

A Qualitative Study on the Reasons for Parental Refusal of Childhood Vaccination

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Abstract

Background: Immunization programs are critical interventions for controlling infectious diseases and significantly reducing childhood mortality. However, parental refusal of childhood vaccination is increasing, potentially leading to the resurgence of debilitating and fatal childhood diseases. This study explores the reasons behind such decisions among families in Kashan, Iran.

Methods: This qualitative study utilized semi-structured interviews to collect data. Participants were parents who refused vaccination for their children. Interviews were transcribed and analyzed concurrently with data collection using thematic analysis. Data saturation determined the sample size.

Results: From eight interviews, 200 codes (merging similar codes) were extracted, forming 19 themes related to refusal reasons. These were categorized into immediate causes (vaccine hesitancy), intermediary causes (misinformation, belief in natural immunity, perceived low risk of infection, belief in safer alternatives, conspiracy theories, distrust in services, personal and others' experiences, influence of propaganda and rumors, modeling others' behavior, personality traits, and immunization costs), and underlying causes (popularity of traditional medicine, anti-vaccine movement, COVID-19 outbreak, organizational issues, individual choice, perceived non-urgency of immunization services, and the expansion of virtual spaces).

Conclusion: This study highlights the importance of understanding the multifaceted and complex factors contributing to vaccine refusal. It suggests that multifaceted, evidence-based interventions can enhance vaccine acceptance and improve public health.

Key Words: Anti-vaccine movement, Childhood Vaccination, Vaccine hesitancy.

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1- INTRODUCTION

Immunization programs, especially childhood vaccination, are among the most effective strategies for reducing mortality and morbidity from preventable diseases. They play a crucial role in public health by eradicating certain diseases, establishing herd immunity, preventing secondary infections and some cancers, and reducing antimicrobial resistance. Economically, immunization prevents resource wastage, enhances household productivity, and improves economic conditions. Socially, it promotes equitable healthcare distribution, strengthens health infrastructure, and empowers women (1).

In Iran, the Expanded Program on Immunization has been operational for over four decades, achieving significant milestones such as polio eradication, elimination of neonatal tetanus, near-elimination of measles and congenital rubella, and control of diphtheria, pertussis, and mumps. Despite these achievements, infectious diseases remain a major challenge for health systems globally, including in Iran. Factors such as Iran's unique geographical location, climatic diversity, proximity to countries with less developed health systems, and migration necessitate precise planning to combat infectious diseases (2-4). However, a growing global concern, known as vaccine hesitancy, defined by the World Health Organization as reluctance or refusal to vaccinate despite availability (5), has emerged as one of the top ten public health challenges. In developed countries, vaccine hesitancy stems from reduced disease prevalence, leading parents and physicians to perceive a low risk of infection compared to potential vaccine side effects (6). In the United States, between 2019 and 2022, one in five children's parents reported vaccine hesitancy (7).

In developing countries, beyond issues of availability and access (8), lack of

awareness about the need for booster doses and underutilization of healthcare services are major barriers to timely vaccination. Additionally, conspiracy theories, such as vaccines being against Muslims or containing non-halal components, have risen to prominence in some Islamic countries, fueled by anti-vaccine movements (9-10).

While extensive research in developed countries has explored the causes and solutions for vaccine hesitancy, these studies emphasize its context-specific nature (6, 11). Thus, regional studies are essential. In Kashan, under the coverage of Kashan University of Medical Sciences, which has a strong record in childhood vaccination coverage (12), reports of parental refusal have been increasing, as noted by health authorities. The COVID-19 pandemic, starting in late 2019, has further complicated this issue. Some parents delayed vaccination due to fear of COVID-19 exposure, while misinformation and rumors about COVID-19 vaccine side effects have fueled skepticism toward vaccination in general (13). Misleading online content and credulity among some families have exacerbated this trend. Currently, vaccine refusal raises concerns about the resurgence of dangerous and debilitating childhood diseases. This qualitative, exploratory study investigates the reasons for parental refusal of childhood vaccination in Kashan to provide insights for addressing this challenge.

2- MATERIALS AND METHODS

The study was conducted qualitatively by purposefully collecting data through interviews with parents in Kashan who refused vaccination for their children at health centers, as identified by the county health center's records. Participants were willing to be interviewed and identified as having rich information by the interviewers at the time of the first phone call as the main inclusion criteria.

Although the preference in our study was to interview both parents, only one parent expressed willingness and met the inclusion criteria. Other criteria included conversing in Persian, having a health record, access to an accurate address and telephone number, and the individual's willingness to talk at the time of data collection. The exclusion criteria were unwillingness to continue participating in the research, physical or mental conditions that prevented continued cooperation, changing residence before confirming the findings, or failing to cooperate in providing in-depth and accurate information. One interviewee who had limited herself to yes or no in answering the questions was excluded from the study.

Data saturation was achieved, with no new codes raised in the final interviews (8 interviews). A qualitative inductive approach was designed to explore and understand the reasons for vaccine refusal. Data were collected through semi-structured interviews guided by an interview protocol. Attention was paid to participants' behaviors, emotions, and body language during interviews, which were conducted at locations chosen by participants to ensure maximum comfort.

Before interviews, participants were informed about the study's objectives, methods, and procedures, and written informed consent was obtained. Participants were assured of the confidentiality of their personal information, and interviews were recorded with their consent. They were informed that audio files would be transcribed, analyzed, and used only with anonymized codes. Participants were also told they could withdraw from the study at any time, in which case their data would be destroyed or returned upon request. They were offered the option to receive study results if desired. All interviews were conducted in person. Thematic content

analysis was used to analyze data, following an adapted step (14).

1. Formulating research questions about the reasons and motivations for vaccine refusal.
2. Purposive sampling of mothers who had refused vaccination for their children, followed by interviews.
3. Verbatim transcription of recorded interviews, multiple readings, and extraction of reasons for refusal line by line. Conceptual phrases were categorized into sub-themes and themes to provide a comprehensive understanding of the issue.
4. Developing the analysis text based on main conceptual categories, researchers' interpretations, and participant quotes.
5. Throughout the study, researchers kept the research question in focus, noting anything that could enhance understanding of the reasons for refusal. While supportive of vaccination, researchers avoided bias by focusing solely on participants' statements for interpretation and explanation.
6. The final text was reviewed and revised based on the significance of each component to ensure an accurate representation of findings.

Ethical approval was obtained from the university (code: IR.KAUMS.REC.1398.41). Participants were fully informed, and written consent was secured before interviews.

3- RESULTS

Out of approximately 50 individuals listed as vaccine refusers, only twelve agreed to be interviewed of whom nine were identified as rich sources of information. One interviewee who only responded with yes or no answers was excluded from the study. The interviewees were between 25 and 40 years old, with vary educational qualifications : one with a diploma, one with an associate degree, five

with a bachelor's degree, and one with a master's degree. Four of the interviewees had a Hozavi or university degree in Hadith sciences.

Among the children, the health records of three children were declared active, while five others were declared inactive. All the children in the study, had received vaccines at birth in the hospital, but only one child had also received the 2-month vaccines. The other children had not received any vaccines beyond those given at birth.

The vaccination history of previous children varied based on their age. Five interviewees confirmed that their previous child had received all the vaccines, but others, with a child under 6 years old emphasized their decision not to continue vaccinating, indicating a new trend.

Interviews lasted between 30 to 60 minutes. Coding of transcribed interviews resulted in 628 codes, which were merged to 200 codes by combining similar ones. Of these, 164 were related to reasons for refusal, and 36 were related to characteristics of refusal. Reasons for refusal were analyzed and classified based on their proximity to the outcome (vaccine refusal) into immediate, intermediary, and underlying causes.

3-1. Immediate Cause

3-1-1. Vaccine Hesitancy

Participants' refusal stemmed from doubts about the nature and benefits of vaccines. Parents were uncertain about what was being injected into their children, its benefits, potential risks, and whether the benefits outweighed the costs. This hesitancy was sometimes driven by a desire for certainty, influenced by personality, education, or occupation. It could also arise from exposure to propaganda or others' recommendations, often rooted in underlying causes such as the promotion of traditional medicine.

Pessimism about vaccine components was linked to beliefs in manufacturers' hostility or distrust in their commercial motives. In some cases, a firm belief in the problematic nature of vaccines led to outright refusal, while in others, it caused delays in vaccination.

3-2. Intermediary Causes

3-2-1. Misinformation

Lack of knowledge about vaccines' nature, benefits, or risks created hesitancy. Misconceptions, such as beliefs in children's invulnerability or low disease risk, hindered efforts to seek accurate information or adopt positive attitudes toward vaccines.

"For example, in traditional medicine, they say breast milk is the best vaccination for a child..." (Interviewee 6).

3-2-2. Belief in Natural Immunity

Some participants attributed their refusal to a belief in the superiority of natural immunity for maintaining health.

"The body is so pure ...why does it need a vaccine? The body is strong..." (Interviewee 8).

3-2-3. Perceived Low Risk of Infection

Some believed the risk of vaccine-preventable diseases was low, citing their perceived eradication.

"Some diseases, like diphtheria or pertussis, are eradicated, so maybe there's no need for vaccines given their side effects, like high fever..." (Interviewee 7)

3-2-4. Belief in Safer Alternatives

Participants viewed traditional medicine as a safer alternative to vaccination, believing it offered similar protection with fewer risks.

"In traditional medicine, warm-natured kids are immunized with cupping, and cold-natured kids with oil massages..." (Interviewee 2).

3-2-5. Conspiracy Theories

Some believed vaccine-producing countries had sinister motives, such as harming populations through manipulated vaccines.

“Regarding global health policies, they aim to harm other countries, especially ours, to make people sick...” (Interviewee 5).

3-2-6. Distrust in Services

Dissatisfaction with public health services contributed to vaccine hesitancy. Distrust in immunization equipment, personnel, or the entire health system—whether due to perceived low quality, general pessimism, or defensive mechanisms—fueled refusal.

“A pediatrician should explain what hepatitis or BCG is and its benefits... not a disease control technician who doesn't know what's in the vaccine...” (Interviewee 1).

3-2-7. Personal and Others' Experiences

Negative experiences, such as perceived vaccine ineffectiveness or side effects, reinforced refusal decisions. These included beliefs in vaccines' futility, traditional medicine's efficacy, or modern medicine's harm.

“My brother's son got vaccinated last year and still got measles... my cousin's son, 8 years old, got measles too...” (Interviewee 3).

3-2-8. Influence of Propaganda and Rumors

Anti-vaccine propaganda, both online and in social settings like mosques or friend groups, significantly influenced hesitancy and refusal.

“Some people became active; they raised awareness...” (Interviewee 5).

“My husband and I first found this information on a Telegram channel...” (Interviewee 6).

3-2-9. Modeling Others' Behavior

Imitating trusted individuals, such as traditional or modern medicine practitioners, local or global figures, or friends, initiated or reinforced refusal.

“I know some friends in the field who said they didn't vaccinate at all...” (Interviewee 6).

3-2-10. Personality Traits

Traits such as risk-taking, confidence, analytical thinking, cautiousness, decisiveness, pessimism, fearfulness, obsessiveness, or stubbornness influenced hesitancy and refusal.

“I feel like they're putting something bad into my child's body...” (Interviewee 6).

“It became a matter of stubbornness...” (Interviewee 1).

3-2-11. Immunization Costs

While direct costs for childhood vaccination in Iran are covered by the health system, indirect costs (e.g., transportation, parental leave) were noted as barriers.

3-3. Underlying Causes

These encompass societal, cultural, economic, and political factors contributing to intermediary causes:

3-3-1. Popularity of Traditional Medicine

A frequently cited reason for refusal was reliance on traditional medicine, often linked to religious beliefs and successful experiences with it.

“On a friend's advice, I decided to start with traditional medicine...” (Interviewee 2).

Another important topic in this regard is the interviewees' belief in the close relationship between traditional medicine and the perspectives of the Quran and Islamic narrations.

“They researched Islamic hadiths and found treatments...” (Interviewee 3).

3-3-2. Anti-Vaccine Movement

The global and local anti-vaccine movement, amplified through social media and personal influence, significantly impacted refusal decisions.

“I used to make a fuss and discourage others...” (Interviewee 4).

3-3-3. COVID-19 Outbreak

The COVID-19 pandemic intensified refusal, with doubts about vaccine efficacy, side effects, and conspiracy theories exacerbating hesitancy.

“Everyone around us got three or four doses but still got COVID...” (Interviewee 6).

3-3-4. Organizational Issues

Issues such as unresponsive health workers, poor staff behavior, or aggressive follow-ups (including legal actions) contributed to refusal.

3-3-5. Individual Choice

Some participants emphasized vaccination as a personal right, asserting that health systems should respect their decisions.

“I’m not worried about others’ opinions; everyone has their perspective...” (Interviewee 3).

3-3-6. Perceived Non-Urgency of Immunization

A cultural tendency to prioritize urgent healthcare services over preventive ones, like vaccination, was noted.

“I use traditional medicine for minor issues and go to doctors for serious, urgent cases...” (Interviewee 4).

3-3-7. Expansion of Virtual Spaces

Most participants initially encountered anti-vaccine information

online, with virtual platforms serving as a primary source for research and reinforcement of refusal decisions.

“I don’t read books or have time, but I search online...” (Interviewee 8).

4- DISCUSSION

The findings align with global reviews identifying similar reasons for vaccine refusal (13, 15), suggesting a shared root, possibly the anti-vaccine movement and media’s intermediary role (15). Reduced prevalence of vaccine-preventable diseases and skepticism toward COVID-19 vaccines may also contribute, often amplified through media (15-16).

This study categorized refusal reasons into immediate (vaccine hesitancy), intermediary, and underlying causes. Vaccine hesitancy, as the immediate cause, is defined variably. The WHO describes it as delaying or refusing vaccination despite availability (5). McDonald and the WHO working group view it as a spectrum from acceptance to refusal (17), while Dube et al. highlight definitional challenges but affirm this spectrum (18). Olson et al. place refusers (Decliner) and selective/delayers (Late/selective) at the top of a pyramid, with unquestioning acceptors and cautious acceptors at the base, and vaccine-hesitant individuals as those with concerns but who still vaccinate (11). With this perspective, the challenge in defining vaccine hesitancy becomes clear; hesitancy that in one definition includes refusal, in another includes acceptance of the vaccine.

In this study, in-depth interviews revealed that all immediate reasons for refusal centered on doubts about vaccines’ nature, benefits, or harms. Thus, we define vaccine hesitancy as distrust in vaccine safety and efficacy or a belief that harms outweigh benefits, encompassing both refusers and reluctant acceptors. This

aligns with the WHO definition but extends it by recognizing that hesitancy can persist even after vaccination, potentially causing psychological distress for parents. Practically, this definition underscores that temporary persuasion strategies for vaccination may be inadequate.

The study also identified refusal as a relative phenomenon, reflecting a spectrum discussed in prior research. This aspect will be elaborated in a separate article on refusal characteristics.

Intermediary causes, tied to individual beliefs, align with the Health Belief Model, which emphasizes beliefs about susceptibility, severity, barriers, and benefits in health behaviors (19). Misinformation tops these causes, followed by beliefs in natural immunity, low disease risk, safer alternatives (e.g., traditional medicine), conspiracy theories, and distrust in health services, all rooted in underlying social-cultural factors and misconceptions.

Underlying causes, such as the promotion of traditional medicine, anti-vaccine movements, the COVID-19 pandemic, and virtual spaces, foster these misconceptions. The reliance on social media for information amplifies misinformation (16, 20). Cultural factors, including individual choice, perceived non-urgency of immunization, and virtual research dependency, further drive refusal.

Dube et al. highlight awareness, past experiences, perceived vaccine importance, risks, social norms, and ethical beliefs as decision-making contexts, influenced by trust in media, vaccinators, and public health policies (18). Our classification of immediate, intermediary, and underlying causes mirrors the WHO working group's framework of contextual, individual/group, and vaccine-specific causes (11, 20).

Misconceptions about natural immunity, safer alternatives, vaccine overload, side effects, low disease prevalence, distrust in pharmaceutical companies, and autism fears indicate inadequate education and communication barriers (11). Conspiracy theories about vaccine-producing countries align with global anti-vaccine narratives (10, 21). Distrust in manufacturers, distributors, or health workers correlates with studies emphasizing trust's role in vaccine acceptance (22-24). Negative vaccine experiences or perceived successes of traditional medicine reinforce refusal, consistent with the role of personal narratives (25). Anti-vaccine propaganda and social media align with global findings on misinformation's impact (13, 21). Modeling trusted individuals reflects Social Learning Theory (26) and social norms (27). Indirect costs, like time and transportation, are recognized barriers (28).

The rise of traditional medicine, both formally and informally promoted, aligns with its growing popularity in traditional societies (29). In Iran, its link to religious values and successful experiences strengthens its influence (30). The anti-vaccine movement, amplified online, mirrors global trends, including debunked claims like the MMR-autism link (31, 32). In 2018, 41% of UK parents of children under 18 reported exposure to negative vaccine messages online (33). In 2020, Europe showed varying vaccine trust, with Slovakia and Croatia at 42% and Portugal and Spain at 70% (34, 35). In developing countries like Afghanistan and Pakistan, religious or political rumors, such as sterilization via vaccines, drive refusal (10, 36), reducing coverage and increasing diseases like polio (37).

A systematic review by Payandeh et al. on COVID-19 vaccine refusal found similar causes—concerns about efficacy, distrust in vaccines and providers, misinformation, and anti-vaccine activism—suggesting the

pandemic exacerbated childhood vaccine refusal (38). Emphasis on individual choice reflects liberal values and patient autonomy in medical ethics (39), posing challenges for mandatory vaccination programs. The low perceived urgency of preventive services aligns with global findings (40). Virtual space dependency fuels misinformation, as seen with COVID-19 vaccines (16, 41-43), necessitating media literacy and monitoring (44).

5- CONCLUSION

This study highlights the complex, multifaceted reasons for vaccine refusal, driven by immediate factors (vaccine hesitancy), intermediary factors (e.g., misinformation, distrust), and underlying causes (e.g., traditional medicine, anti-vaccine movements). The increase in traditional medicine and anti-vaccine rhetoric in Iran calls for urgent cultural, educational, and legal action from health authorities, particularly the Ministry of Health, to counter these trends and prevent adverse public health outcomes.

The study shows that one of the most effective strategies addressing vaccine hesitancy due to misinformation and misunderstanding, is to provide appropriate counseling and education services tailored to the reasons that each individual cites for their decision. Referring these individuals by immunization personnel to individuals with counseling skills in the same service centers or specific centers will be helpful in implementing this strategy, known as targeted education, motivational interviewing with refusers (13).

Strengthening media literacy and public education to combat misinformation in cyberspace and promoting reliable sources is another effective strategy.

Interacting with traditional medicine advocates and collaborating with traditional medicine specialists to provide

balanced information and reduce their conflict with conventional medicine is also an effective strategy in this regard.

Increasing trust in the health system by improving the quality of services, training health workers to respond appropriately to parents' questions and reducing barriers to support, and finally, evidence-based policymaking by developing policies based on the findings of this study to increase vaccination coverage and reduce the risk of preventable diseases are other strategies that can be derived from the results of this study in the form of recommendations.

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