five, there was variation in knowledge about the type of vaccines, doses and intervals. Most depended on vaccination cards or medical personnel to stick to the schedule.

“I know children should be vaccinated by age five... they [health workers] tell us.” – Participant 26

“I’ve never known the exact timeline, but we vaccinate early.” – Participant 7

Regardless of this general understanding, some parents felt confused or had incomplete information regarding immunization timing and protocol, thus necessitating structured and repeated education on immunization timing and protocol.

4.3 Theme 3: Role of Religion and Cultural Beliefs:

Most participants did not view religion as an obstacle to immunization. As a matter of fact, Islamic principles were used to justify the need to maintain health. However, a few noted that some local religious leaders discouraged vaccination by spreading false information that caused fear and noncompliance among some families.

“Some maulvis advise against vaccines... that’s why some people hide when teams come.” - Participant 9

“There is no conflict with religion... vaccines are for public welfare.” - Participant 27

Generally, cultural practices and community norms together supported immunization, but isolated sources of misinformation had a clearly negative effect.

4.4 Theme 4: Service Accessibility and Satisfaction:

Generally, most participants were satisfied with government vaccination services. Most were grateful that the vaccines were free and got them through community health centers or door-to-door visits. Healthcare workers were frequently referred as being professional, kind, and supportive.

“Health workers are very supportive. The best part is the vaccines are free.” - Participant 3

“The service is smooth... no hidden charges or bribes.” - Participant 5

Mosque announcements and mobile teams contributed to high turnouts of the vaccination exercise. However, satisfaction was slightly influenced by geographical location and availability of resources.

4.5 Theme 5: Challenges and Barriers:

Despite the positive perceptions, there were several barriers for vaccine uptake. Some of the main challenges were long waiting list at the clinics, inaccessibility of vaccines, irregular health team visits, and lack of outreach in the remote regions. These logistical challenges resulted in missed or late vaccine doses, particularly for families in remote areas.

“Sometimes we take time off work, only to find vaccines aren’t available.” - Participant 23

“Government should send health workers door-to-door regularly.” - Participant 20

These barriers revealed the areas that need to be adjusted in the service delivery model so that all communities can receive equal access

4.6 Theme 6: Side Effects and Concerns:

Fever, swelling and pain at the site of injection were the common side effects reported. However, these effects were not serious, and they were always handled at home with simple medication. Explanations by healthcare workers reduced anxiety regarding these side effects.

“My kids sometimes get fever... but it goes away quickly with paracetamol.” - Participant 1

“Side effects are minor and manageable.” - Participant 13

No reports of serious or long-term adverse events were stated, which strengthened the participants’ confidence in vaccine safety.

4.7 Theme 7: Role of Education and Media:

Education was very important in vaccine acceptance. Those parents with at least secondary education or exposure to media campaigns understood the value of immunization. However, the uneducated families or the families with no access to media relied on oral messages from health workers or mosque announcements.

“I’ve read enough to understand vaccines help children's bodies fight illnesses.” – Participant 22

“Government should do better campaigns, explain properly in our language.” – Participant 21

This indicates the need for personalized, accessible and locally understandable health communication especially for the underserved populations.

4.8 Theme 8: Suggestions for Improvement:

Involved parties made useful recommendations on enhancing vaccination services. These were: increasing awareness through religious and community leaders, adopting regular schedules, enhancing vaccine availability, and increasing staff levels in underserved areas.

“The government should involve teachers and religious leaders in awareness.” – Participant 22

“More staff should be hired to reduce wait times.” – Participant 6

These recommendations indicate the community’s readiness to encourage vaccination programs and identify the areas where governmental and institutional intervention can enhance immunization results.

5. Discussion:

This study exposes the fact that positive perceptions about vaccines are sustained through a blend of religious understanding, efficacy as witnessed, and community norms. In the rural Bahawalpur, many parents were keen to support the immunization program as they did not consider it only a medical necessity but a moral obligation. These beliefs are reinforced by high level of interpersonal trust in health workers, local governance and religious figures. These attitudes, however, might not be universal in all the rural settings and relying on anecdotal understanding might still leave room for future misinformation if not supplemented with formal education. Another study examined Bangladeshi mothers' perceptions of child immunization and its link to Socio-demographic factors overall, mothers held favorable views toward vaccination, recognizing its importance in preventing childhood diseases and supporting timely immunization, including the first dose at birth and completion of the full schedule as these findings align with broader South Asian trends, where public awareness campaigns have improved vaccine acceptance however, persistent misconceptions threaten vaccine compliance. A significant proportion of mothers believed natural immunity was superior to vaccines—a view also observed in other developing regions due to traditional health beliefs. Additionally, concerns about side effects (e.g., fever or cramps) contributed to hesitancy, highlighting the need for targeted education to address safety fears and misinformation (Sakila et al., 2025). Similarly, Saeed & Hashmi, (2021) found that vaccination attitudes among Pakistani parents are generally positive, with many acknowledging the protective benefits of immunization. Parents with higher education levels particularly understand vaccines' role in preventing serious childhood illnesses, suggesting that health literacy influences vaccination

acceptance. Religious views in Pakistan predominantly support vaccination, with most faith communities promoting immunization. While religious teachings do not oppose vaccination, some misconceptions persist. Additionally, many parents advocate for vaccination within their communities, demonstrating broad recognition of its importance.

This study is characterized by moderate level of awareness, with the health outreach strongly supporting. Parents tended to follow directions but did not have specific information on schedules of immunization, types of vaccines and disease specific protection. This gap was to a great extent made up for by their trust in the system. However, in the areas where the access to health services is not consistent, these knowledge gaps may mean missed or delayed vaccinations. The results suggest the need for structured and repeated health education in the local languages, by trusted sources, and adapted to low literacy audiences. When studying parents views about vaccine awareness, another study similarly observe that Parents' awareness about vaccines are strongly influenced by when they're given and any reactions that occur. The research showed that many mothers (about half) reported their children had temporary side effects after getting vaccinated. Despite this, most parents recognized the importance of proper timing and said they made efforts to follow the recommended vaccination schedule (Sakila et al., 2025).

The part played by religion and belief in culturing in making immunization choices is complicated and dual in nature. Although mainstream Islamic teachings reiterate the need for health and support immunization, religious misinformation from some local leaders still poses a barrier. However, it seems that this barrier only pertains to minority of the population, as most parents are either neutral or openly support vaccines from the religious and cultural perspective. In order to break this barrier, the health authorities can work in conjunction with trusted religious leaders to launch a public campaign to support immunization and debunk myths peddled by a few dissenting voices. The finding of this study correlate with studies on parents decision making in Pakistan that have showed that many Muslim parents expressed their concerns that their religion does not support getting their children vaccinated, which makes them less likely to take part in immunization programs. As a result, families from the Muslim community often have more un vaccinated children and lower overall vaccine coverage compared to families from other religious groups. This shows that religious beliefs can strongly influence parents' decisions about their children's health (National Family Health Survey [NFHS], 2019). Similar findings are consistent with studies on impact of religious belief on children immunization in Pakistan also stated that many Muslims parents had strong belief that vaccines are Haram as they have pig content and harmful to reduce their children population and it is a foreign agenda by the western nations for spying and sensitive personal information gathering (Ali, et al, 2019).

The data show high levels of satisfaction in the accessibility and provision of immunization services. The participants from various locations appreciated the affordability, outreach, and the respect of the healthcare staff. Nonetheless, some communities are still affected by minor operational inefficiencies such as scheduling and availability of resources. Improving and developing outreach programs –with staff training and enhanced logistical support—can overcome these challenges and enhance immunization uptake. Similar findings from a study in Pakistan highlighted that these teams

not only improved vaccination rates but also raised public awareness about vaccine-preventable diseases. The study also showed that mobile immunization team services enhanced the immunization coverage and also increased the awareness in people about diseases which could be prevented through vaccination. A majority of participants expressed satisfaction with the services provided by mobile immunization teams. Hussain. A. et al (2021) highlighted that although the majority of the parents were not aware of the proper immunization schedule, but they were satisfied with the immunization services offered by the government of Pakistan. This might be due to a lack of awareness of appropriate immunization practices among parents. If all vaccines provided in the hospital would be free of cost in Pakistan, it would help increase immunization coverage because family income plays an important role in availing free healthcare services like immunization.

This study shows the gap between acceptance of vaccines and efficiency of service delivery. Although there is high trust in vaccines, systemic problems of planning, logistics, and communication hinder the effectiveness of immunization initiatives in the rural Bahawalpur. These issues, if not solved, may limit compliance rates despite community support. For better uptake, authorities need to ensure vaccines are available when due, improve staffing in health centers, and create reliable communication systems (calendar, mobile alerts, regular mosque announcements). Unless such structural gaps are taken care of, even the best families will end up lagging behind the immunization schedule. Two additional studies indicated that factors such as helpful staff, flexible clinic hours, and shorter wait times for vaccinations played a role in achieving full immunization rates among children. (Anderson, 2014), (Gore et al., 1999).

This study uncovers that common side effects are not a significant repellent to the compliance of vaccines with rural parents in Bahawalpur. Mild symptoms were usually tolerated and accepted, especially with assurance and treatment advice from healthcare workers. The presence of effective health communication was central in relieving fear and building trust. Further training of the healthcare workers in interpersonal communication and proactive education of patients as regards to the expected side effects can further reduce anxiety and maintain the vaccination compliance. Another study findings also stated that vaccine-specific attitudes significantly contribute to hesitancy by shaping individuals' evaluations of the potential risks and advantages associated with vaccination compared to avoiding it. Concerns about adverse effects occurring shortly after immunization are a key factor leading people to postpone or reject vaccines (Gowda & Dempsey, 2013). Similar findings from another study involving parents of children under six years old found that common concerns included discomfort from vaccine injections and post-immunization fever reactions (Kennedy et al., 2011). Another Qualitative research indicates that parents with vaccine hesitancy often prioritize concerns about short-term vaccine reactions. In one study, conducted focus groups with African American mothers, revealing widespread apprehension about common immunization side effects like localized pain, swelling, or redness at the injection site. (Shui et Al., 2005).

Education and media play a critical, however, unevenly distributed among the population role in vaccine awareness. Informed parents and exposed to constant media outreach showed increased confidence in vaccines. On the other hand, the uneducated people relied on oral sources and were

prone to misinformation or confusion. To close this gap, it is important to diversify communication methods, make the content culturally and linguistically appropriate, and empower the community-based educators (e.g., teachers, imams, and health workers) to conduct the grassroots awareness campaign. Similar findings also showed that parents with higher education levels tend to understand and accept immunization messages more easily, whether delivered through health worker counseling or mass media. This awareness encourages them to follow medical advice and ensure their children receive complete vaccinations. Education plays a key role in shaping behavior—studies show that the more educated a person is, the more likely they are to prioritize professional healthcare services. In contrast, parents with limited education may rely on oral myths or misinformation due to lack of media access, leading to confusion or hesitation about immunizations. This gap highlights how education and digital literacy influence vaccine acceptance. (Munib, 2004)

The recommendations made by participants were realistic and based on actual service gaps. There was an evident need for decentralized, community-based awareness, coupled with effective well-staffed delivery systems. Through these community voices, the public health authorities can modify interventions to local needs and no family is left behind because of the logistical or educational barriers. Another study's findings indicate that prolonged waiting times and uncooperative behavior among healthcare staff were key factors contributing to delays in childhood immunization. These barriers not only disrupted vaccination schedules but also discouraged caregivers from returning for subsequent doses, potentially compromising overall immunization coverage. (Hussain A. et al, 2021).

5.1 Limitations of the study :

Although this study offers valuable insights into parents' perceptions and decision-making processes concerning the immunization of their vulnerable children (ages 0 to 5) in rural areas of Bahawalpur, Punjab, several limitations were encountered. One of the primary challenges was the limited timeframe available to conduct fieldwork, which constrained the depth of engagement with participants. Additionally, the study was conducted with minimal resources, and the remoteness of the villages made travel time-consuming and logistically difficult, resulting in findings that are context-specific and not fully generalizable to the broader rural population of Punjab. These findings underscore the need for more inclusive, sustained community engagement strategies and tailored interventions to improve immunization uptake in underserved areas.

6. Conclusion:

This research explains the reasons behind the decisions that parents take on education. How rural Bahawalpur in Punjab was involved in childhood immunization. It is shown in the findings that in most cases, parents understand that immunizations protect their children's health tremendously. Important obstacles are still in place. Most parents are not completely aware of immunization, having to keep to schedules, as well as problems related to getting enough vaccines and having to wait long. Waiting in a clinic can delay getting timely vaccinations for a person. Although most people have beliefs that are rooted in religion despite supporting immunization, some false notes from leaders cause uncertainty among people. Only some families are typical of this picture. Even though these

are issues, parents still had a high level of faith in healthcare staff and found the free vaccination services very valuable. The findings demonstrate that there is a need for local education campaigns, promotion of languages, easier vaccine distribution using mobile clinics, and getting people more engaged. In collaboration with religious leaders, fighting against the spreading of wrong information may raise the number of vaccinated kids in Pakistan's rural areas. Being vaccinated gives children a chance to survive and aids the nation's overall health improvements. The findings emphasize that overcoming vaccine hesitancy requires both improving service delivery and building trust through culturally sensitive communication and community involvement.

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