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Exploring Maternal Vaccine Hesitancy: A Qualitative Study of Mothers' Beliefs

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Abstract

Maternal vaccine hesitancy—defined as delayed acceptance or refusal of vaccination despite availability—remains a complex, context dependent challenge that can undermine the protection of mothers, newborns, and communities. In low- and middle-income countries, including Pakistan, the legacy of infectious disease outbreaks, gaps in service quality, and structural barriers intersect with social norms and risk perceptions to shape maternal decision-making. Within this broader landscape, mothers often carry the emotional and moral burden of "getting it right" for the fetus and infant, making their beliefs, fears, and information ecologies critical to understand in depth. Vaccine decisions during pregnancy and early postpartum involve a distinctive calculus: mothers weigh uncertain risks to themselves and the baby against perceived benefits, under conditions of imperfect information and strong social influence. Our **aim** of the study was to explore the hesisitancy and beliefs of mothers about vaccine in

rural areas. We conducted interviews of 12 mothers from a rural area , two interviews were not completed so we did not put that in the data saturation. Qualitative approach was used for this study. • smmery shows that Hesitancy is dynamic and relational, not a fixed refusal, a Safety for fetus/newborn, trust in messengers, and service experience drive decisions., Access frictions (queues, stock-outs) are read as safety signals; convenience builds confidence, Two-way, respectful counseling with clear after-care guidance normalizes mild side-effects and Engaging husbands/elders and trusted religious/community figures legitimizes acceptance.

Key words: Vaccine Hesitancy, Mothers, Rural Areas, Childs, Pakistan

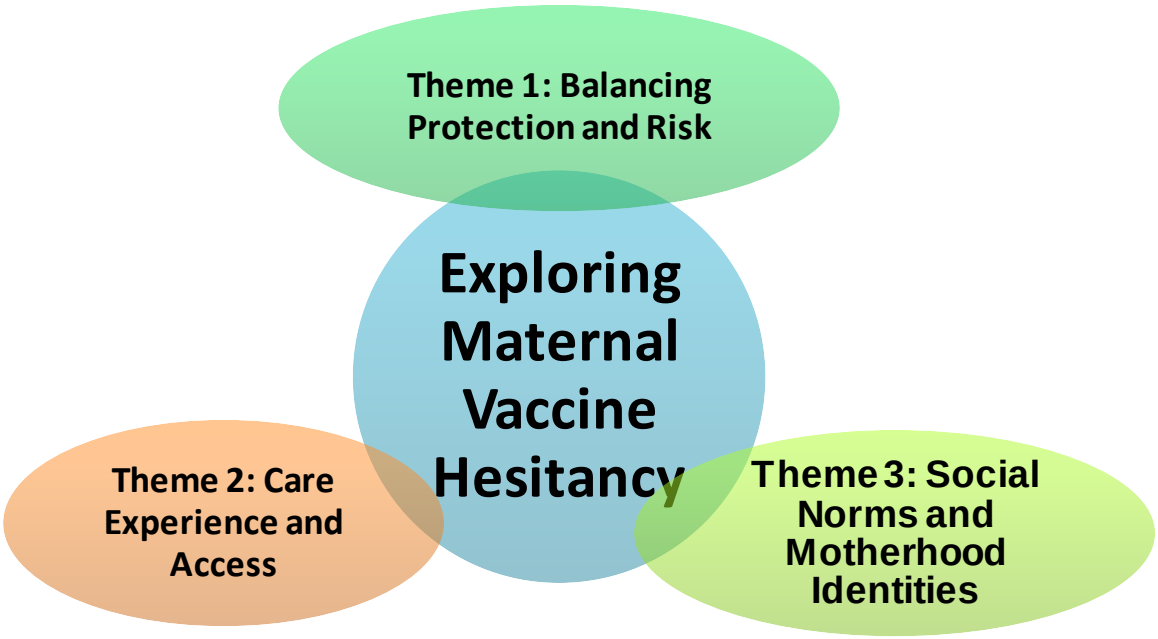
Introduction Maternal vaccine hesitancy—defined as delayed acceptance or refusal of vaccination despite availability—remains a complex, context-dependent challenge that can undermine the protection of mothers, newborns, and communities. In low- and middle-income countries, including Pakistan, the legacy of infectious disease outbreaks, gaps in service quality, and structural barriers intersect with social norms and risk perceptions to shape maternal decision-making. Global data show that the recovery of routine immunization since the COVID-19 pandemic has been uneven; while coverage improved in several countries, backsliding persists and confidence in vaccines has softened in many communities (UNICEF, 2023; WHO, 2024). Within this broader landscape, mothers often carry the emotional and moral burden of "getting it right" for the fetus and infant, making their beliefs, fears, and information ecologies critical to understand in depth. Vaccine decisions during pregnancy and early postpartum involve a distinctive calculus: mothers weigh uncertain risks to themselves and the baby against perceived benefits, under conditions of imperfect information and strong social influence. Qualitative and mixed-methods studies consistently highlight three constellations of factors: (1) confidence and trust (in vaccine safety, in health workers, in the state), (2) convenience and constraints (access, costs, time, stock-outs), and (3) collective responsibility and norms (what family, peers, and religious leaders think) (Suragh et al., 2024). For pregnant persons specifically, emerging reviews indicate that fear of fetal harm, the exclusion of pregnant women from early trials, and rapidly shifting guidance intensified uncertainty (Casubhoy et al., 2024). These fears coexist with pro-vaccine motives such as protecting the newborn, enabling safe delivery, and meeting school-entry requirements for older children—demonstrating that "hesitancy" is not fixed but dynamic and situational. Nationally, Pakistan presents a textured picture. A 2025 cross-sectional study from Peshawar reported non-trivial parental refusal and delay for routine childhood immunizations, driven by misinformation, mistrust, and perceived adverse effects

(Mahmood et al., 2025). Earlier, a 2022 study of Pakistani postpartum women found that two-thirds intended to accept COVID-19 vaccination, yet intention varied with perceived susceptibility, previous infection, education, and trust in the health system (Premji et al., 2022). These findings mirror South Asian patterns where structural constraints amplify rumor-driven doubts, but also suggest leverage points: respectful counseling, consistent messaging across providers, and involvement of husbands or elder decision-makers. Internationally, qualitative work in high-income countries shows both overlap and divergence. In the United States, a 2024 qualitative synthesis of maternal decision-making found that mothers toggled between institutional advice and information found on social media, placing particular weight on stories from "mothers like me" and on clinicians who acknowledged uncertainty without dismissing concerns (Suragh et al., 2024). A global scoping review similarly concluded that across 39 countries, safety for the fetus and distrust arising from the initial exclusion of pregnant persons from trials were the most common deterrents; acceptance, in turn, was propelled by a desire to protect family and return to normal life (Casubhoy et al., 2024). Safety monitoring studies across settings have since documented no increased risk of major adverse pregnancy or neonatal outcomes after vaccination, a message that remains under-diffused in lay networks. Conceptually, the "5Cs" (confidence, constraints, complacency, calculation, and collective responsibility) offer a useful scaffold, but local grammars of care reshape these into culturally salient meanings. For instance, "calculation" may entail seeking a husband's approval, a mother-in-law's endorsement, or a religious reassurance; "confidence" may turn on whether a nurse took time to explain, whether prior experiences with polio campaigns were respectful, and whether side-effects are anticipated and manageable. When services are distant, queues are long, or doses are stock-out, constraints are reinterpreted as signals that vaccination is not urgent or safe. In these lived ecologies, rumors about infertility, miscarriage, or effects on breastmilk find fertile ground, particularly when risk communication is technical, rushed, or inconsistent. This qualitative study explores, in mothers' own words, how beliefs, emotions, norms, and care experiences shape vaccine decisions during pregnancy and early postpartum. Using reflexive thematic analysis, we attend to what mothers value as "good mothering," how they navigate competing responsibilities, and what forms of counseling build trust. Our aim is to generate practice-proximate insights—grounded suggestions for antenatal and immunization teams to strengthen respectful dialogue, reduce friction in service access, and partner with families and community figures who matter in decisions. The literature suggests several actionable levers. First, trusted messengers: midwives and lady health workers who use empathetic, two-way counseling, invite questions, and share concrete evidence about maternal and infant safety can shift hesitation to acceptance

(Suragh et al., 2024). Second, timing: integration of vaccine counseling into routine antenatal visits, with space for husbands or elders to join, appears to improve uptake (Premji et al., 2022). Third, transparency: clearly acknowledging what is known and unknown, and normalizing mild, time-limited side-effects, builds credibility. Fourth, convenience: reducing waiting times, ensuring consistent stock, and offering flexible hours or outreach addresses the "last mile" constraints that mothers repeatedly name. Finally, restoring confidence requires broader system signals—visible accountability, respectful treatment, and stable, non-contradictory guidance—so that mothers perceive vaccination as an act aligned with good care for themselves and their babies (UNICEF, 2023; WHO, 2024). In sum, maternal vaccine hesitancy in Pakistan is neither a singular refusal nor a knowledge deficit. It is a moving negotiation between protection and prudence, shaped by relationships, past experiences, service design, and surrounding narratives. By listening closely to mothers' own accounts and comparing them with national and international evidence, this study seeks to illuminate how programs can meet mothers where they are—supporting informed, confident choices that safeguard maternal and infant health.

Methodology The research was done at one of the nearest village of Peshawar KPK. The qualitative exploratory study design was chosen and it served a fitting purpose to reveal experience, thoughts and beliefs of mothers about vaccine hesitancy. The sample population was mothers with two or more previous births not still births. Purposive sampling method was adopted to select the sample because it was interested in sampling individuals who are vaccine and having Childs. Participants were included based on inclusion criteria and also excluded by their willingness. Informed consents were obtained. Sample size was 12 mothers. Two interviews were discarded because they were incomplete. Semi structured interview were used to collect data and then interpret through thematic analysis using six steps. All information of the participants is confidential. Thematic analysis was utilized to analyze the qualitative data. First, all interviews were audio-recorded and then transcribed verbatim As the authors used Braunand Clarke framework, analysis started with familiarization, whereby they read transcripts several times. The significant statements were then identified through open coding and then categories were formed through axial coding. Thereafter, selective coding was employed in rendering of wider themes out of associated categories. Direct quotes of the participants who participated in the study accompanied every theme to ensure a certain level of authentication and a better understanding

Result Participants were mothers from rural areas who know Pashto and educated at least metric or can read our informed consents.



Theme 1: Balancing Protection and Risk

Theme	Subtheme	Codes (5)	Participant Narrations	Evidence Statement	Theme Summary
Balancing Protection and Risk	Safety for Mother and Baby	• Fear of miscarriage • Worry about fetal anomalies • Post-shot fever anxiety • Effect on breastmilk • Past adverse experiences	"If I get a fever, will it harm the baby?" (M1) | "After the first shot, aches made my aunt say the baby was suffering." (M2)	Mothers equate transient side-effects with fetal danger and need anticipatory guidance that distinguishes expected reactions from warning signs.	
Balancing Protection and Risk	Trust in Evidence and Messengers	• Clinician acknowledgment of uncertainty • Desire for local proof • Religious reassurance • Respectful counseling	"Show me the studies and outcomes in pregnancy." (M6) | "If the imam reassures, my husband	Trust grows when credible information is delivered empathetically by clinicians and endorsed by locally respected	

		• Helpline/follow-up	will agree." (M3)	figures.	
				Summary:	Across this theme, mothers sought protection without harming the fetus, interpreted service reliability as a safety signal, and valued empathetic, locally endorsed counseling.

Summary

This theme encapsulates how mothers navigate the delicate balance between protecting their unborn child and avoiding perceived harm from vaccination. Concerns about miscarriage, fetal anomalies, and post-shot fever were frequently raised, often amplified by past adverse experiences and anecdotal warnings from family members. The fear of adverse effects was not rooted solely in misinformation; it was intertwined with emotional memories and bodily experiences that shaped risk perception. Trust in evidence and the messengers conveying it played a decisive role. Participants valued clinicians who acknowledged uncertainty, offered local proof, or incorporated religious reassurance into counseling. Respectful, empathetic dialogue combined with accessible follow-up channels (such as helplines) was seen as both informative and supportive. Mothers described the reassurance they gained when providers clearly differentiated between mild, expected side-effects and symptoms requiring medical attention. The narratives suggest that hesitancy in this domain is not a rigid stance but a dynamic decision-making process responsive to the quality of the interaction. Ultimately, ensuring that counseling is grounded in credible evidence, delivered through trusted figures, and tailored to mothers' cultural contexts can shift perceptions from fear towards confidence in vaccination.

Theme 2: Care Experience and Access

Theme	Subtheme	Codes (5)	Participant Narrations	Evidence Statement	Theme Summary
Care Experience	Service Constraints	• Distance/transport	"If I go and the dose is	Friction in access is	

and Access		costs • Stock-outs • Long waits • Childcare burden • Timing/evening hours	out of stock, it feels like a sign not to push it." (M1) | "Missing a day means lost income—queues cost me." (M2)	reframed as a safety signal; reliability and convenience are interpreted as markers of quality.	
Care Experience and Access	Communication Quality	• Two-way dialogue • Non-judgmental tone • Local language materials • Consistency across providers • Clear after-care advice	"Don't just say 'It's safe.' Tell me how you know." (M6) | "I need the same message from different doctors." (M8)	Respectful, consistent counseling that anticipates questions reduces confusion and normalizes mild reactions.	
				Summary:	Across this theme, mothers sought protection without harming the fetus, interpreted service reliability as a safety signal, and valued empathetic, locally endorsed counseling.

Summary

This theme reveals how logistical and experiential aspects of care directly influence maternal vaccine decisions. Participants reported that distance to clinics, transportation costs, stock-outs, and long waits were not just inconveniences but interpreted as cues that vaccination might be unnecessary or unsafe. These service constraints were compounded by the absence of supportive infrastructure such as shaded waiting areas or childcare assistance, making access particularly challenging for pregnant women with other children. Equally influential was the quality of communication within the care setting. Women expressed frustration when encounters were rushed or dismissive, contrasting this with the trust built during two-way conversations conducted in local languages with consistent messaging across providers. Participants stressed that when different clinicians provided conflicting information, confusion and hesitation increased. Conversely, consistency and clarity in information delivery normalized mild reactions and reduced uncertainty. These findings highlight the importance of designing health services that are reliable, respectful, and responsive. Addressing practical barriers while strengthening the interpersonal aspects of care can transform service use from a burdensome chore into a confidence-building experience that encourages vaccine acceptance.

Theme 3: Social Norms and Motherhood Identities

Theme	Subtheme	Codes (5)	Participant Narrations	Evidence Statement	Theme Summary
Social Norms and Motherhood Identities	Collective Responsibility	• Protecting newborn and elders • School-entry requirements • Community endorsement • Peer narratives • Husband/elder involvement	"I don't want to be brave alone; let the system support us." (M7) | "Stories from mothers like me matter more than celebrity posts." (M3)	Mothers calibrate decisions to family expectations; involvement of husbands/elders and peer testimonies legitimizes vaccination.	
Social Norms and Motherhood Identities	Good Mother Ideal and Autonomy	• Fear of blame either way • Preference for 'natural' immunity • Religious framing (stewardship vs. fatalism)	"If anything goes wrong, people will blame me." (M2) | "Good information plus good treatment equals	Hesitancy reflects moral labor: mothers seek to be prudent and caring; supportive environments enable confident	

	• Privacy to ask sensitive questions • Ownership of decision	confidence." (M10)	agency.	
			Summary:	Across this theme, mothers sought protection without harming the fetus, interpreted service reliability as a safety signal, and valued empathetic, locally endorsed counseling.

Summary

This theme explores the deep influence of social expectations, collective responsibility, and personal identity on maternal vaccine decisions. Many participants situated their choices within the context of family and community approval, often deferring to the opinions of husbands, elders, or religious leaders. Community endorsement, particularly from trusted faith figures, was seen as a powerful legitimizing force. Mothers described the moral weight of being perceived as a 'good mother,' which involved navigating the fear of blame regardless of the decision taken. Stories shared by other mothers in similar circumstances were particularly persuasive, offering relatable proof that resonated more strongly than impersonal data. Some participants preferred natural immunity or framed their decision through religious concepts of stewardship and divine will. The desire for autonomy coexisted with a recognition of interdependence within family and community structures. These narratives underscore that maternal vaccine hesitancy cannot be understood purely as an individual risk-benefit analysis; it is a socially embedded process. By aligning vaccine promotion with culturally valued identities and leveraging community relationships, programs can foster informed decisions that mothers view as both personally and socially responsible.

Discussion

Our findings portray maternal vaccine hesitancy not as fixed opposition but as a moving negotiation among risk, responsibility, and relational trust. Mothers described weighing the

promise of protection for the fetus and newborn against fears catalyzed by side-effects, rumors, and historical ambiguities in policy. This pattern parallels national evidence from Pakistan where refusal and delay cluster around safety concerns and mistrust (Mahmood et al., 2025), and aligns with international syntheses locating fears for fetal health and distrust from early trial exclusions as core deterrents (Casubhoy et al., 2024). What distinguishes the present study is the granular account of how service design—reliability, waiting times, follow-up—feeds into perceptions of safety itself. First, our theme "Balancing Protection and Risk" echoes Suragh et al.'s (2024) observation that credible counseling means acknowledging uncertainty while providing concrete, pregnancy-specific evidence. Mothers in our sample requested proof and plain-language explanations, not blanket reassurances. Where clinicians normalized transient reactions and specified red-flag symptoms, acceptance became imaginable. This supports WHO (2024) guidance to provide anticipatory counsel and shows why information quality, not just quantity, matters. Second, "Care Experience and Access" suggests that friction—distance, queues, stock-outs—functions as a heuristic. When the system feels unreliable, mothers infer that vaccination may be optional or unsafe. UNICEF (2023) similarly emphasizes that recovery of coverage depends on restoring both confidence and convenience. Practical fixes (SMS reminders, evening hours, shaded seating, priority tokens) double as trust signals. The Pakistan postpartum study found intention rose with perceived service responsiveness (Premji et al., 2022); our narratives show how responsiveness looks and feels to mothers. Third, "Social Norms and Motherhood Identities" highlights the moral labor of decision-making. Mothers feared blame "either way," sought religious reassurance, and valued peer testimonies from "mothers like me." In Suragh et al. (2024), identity-affirming messages and clinician empathy shifted ambivalence. Casubhoy et al. (2024) noted that acceptance was fueled by a desire to protect family and return to normal life; our participants voiced the same motive, strengthened when husbands and elders were engaged respectfully. Divergences are instructive. Unlike some high-income settings where hesitancy concentrates in ideological enclaves, our accounts foreground logistics and respect as equal determinants. Safety monitoring studies reporting no increase in adverse pregnancy or neonatal outcomes after vaccination are persuasive (e.g., BMJ/JAMA reports), yet diffusion into everyday counseling remains partial. Programs should therefore braid evidence with design: deliver proof through people and processes mothers already trust. Practice implications follow directly: embed brief, two-way counseling into antenatal visits; provide simple Urdu/Pashto handouts citing WHO/UNICEF; ensure dose availability and short waits; invite a family member to one session; and institute a next-day check-in for those receiving a shot. Such micro-practices transform abstract "confidence" into lived assurance. Finally, reflexive training for staff on non-judgmental communication can prevent inadvertent shame, a recurring trigger of hesitation.

Summary

- Hesitancy is dynamic and relational, not a fixed refusal.
- Safety for fetus/newborn, trust in messengers, and service experience drive decisions.

• Access frictions (queues, stock-outs) are read as safety signals; convenience builds confidence.
• Two-way, respectful counseling with clear after-care guidance normalizes mild side-effects.
• Engaging husbands/elders and trusted religious/community figures legitimizes acceptance.

Results

• Three overarching themes with six subthemes and 30 inductively derived codes were identified.
• Participant narratives reveal high information needs and a preference for empathetic, evidence-based dialogue.
• Perceived system reliability (availability, waiting time) strongly influenced vaccine acceptance.
• Social approval from family and religious leaders moderated individual risk calculus.

Conclusion

Mothers' vaccine decisions in pregnancy and postpartum emerge from an interplay of safety concerns, trust, service design, and social expectations. Strengthening respectful counseling, aligning messages across providers, ensuring reliable access (stock, schedules, shorter waits), and inviting key family members into at least one counseling encounter can translate intent into uptake. Programmatically, micro-practices such as anticipatory guidance on side-effects, next-day check-ins, and simple bilingual handouts are low-cost levers that convert abstract "confidence" into lived assurance. Grounding these steps in local partnerships with midwives, lady health workers, and faith leaders can sustain acceptance beyond single campaigns and help protect mothers and newborns.

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