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PARENTAL PERCEPTION OF CHILDHOOD VACCINATION: A QUALITATIVE STUDY

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Abstract

Abstract. The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) emphasize that the widespread implementation of vaccination against measles, diphtheria, poliomyelitis, and other infectious diseases significantly reduces morbidity and mortality rates. **The aim** of this study was to explore parental attitudes toward childhood vaccination and to identify key motivations and barriers influencing immunization decisions.

Materials and methods. A qualitative study was conducted in Aktobe, Kazakhstan, between September and December 2024. Individual in-depth interviews were carried out with 15 parents of children aged 0–7 years who attended primary health care centers. A purposive sampling strategy was employed to include parents of fully vaccinated, partially vaccinated, and unvaccinated children. The interviews lasted between 15 and 30 minutes, were audio-recorded with participants' consent, transcribed verbatim, and analyzed using the MAXQDA 2020 software.

Results. Parents of fully vaccinated children perceived immunization as a socially significant measure for protecting health. Among partially vaccinated parents, a strategy of "selective responsibility" was observed—choosing vaccines based on individual risk assessment. For unvaccinated parents, the main barrier was personal or observed negative experiences related to vaccination, which fostered distrust toward the healthcare system and official information sources.

Conclusions. To strengthen public confidence in vaccination, it is essential to ensure transparent communication about vaccine safety, composition, and quality control, as well as to develop targeted informational strategies that take into account parents' varying levels of trust and motivation.

Keywords: *vaccination, parents, immunization attitudes, trust in healthcare, qualitative study, Kazakhstan.*

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Резюме

МНЕНИЕ РОДИТЕЛЕЙ О ВАКЦИНАЦИИ ДЕТЕЙ: КАЧЕСТВЕННОЕ ИССЛЕДОВАНИЕ

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Аннотация. Всемирная организация здравоохранения (ВОЗ) и Центры по контролю и профилактике заболеваний (CDC) подчёркивают, что широкое применение вакцинации против кори, дифтерии, полиомиелита и других инфекционных заболеваний значительно снижает уровень заболеваемости и смертности. **Цель** данного исследования заключалась в изучении отношения родителей к вакцинации детей и выявлении основных мотивов и барьеров, влияющих на принятие решений об иммунизации.

Материалы и методы. Качественное исследование проведено в городе Актобе (Казахстан) в период с сентября по декабрь 2024 года. Проведены индивидуальные глубинные интервью с 15 родителями детей в возрасте от 0 до 7 лет, посещающими учреждения первичной медико-санитарной помощи. Применялся целенаправленный отбор респондентов, включавший родителей полностью, частично и невакцинированных детей. Интервью длились от 15 до 30 минут, записывались с согласия участников, транскрибировались дословно и анализировались с использованием программы MAXQDA 2020.

Результаты. Родители полностью вакцинированных детей рассматривали иммунизацию как социально значимую меру защиты здоровья. Среди частично вакцинированных родителей наблюдалась стратегия «избирательной ответственности» — выбор вакцин на основе индивидуальной оценки риска. Для родителей невакцинированных детей основным барьером выступал личный или наблюдаемый негативный опыт, связанный с вакцинацией, формирующий недоверие к системе здравоохранения и официальным источникам информации.

Выводы. Для повышения доверия к вакцинации необходимо обеспечить прозрачную коммуникацию о безопасности и контроле качества вакцин, а также разрабатывать адресные информационные стратегии с учётом уровня доверия и мотивации родителей.

Ключевые слова: *вакцинация, родители, отношение к иммунизации, доверие к здравоохранению, качественное исследование, Казахстан.*

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Түйіндеме

АТА-АНАЛАРДЫҢ БАЛАЛАРДЫ ВАКЦИНАЦИЯЛАУҒА КӨЗҚАРАСЫ: САПАЛЫҚ ЗЕРТТЕУ

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Түйін. Дүниежүзілік денсаулық сақтау ұйымы (ДДҰ) мен Ауруларды бақылау және алдын алу орталықтары (CDC) қызылша, дифтерия, полиомиелит және басқа да жұқпалы ауруларға қарсы вакцинацияны кеңінен енгізу сырқаттанушылық пен өлім-жітім деңгейін едәуір төмендететінін атап өтеді. Осы зерттеудің **мақсаты** – ата-аналардың балаларды вакцинациялауға деген көзқарасын зерттеу және иммундау жөніндегі шешім қабылдауға әсер ететін негізгі уәждер мен кедергілерді айқындау.

Материалдар мен әдістер. Сапалық зерттеу 2024 жылдың қыркүйек–желтоқсан айлары аралығында Ақтөбе қаласында (Қазақстан) жүргізілді. Алғашқы медициналық-санитарлық көмек ұйымдарына келетін 0–7 жас аралығындағы балалардың 15 ата-анасымен тереңдетілген жеке сұхбаттар өткізілді. Респонденттерді мақсатты іріктеу әдісі қолданылды, оған балалары толық, ішінара және мүлде егілмеген ата-аналар кірді. Сұхбаттар 15–30 минутқа созылды, қатысушылардың келісімімен жазылып, сөзбе-сөз транскрипцияланып, MAXQDA 2020 бағдарламасы арқылы талданды.

Зерттеу Нәтижелері. Балалары толық егілген ата-аналар вакцинацияны денсаулықты қорғаудың әлеуметтік маңызы бар шара ретінде қабылдады. Ішінара егілген балалардың ата-аналары арасында «таңдамалы жауапкершілік» стратегиясы байқалды – әрбір екпе бойынша шешім жеке тәуекелді бағалау негізінде қабылданды.

Ал егілмеген балалардың ата-аналары үшін негізгі кедергі – вакцинацияға байланысты жеке немесе бақылаған жағымсыз тәжірибе болды, бұл денсаулық сақтау жүйесіне және ресми ақпарат көздеріне сенімсіздік қалыптастырды.

Қорытынды. Вакцинацияға деген сенімді арттыру үшін вакциналардың қауіпсіздігі мен сапасын бақылау жөнінде ашық және түсінікті ақпарат беру, сондай-ақ ата-аналардың сенім деңгейі мен уәжіне сәйкес нысаналы ақпараттық стратегияларды әзірлеу қажет.

Түйінді сөздер: *вакцинация, ата-аналар, иммундауға көзқарас, денсаулық сақтау жүйесіне сенім, сапалық зерттеу, Қазақстан.*

Дәйексөз үшін:

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Introduction

Routine immunization remains a key measure for preventing serious infectious diseases among children and represents a fundamental component of public health [22]. According to the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), large-scale immunization programs against measles, diphtheria, poliomyelitis, and several other infectious diseases have substantially reduced both morbidity and mortality worldwide [9]. Despite officially reported high immunization rates, several countries, including Kazakhstan, still report periodic measles outbreaks, exposing gaps in community immunity [21].

In recent years, the Republic of Kazakhstan has implemented additional measures to increase vaccination coverage, including supplementary campaigns targeting high-risk groups and the expansion of immunization age ranges [20]. However, at the beginning of 2023, measles incidence rose significantly once more, leading the Chief State Sanitary Officer to implement emergency directives on supplementary sanitary and anti-epidemic measures [3]. Experts attribute this trend to declining trust in official medical institutions, the spread of anti-vaccine content online, and a lack of clear information on the proven safety and effectiveness of vaccines [1].

One component of addressing this issue is the analysis of parental attitudes toward vaccination. Family decisions on vaccination influence not only the health outcomes of individual children but also the establishment of population-level immunity [4]. At the same time, the level of trust in healthcare providers, the nature of information sources, and the social environment can shape both positive and negative attitudes toward preventive measures [2].

In Kazakhstan, local studies have investigated vaccine refusal, exploring the factors that influence parents' decisions regarding immunization [5,14,15]. However, qualitative methods, which can provide deeper insights into the socio-psychological mechanisms underlying parental decision-making, have received relatively little attention to date.

Aktobe has drawn particular attention due to an increase in measles cases during 2023–2024, a significant proportion of which involved individuals who were either unvaccinated or only partially vaccinated. The aim of the present study was to examine parental attitudes and practices regarding child vaccination in the city of Aktobe and to identify the factors that play a key role in parental decision-making.

Materials and Methods

Study design

This study was conducted using the thematic analysis methodology proposed by Braun and Clarke [8]. The study was conducted in Aktobe city from September to December 2024, using the facilities of primary healthcare centers.

Participant recruitment

Participants were recruited through purposive sampling. Data were collected via individual semi-structured face-to-face interviews with key informants to gain an in-depth understanding of their experiences and perspectives. Interviews were conducted in a quiet setting and lasted between 40 and 50 minutes. Before each interview, participants were fully informed about the study's objectives, the voluntary nature of participation, confidentiality, and guarantees of anonymity. Written informed consent was obtained for both participation and audio recording. In total, 15 interviews were completed, reaching thematic saturation as no new themes emerged from subsequent interviews [16].

Inclusion and exclusion criteria. Participants were limited to parents of children aged 0–7 years. Parents were excluded if the child's primary caregiver was not a biological parent (grandparent or other relative) or if their child was older than 7 years.

The first group included parents who followed the vaccination schedule and fully vaccinated their children. The second group consisted of families who used a selective approach, some vaccines were given on time, while others were delayed or skipped (partially vaccinated). The third group included parents who refused all vaccines because of previous negative experiences (unvaccinated). Table 1 shows the socio-demographic characteristics of the respondents.

Data analysis

All collected audio recordings were transcribed verbatim into Word text. Data analysis was then carried out following six stages, during which meaningful units were organized into codes, and the codes were subsequently grouped into subcategories and themes [8]. The analysis was conducted using MAXQDA 2020 (Germany: VERBI Software; 2020), and the final themes were discussed within the research team to achieve consensus in interpretation.

Ethical approval

The study was approved by the local Ethics Committee of West Kazakhstan Medical University, protocol No. 9 dated 29 September 2023.

Table 1.

Socio-demographic characteristics of the surveyed parents (n = 15).

Variables	Fully vaccinated (n=5)	Partially vaccinated (n=4)	Unvaccinated (n=6)
Sex			
Female	4	2	4
Male	1	1	2
Age	from 24 to 41	from 23 to 26	from 20 to 31
Education level			
Secondary education	1	2	4
High	4	2	2
Marital status			
Married	5	4	5
Divorced	0	0	1
Number of children	from 1 to 4	from 1 to 2	from 1 to 2

To improve the quality and transparency of reporting in qualitative research, and to ensure the rigor, credibility, and reproducibility of the findings, the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was employed.

Results

Table 2 presents the main codes, their descriptions, and illustrative quotes from parents of fully vaccinated children. Overall, these parents exhibit a positive and well-informed attitude toward immunization, viewing it as an important measure for protecting their child's health. The primary motivations include the desire to prevent severe illnesses and their complications, as well as a sense of social responsibility for collective safety. Vaccination decisions are often reinforced by reports of infectious disease outbreaks or personal experience with the consequences of illness. Trust in healthcare professionals plays a crucial role, as their explanations foster confidence in the safety and necessity of vaccines. Mild post-vaccination reactions are perceived as normal and do not diminish this trust. Consequently, parents in this group demonstrate a preventive mindset grounded in rational reasoning and confidence in professional medical advice.

Table 2.

Coding framework with brief descriptions and examples (n=5) (Parents of fully vaccinated children – FV).

Cods	Description	Quotes
Motivation for vaccination	Reasons why parents choose to vaccinate	"I don't want my child to suffer from a severe case of measles…" FV-1
Disease prevention	Fear of illness and its complications	"Measles is not just a rash. It can lead to pneumonia…" FV-2
Social responsibility	Awareness of the risk of infection spread within the community	"If one child gets sick in kindergarten, the whole group may be put under quarantine…" FV-3
Attitude toward disease outbreaks	Response to news about epidemics (measles, COVID-19)	"When we learned about the measles outbreak, we immediately decided to vaccinate…" FV-4
Reconsideration of the decision	Parents change their opinion after observing real cases of illness	"I saw children with measles in the Intensive Care Unit at the hospital – it affected me…" FV-1
Trust in healthcare professionals	Confidence in healthcare professionals' competence	"I trust the doctor; he explained everything in detail…" FV-3
Full trust	Parents follow the physician's recommendations, adhering to the vaccination schedule	"If the doctor says it's necessary, then we do it…" FV-4
Post-vaccination reactions	Post-vaccination reactions	"He cried a little, had a fever, but it all passed…" FV-5
Mild post-vaccination reaction	Short-term fever and redness	"There was a minor fever, but by morning the child was fine…" FV-6

Table 3 presents the main codes, their descriptions, and illustrative quotes from parents of unvaccinated children. Analysis of the interview transcripts revealed a consistent cognitive-emotional structure in the reasoning of parents who refused vaccination. In all five interviews, negative experiences, related to side vaccine reactions occupied a central position. These experiences are constructed as empirical "evidence" of harm that, according to participants, "no one can guarantee to prevent."

The function of such experiences is twofold: they substitute for statistical data while simultaneously legitimizing distrust in official medicine. Consequently, subjective testimonies supplant scientific probabilistic assessments, consistent with the phenomenon of "anecdotal dominance" in risk decision-making.

The second key factor is an underestimation or conditional perception of the risks that vaccination aims to prevent. Participants described these diseases as rare or "not very serious," believing that their child's immune system is sufficient on its own. According to the Health Belief Model, this reflects low perceived susceptibility and low perceived severity, which are associated with refusal of preventive measures. Notably, even reports of measles outbreaks or the experience of the COVID-19 pandemic did

not change participants' perception of risk. They cited cases of vaccinated children becoming ill, which weakened the argument for vaccine effectiveness.

Distrust in institutions constitutes the third cornerstone motive. Respondents described healthcare providers as agents of a "vaccination agenda" that is implemented merely "for the sake of formality." The absence of clear safety guarantees overrides any normative or scientific arguments. This institutional distrust is further reinforced by a perceived asymmetry of responsibility: parents believe that in the event of complications, the burden of consequences falls solely on the family rather than the healthcare system. In our view, it is precisely this asymmetry that lays the groundwork for the radical decision of "complete refusal," as it severs the communication channel between perceived risk and benefit.

Table 3.

Grouping of codes into thematic categories (n = 6) (Parents of unvaccinated children – UV).

Cods	Description	Quotes
1 Reasons for refusing vaccination	Reasons for deliberate non-vaccination of children	
1.1 Fear of side effects	Concern about serious complications after vaccination	"…lately there are many children who become disabled after vaccines…" (UV-1)
1.2 Negative personal experience	Severe reaction in an older child or relatives	"…I followed the schedule with my eldest — she got sick every three months; with the second, I didn't vaccinate at all — hardly ever gets sick…" (UV-5)
1.3 Distrust in guarantees	No 100% guarantee of safety from healthcare providers	"No one can guarantee that the vaccine won't have harmful effects…" (UV-1)
2. Risk assessment of infections	Perception of disease risk	
2.1 Reduced perceived risk	Diseases are considered "not very dangerous"	"I think these diseases are not dangerous; no one is insured…" (UV-2)
2.2 Conditional acknowledgment of the threat	Vaccination considered only in the event of an actual outbreak	"Only if there is really a virus outbreak…" (UV-1)
3. Sources of information	Channels consulted by parents	
3.1 Online platforms and social media	Independent search for "reliable articles"	"…I prefer the internet, scientific articles…" (UV-3)
3.2 Healthcare professionals (formal)	Consultations with pediatricians are viewed critically	"Every time doctors give a lecture, but I don't vaccinate…" (UV-5)
4. Family decision-making	Who makes the final decision	
4.1 Jointly with spouse	Discussion and joint decision by both parents	"…we made the decision together with my husband…" (UV-4)
4.2 Individual leadership	One parent (mother) decides independently	"Mostly it's my decision. Independently…" (UV-5)
5. Social pressure	Who makes the final decision	
5.1 Negative reactions	Criticism from doctors or acquaintances	…doctors tell me: 'what kind of mother are you…'" (UV-5)
5.2 Positive reinforcement	Support from other families with similar views	"It's nice to know I'm not the only one…" (UV-5)
6. Outbreaks and COVID-19	Influence of epidemics on attitudes toward vaccination	
6.1 Reinforcement of refusal	Pandemic increased skepticism	"I became even more against it… half of my acquaintances died after the COVID vaccine…" (UV-4)
6.2 No change	Measles outbreak does not change position	"Yes, there was an outbreak, but even vaccinated children get sick…" (UV-4)
7. Experience with the healthcare system	Communication style and vaccine accessibility	
7.1 Healthcare providers' supportive attitude	Health Providers inform without coercion	"…healthcare workers were understanding…" (UV-3)
7.2 Criticism of the system	"Vaccines are given just for formality"	"They give vaccines just for the sake of formality…" (UV-3)
8. Financial aspect	Cost or free services	"We didn't pay… everything was free…" (NV-1)
9. Recommendations to others	Willingness to give advice and its content	
9.1 Rejection of advice	Decision declared as personal responsibility	"I wouldn't advise anyone…" (UV-2)
9.2 Advice to seek information	Suggest "take your time" and weigh pros and cons	"…first review all the information…" (UV-2)

The fourth thematic block relates to sources of information. Although all participants claimed to consult "scientific articles," in practice they relied on independent online searches, selectively citing the opinions of individual experts and, less frequently, official Ministry of Health websites. Social media were perceived as both useful and potentially risky: participants acknowledged their influence but emphasized the need to "filter" content. The very act of choosing one's preferred sources served as a means of reinforcing preexisting beliefs (confirmation bias).

Family decision-making dynamics follow two main models. In the first model, "joint partnership," spouses engage in extended discussions and reach a shared decision to refuse vaccination. In the second model, "individual leadership," the final decision rests with the mother, while the father accepts her reasoning without active participation. Both scenarios are reinforced by social support, knowing other parents who share similar views reduces cognitive burden and alleviates the fear of social isolation.

Institutional communication is seen as formally correct but not fully convincing. While participants appreciated the supportive tone of healthcare providers, they emphasized the lack of concrete evidence, reliable data, and guarantees. They seek zero risk, whereas medical practice can offer only an acceptable level of risk. This gap underpins the rhetoric used to justify vaccine refusal.

In summary, three interrelated dimensions can be identified: personal accounts of side effects undermine trust in the healthcare system and establish a persistent stance, subjective risk assessments tend to favor non-intervention; and parents seek to maintain control over decisions while receiving psychological support from like-minded peers. In our view, addressing vaccine hesitancy in this group requires not merely informational campaigns but a reconstruction of trust through transparent accountability mechanisms and dialogue, in which risks and benefits are discussed in a language that integrates empirical evidence with parents' emotional values.

Table 4 presents the main codes, their descriptions, and illustrative quotes from parents of partially vaccinated children. Analysis of interviews with these parents revealed a paradoxical logic of "selective responsibility." On one hand, participants acknowledge the importance of the vaccination schedule and regularly attend family clinics; on the other hand, each specific decision is subjected to meticulous reconsideration after the slightest side event. The central trigger for refusal or delay is a strongly experienced physical reaction in the child—even a common fever is reinterpreted as evidence of potential harm.

Information is mainly obtained through online sources. The internet allows parents to form a "virtual focus group" from other people's experiences, searching for patterns similar to their children's reactions. Official sources are consulted selectively (vaccine ingredients, schedule), but decisions with strong emotional significance rely on reviews and experiences shared by other users. Clinic staff are perceived less as primary sources of knowledge and more as supportive advisors, as long as there is no pressure.

In the family hierarchy, the mother most often occupies the leading expert role, while the partner either provides support or, as in the case of PV1, accepts her conclusions without detailed discussion. Pragmatism is characteristic of both parents: vaccination is seen as necessary when the perceived risk of disease is high or when there is a direct requirement from the kindergarten or school.

The sociocultural context shapes a dual field of trust. On one hand, participants agree with the idea of the social benefits of vaccination and even recommend vaccines to friends when there are no contraindications. On the other hand, they fear individual unpredictability and therefore allow selective adherence to the vaccination schedule. This ambivalence is reinforced by the media impact of outbreaks: information about measles or COVID-19 simultaneously increases fear of disease and heightens suspicion toward vaccines, as some acquaintances "experienced the vaccine more severely than the virus itself."

Ultimately, a strategic position of "moderate pragmatism" emerges: parents aim to do the minimum necessary, opt for "mild" paid alternatives, monitor the child's actual well-being, and retain the right to refuse vaccination if any doubts arise. In our view, this cognitive dissonance can be addressed only through transparent communication about side effects and access to independent comparative data on different vaccines, complemented by flexible schedules that accommodate medical exemptions without imposing social pressure.

Parents of partially vaccinated children most often report interruptions in the vaccination schedule due to medical exemptions, previous side reactions, or pressure from relatives. They frequently experience doubts, which are often reinforced by stories found online or the experiences of acquaintances. Some acknowledge that information about measles outbreaks and severe consequences of infections motivates them to return to regular vaccination, particularly if the child is about to start kindergarten or school. Others hesitate, preferring to conduct more thorough medical examinations before continuing vaccinations. While their trust in healthcare providers is partial, they nevertheless consult medical professionals for guidance more often than parents of unvaccinated children.

Parents of unvaccinated children largely rely on negative experiences reported by acquaintances or relatives, whose children allegedly experienced serious problems following vaccination. They believe that official medicine provides no guarantees of safety and does not assume responsibility for potential complications. Their reasoning is based not only on fear of side reactions but also on a general distrust of the healthcare system, the belief that a child can overcome the disease naturally, or the idea that "in the past, everyone got sick and nothing serious happened." At the same time, some parents, when confronted with a real case of measles or another infection, begin to reconsider their views, though they are not always willing to immediately change their decision and vaccinate their children.

Across all three groups, common patterns can be observed regarding sources of information. Some parents prefer official medical websites and consultations with healthcare providers, while others rely on online stories, social media, or advice from relatives. Even those who are generally supportive of official medicine often report that

they verify information online. Parents opposed to vaccination frequently cite numerous examples of side reactions on social media and consider these "real-life stories" more relevant than formal responses from doctors. In most cases, a change in position occurs either after a severe experience of infection (personal or observed) or following a more detailed explanation from healthcare providers who are able to establish trust.

Table 4.

Grouping of codes into thematic categories (n=4) (Parents of partially vaccinated children-PV).

Code	Description	Quote
1. Selective vaccination	Parents administer some vaccines while refusing or postponing others	
1.1 Negative reaction to a specific vaccine	Vaccination decisions are reconsidered after high fever, rash, or allergy	"…I read very bad outcomes about (Diphtheria, Tetanus, Pertussis vaccine) DTP… I chose a paid, milder version…" (PV1)
1.2 Medical exemptions and postponements	Temporary contraindications prompt changes in strategy	"…we didn't vaccinate earlier. There was a medical exemption; now we will catch up…" (PV2)
1.3 Paid "mild" alternative	Choice of vaccine is justified by its "gentleness" and cost	"…Pentaxim — a new, more tolerable vaccine…" (PV1)
2. Risk assessment	Evaluation of the likelihood of disease and complications	
2.1 Conditional necessity	Vaccination is justified if immunity is weak or there is an outbreak threat	"If a parent is unsure about the child's immunity, then vaccination is probably needed…" (PV1)
2.2 Pragmatic protection	Vaccine is seen as a way to "ease the course" of illness	"…better to vaccinate the child — if they get sick, it will be milder…" (PV3)
3. Information sources	Channels shaping vaccination opinions	
3.1 Online experiences of other parents	Comparing others' stories with the child's reactions	"The internet allows me to read all cases… you can compare symptoms…" (PV1)
3.2 Official websites and healthcare providers	Consulting egu.kz, pediatricians, and neurologists	"…the doctor explained, I check the vaccine composition on egu.kz…" (PV2)
4. Family decision-making	Distribution of responsibility within the family	
4.1 Maternal leading role	Mother presents the father with a decision already made	"…independently, my husband doesn't understand this; if I decided, then that's how it should be…" (PV1)
4.2 Joint discussion	Spouses weigh risks together before each vaccination	"…I decide… and discuss with my husband…" (PV3)
5. Trust and doubts	Ambivalent attitude toward the medical system	
5.1 Fear of side effects	Allergic reactions become a marker of risk for all vaccines	"…after measles, there was redness; now I'm afraid of vaccines…" (PV4)
5.2 Simultaneous recognition of benefits	Parents consider mandatory vaccines important when no contraindications exist	"…I would recommend them if there is no medical exemption…" (PV4)
6. Social and media influence	External factors amplifying hesitation	
6.1 Effect of outbreaks	Measles news stimulates "catch-up" vaccinations	"…when I learned about the measles outbreak, I decided to catch up with the schedule…" (PV5)
6.2 Ambivalent role of social media	Both a source of myths and a platform for information	"…on the internet you can find both 'for' and 'against,' so it plays a double role…" (PV4)
7. Economics of vaccination	Cost perceived as an indicator of quality	"…I paid for DTP because it was the milder version…" (PV5)

An important theme emerging from the interviews is social pressure. Relatives, particularly mothers-in-law or other senior family members, are frequently mentioned as influencing decisions by either insisting on vaccination or discouraging it through emphasis on potential complications. Several respondents noted practical challenges when enrolling a child in kindergarten or school when vaccination documentation is required. Some parents are willing to vaccinate for formality, while others report formally submitting an official refusal.

All groups agree that there are situations in which vaccination is postponed due to a child's illness, poor health, or specific medical indications. Parents of fully vaccinated children acknowledge that there are exceptions; if a child has serious health conditions, a doctor may advise against certain vaccines. Partially vaccinated and unvaccinated parents more often invoke the argument of individual physiological characteristics, requiring a personalized approach and thorough medical examination before vaccination.

Another recurring theme is attitudes toward outbreaks of infectious diseases. Measles is mentioned in all interviews. Parents of fully vaccinated children perceive information about outbreaks as confirmation of the correctness of their choice. Partially vaccinated parents, when hearing about rising incidence, begin to reconsider the need for vaccination more seriously. Parents of unvaccinated children respond in various ways; some remain convinced for a long time that natural immunity is more reliable, while others become more open to vaccination after encountering a severe case of measles

Analysis of thematic categories (Table 5) shows that parents' attitudes toward vaccination are shaped by a complex set of interrelated factors. Personal beliefs, including motivations and barriers, play a key role, as does past experience, including reactions to previous vaccinations. Sources of information, ranging from official to informal, also strongly influence decision-making. The level of trust in healthcare providers and the healthcare system directly affects vaccination choices. Family and social influences, including support or pressure from relatives and the broader environment, are also significant. Outbreaks of disease and epidemics act as a stimulus for vaccination for some parents, while for others they either do not change attitudes or even reinforce skepticism, highlighting the need for a more flexible and individualized communication strategy.

Table 5.

Grouping of codes into thematic categories.

Theme	Codes	Description
1. Attitude toward vaccination	Motivation for vaccination, 'Barriers to vaccination', 'Partial vaccination'	Shows the overall stance of parents, including reasons for being 'for' or 'against' vaccination
2. Experience and consequences	'Reactions to vaccination', 'Negative past experience'	Specific cases of side effects or absence thereof, and their relation to decision-making
3. Information sources	'Healthcare providers/official websites', 'social media/forums'	Describes where parents obtain information and how it influences their position
4. Trust in medicine	'Trust in healthcare providers', 'Distrust in the healthcare system'	Reflects the degree of parental confidence in doctors' competence and the healthcare system
5. Family and social factors	'Family environment and pressure', 'Social responsibility'	How the opinions of relatives or society influence decisions, including external pressure and support
6. Response to outbreaks and epidemics	'Attitude toward disease outbreaks', 'Reconsideration of decision', 'Maintaining previous position'	Shows how news about epidemics or personal encounters with patients affect vaccination stance

Discussion

The analysis conducted allowed for the development of a comprehensive understanding of the complex and multilayered mechanisms shaping parents' decisions regarding the vaccination of preschool-aged children. The findings are generally consistent with international research, confirming that, regardless of social and cultural context, vaccination decisions are influenced by a combination of informational, social, cultural, economic, and emotional-psychological factors. At the same time, the study revealed a number of local characteristics reflecting the specific functioning of the healthcare system, cultural traditions, and family dynamics.

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First, it can be noted that the commonly cited classification of parents into those who consistently vaccinate their children according to the schedule (fully vaccinated), those who vaccinate selectively (partially vaccinated), and those who refuse vaccination entirely (unvaccinated) is largely conventional [17]. Our interviews revealed that each of these three groups is fairly heterogeneous, including individuals with diverse life experiences, levels of knowledge, trust in healthcare providers, social environments, and personal fears. A parent formally categorized as a refuser may, under certain circumstances, reconsider their decision. For example, upon learning of a measles outbreak or encountering a severe case of infection within their social circle. Likewise, some parents who have administered most vaccines lack full confidence in the safety of this practice; they follow the vaccination schedule "as required" while retaining doubts and negative emotions.

A detailed analysis identified one of the central reasons for vaccine refusal and hesitancy as the lack of transparent and substantive communication between parents and the healthcare system. Many respondents, both vaccinated and unvaccinated, reported brief and formal interactions with primary care physicians, during which the specifics of the vaccines were not explained, clear information on risks and benefits was not provided, and potential complications or side effects were reduced to a simple statement such as "there may be a fever, but it is nothing serious." As a result, parents develop a perception that official institutions attempt to conceal or downplay real risks, fostering distrust that is particularly reinforced when negative reactions occur among acquaintances [18]. Parents felt more confident and were more likely to continue vaccination when physicians clearly explained how vaccines work, addressed potential side effects, and provided guidance on managing them [12].

A distinct challenge relates to the influence of social media and online forums. Parents, particularly young mothers, spend substantial time online sharing narratives about their children and experience heightened anxiety when confronted with dramatic accounts of children who

"developed a serious illness following vaccination" [10]. Emotionally charged stories, enriched with detailed descriptions, exert a stronger influence than statistical evidence affirming vaccine safety. Under such circumstances, the likelihood of vaccine refusal increases, as parents adopt a precautionary approach. Even those who generally trust conventional medicine often feel compelled to independently "verify all information," which leads them to consult sources of questionable reliability, frequently containing inaccurate or contradictory claims [6]. Fundamentally, the insufficient provision of reliable, comprehensible, and appropriately "user-friendly" information by healthcare providers drives parents toward alternative sources, which are not necessarily objective.

The economic dimension cannot be overlooked, even though, at first glance, access to free vaccinations is generally ensured. The analysis indicates that the cost of certain imported vaccines and consultations plays a role for parents seeking "gentler" options. Occasionally, they may choose a paid vaccine, believing that the additional expense guarantees a higher-quality product and more attentive care from staff [7]. Such decisions are often driven not only by actual financial capacity but also by a desire to exert control: parents want assurance that their expenditure secures better service and reduces the risk of side effects. Those without the resources to afford paid alternatives may experience prolonged hesitation and ultimately refuse vaccination altogether, as publicly provided vaccines evoke concern over unclear composition and perceived "toxic" ingredients [11]. This dynamic creates additional inequality within urban environments, families with medium and high incomes are able to navigate between fears and alternative options more flexibly, whereas families with limited resources often end up declining vaccination entirely.

Finally, a key practical implication of our study is that parental beliefs and practices regarding vaccination may be amenable to change, potentially leading to higher vaccination coverage. Many participants who appeared to hold firm anti-vaccination positions indicated that in the context of a "truly severe epidemic" or if presented with evidence of high-quality and safe vaccines, they might reconsider their decision [18]. Similarly, partially vaccinated parents responded variably to outbreaks of measles or COVID-19. Some proceeded with "catch-up" vaccinations after recognizing the importance of protection. A physician who is able to establish a trusting relationship, thoroughly explain vaccine mechanisms and potential side effects, can shift parental attitudes from caution to a positive stance [13]. Information campaigns limited to statistics are insufficient. Parents also need personal communication, emotional support, real-life success stories, and clear instructions for handling possible side effects.

The identified characteristics of parental perceptions of vaccination highlight the central role of information and trust in immunization decision-making. In this context, a priority is to provide parents with accessible and transparent information regarding vaccine composition, safety, and quality control, supported by international research data and independent expert opinions. Given the substantial variation in parental trust and motivation, communication strategies should be differentiated, for parents committed to vaccination, efforts should focus on maintaining and reinforcing trust. With hesitant parents, physicians should explain the risks and benefits using clear scientific evidence. With those who refuse vaccination, calm and non-directive dialogue supported by real-life examples works best.

Declaration of Conflicting Interests

The authors declare no conflicts of interest that could have influenced the results, interpretation, or presentation of the data reported in this article.

The authors confirm that the material presented is original, has not been previously published in any print or electronic form, and is not under consideration by any other journal.

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