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Perceived susceptibility and vaccine hesitancy among mothers in completing basic immunization: A qualitative study

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Abstract

Background: Immunization is a highly effective public health intervention to reduce child morbidity and mortality. However, declining immunization coverage in several regions of Indonesia, including North Bengkulu Regency, reflects growing vaccine hesitancy. In Arga Makmur, concerns about post-immunization adverse events (KIPI) influence mothers' decisions, indicating a shift in perceived susceptibility within the Health Belief Model.

Objective: This study aimed to explore mothers' perceived susceptibility related to childhood immunization and how these perceptions contribute to vaccine hesitancy in Arga Makmur, North Bengkulu.

Methods: A descriptive qualitative study was conducted between October and November 2022 in the working area of the Argamakmur Community Health Center, North Bengkulu Regency, Indonesia. Nine mothers of children with incomplete immunization status were selected using purposive sampling. Data were collected through semi-structured in-depth interviews, audio-recorded, transcribed verbatim, and analyzed using Braun and Clarke's six-phase thematic analysis.

Results: Four major themes emerged from the analysis: (1) fear that injections could cause illness in children, (2) suspicion regarding the safety of vaccines and medications, (3) perceptions that children were physically weak or unfit to receive immunization, and (4) fatalistic beliefs reflected in surrender to divine destiny. Mothers tended to perceive the risks associated with vaccination as more immediate and threatening than the risks posed by vaccine-preventable infectious diseases. These perceptions were reinforced by misinformation, social narratives, and personal observations of post-immunization reactions.

Conclusion: Vaccine hesitancy among mothers in Arga Makmur is strongly associated with a shift in perceived susceptibility—from concern about infectious diseases toward fear of vaccine-related risks. Addressing this imbalance requires effective risk communication, strengthening trust in healthcare providers, counteracting misinformation, and implementing culturally and religiously sensitive health promotion strategies to improve immunization acceptance.

Background

Immunization has been recognized globally as the most effective and cost-effective public health intervention for reducing child morbidity and mortality(WHO, 2023). The success of an immunization program depends heavily on high coverage rates to achieve herd immunity(Primadi, 2021). Basic immunization consists of immunization against several diseases, including BCG immunization to prevent tuberculosis (TB), hepatitis B immunization to prevent hepatitis B infection, polio immunization to prevent poliomyelitis, DPT immunization to prevent diphtheria, pertussis, and tetanus, and measles immunization to prevent measles(Dillyana, 2019).

According to WHO data in 2021, 18.2 million infants did not receive the first dose of the diphtheria–tetanus–pertussis (DTP) vaccine. The global coverage of three doses of the Haemophilus influenzae type b (Hib) vaccine was estimated at 71%, with significant regional variations. The WHO Eastern Mediterranean Region and the WHO South-East Asia Region were each estimated to have coverage of 82%, while only 29% coverage was reported in the WHO Western Pacific Region. Global coverage of three doses of the hepatitis B vaccine was estimated at 80%. By the end of 2021, 81% of children had received one dose of a measles-containing vaccine by their second birthday, and 183 Member States had included a second dose as part of routine immunization, with 71% of children receiving two doses of the measles vaccine according to the national immunization

schedule. Additionally, 80% of infants worldwide received three doses of the polio vaccine (WHO, 2022).

Achieving high immunization coverage is essential to establish herd immunity, which protects both vaccinated and unvaccinated populations by reducing disease transmission. Despite this success, vaccine hesitancy has emerged as a growing global threat, identified by WHO as one of the top ten threats to global health. Vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite availability of vaccination services and is influenced by multiple factors including risk perception, misinformation, and sociocultural beliefs(Oku et al., 2017).

Based on data on the complete basic immunization coverage in Indonesia from 2019 to 2021, it was found that there was a decline, in 2019 the complete basic immunization coverage was 93.7%, in 2020 it was 82.6% where the desired target was 92.9%. Based on the 2021 Susenas (National Survey) by the Central Statistics Agency (BPS), the percentage of children aged 12-23 months who received complete basic immunization in Indonesia was 61.09%, with 61 out of 100 children aged 12-23 months in Indonesia receiving complete basic immunization. In 2021, the Complete Basic Immunization (IDL) percentage of 93.6% was not achieved. The distribution of immunization in Indonesia is still uneven(BPS, 2021). In 2024, based on mid-year evaluation reports and annual projections, there were fluctuations that caused some regions to experience a decline to around 80-85% due to logistical constraints and increasing vaccine hesitancy. Bengkulu Province recorded a decline in complete basic immunization coverage from 98.5% to 92.4% in 2023-2024. If detailed, there are still districts/cities in Bengkulu province that have low achievement of Complete Basic Immunization (IDL) percentage, one of which is North Bengkulu district which recorded 87.6%.(Kemenkes RI, 2024)

At the local level, Arga Makmur, as an urban and administrative center of North Bengkulu Regency, presents unique contextual challenges. Despite relatively better access to health services and information, mothers in the Arga Makmur Community Health Center working area demonstrate heightened concerns regarding Post-Immunization Adverse Events (KIPI) (Dinkes Bengkulu Utara, 2024). Increased access to digital media exposes mothers not only to accurate medical information but also to misinformation and negative narratives about vaccine safety. This paradoxical situation illustrates that improved information access does not necessarily translate into increased vaccine acceptance; instead, it may amplify fear and uncertainty when information quality is inconsistent (Azizi, A., 2024). Consequently, mothers may perceive short-term vaccine side effects, such as fever, as more threatening than the long-term risk of severe vaccine-preventable diseases such as polio, measles, or diphtheria.

This phenomenon reflects a shift in risk perception that can be better understood using the Health Belief Model (HBM). The HBM proposes that individual health behavior is influenced by perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy(Champion & Skinner, 2008). Among these constructs, perceived susceptibility plays a crucial role in determining preventive health behavior, including immunization. When mothers perceive their children as being less susceptible to infectious diseases due to the declining visibility of such diseases, their motivation to vaccinate decreases. Conversely, when perceived susceptibility to vaccine side effects increases, vaccine hesitancy becomes more likely (Smith, L. G., 2023). This theoretical linkage suggests that vaccine hesitancy is not solely driven by lack of knowledge but also by cognitive risk assessment shaped by social, informational, and experiential factors.

Previous studies have documented vaccine hesitancy and its determinants; however, much of the existing literature remains descriptive and focuses on general attitudes, knowledge, or sociocultural factors without deeply examining the cognitive mechanisms underlying perceived susceptibility (Dube, E., Ward, J. K., & MacDonald, 2022; Saptarini & Mutahar, 2023). Furthermore, limited research has explored how perceived susceptibility specifically shifts in communities where vaccine-preventable diseases have become rare due to previous immunization success. This creates a conceptual paradox: the success of immunization programs may inadvertently reduce perceived disease threat, thereby weakening future immunization adherence.

In addition, few studies have examined vaccine hesitancy using a comprehensive Health Belief Model framework in the specific context of semi-urban districts such as Arga Makmur, where access to healthcare and digital information coexist with increasing exposure to misinformation. The unique sociocultural and informational landscape of Arga Makmur provides an important setting to understand how modern information environments influence maternal perception and immunization decision-making. Therefore, a clear research gap exists in understanding how perceived susceptibility toward disease and vaccine risk interacts within the Health Belief Model framework to influence vaccine hesitancy among mothers at the local level.

Based on these considerations, this study aims to explore and analyze the relationship between perceived susceptibility and vaccine hesitancy among mothers in Arga Makmur, North Bengkulu, using the Health Belief Model framework.

Methods

Study Design

This study employed a qualitative research design to explore mothers' perceptions regarding incomplete childhood immunization within the framework of the Health Belief Model. A qualitative descriptive approach was selected because it allows researchers to obtain an in-depth understanding of participants' experiences, beliefs, and interpretations related to health behaviors in real-life contexts. This approach is particularly appropriate when the objective is to explore how individuals interpret health risks and make decisions about preventive healthcare practices. In the context of vaccine hesitancy, qualitative inquiry enables researchers to capture the complexity of cognitive, social, and cultural influences shaping maternal decision-making.

The study was conducted in the working area of the Argamakmur Community Health Center, located in North Bengkulu Regency, Indonesia. This setting was chosen because the area has shown a decline in complete basic immunization coverage despite relatively good access to primary healthcare services. Data collection took place between October and November 2022. The study design and reporting procedures followed the Standards for Reporting Qualitative Research (SRQR) guideline from the EQUATOR Network to ensure methodological transparency, rigor, and completeness in reporting qualitative research findings.

Participants

Participants in this study were mothers of children whose basic immunization status was incomplete. A purposive sampling strategy was used to recruit participants who were considered information-rich and able to provide detailed insights regarding their decision-making processes related to childhood immunization. Purposive sampling was considered appropriate because qualitative studies aim to obtain depth of information rather than statistical representativeness.

A total of nine participants were included in the study. This sample size is consistent with qualitative research principles, where smaller sample sizes allow researchers to conduct in-depth exploration of participants' experiences and perspectives. Participants were selected based on specific inclusion criteria, which included: being the primary caregiver of a child with incomplete immunization status, residing in the working area of the Argamakmur Community Health Center, living in the same household as the child, being physically and mentally capable of participating in an interview, and being willing to participate voluntarily in the study. The immunization status of each child was verified using the Maternal and Child Health (KIA) book to ensure the accuracy of participant selection.

The participants represented diverse sociodemographic backgrounds in terms of age, number of children, and educational level, although the majority were housewives. All participants were married and shared similar religious and cultural backgrounds, which allowed the study to capture common sociocultural influences shaping maternal perceptions of immunization.

Data Collection

Data were collected using semi-structured in-depth interviews. This method was selected because it allows participants to express their perceptions, beliefs, and experiences in their own words while still enabling the researcher to guide the discussion toward the research objectives. Semi-structured interviews also provide flexibility for probing questions that allow deeper exploration of emerging themes.

Prior to data collection, the researcher coordinated with the immunization program coordinator at the Argamakmur Community Health Center to identify mothers whose children had incomplete immunization records. This collaboration enabled the researcher to access relevant information from Maternal and Child Health records and ensure that potential participants met the study criteria.

Participant recruitment was conducted through house-to-house visits. The researcher was accompanied by a local health officer during initial contact in order to facilitate community trust and establish rapport with potential participants. Once participants agreed to participate in the study, they were provided with an explanation regarding the purpose of the research, interview procedures, confidentiality assurances, and their rights as participants.

The interviews were conducted in a private and comfortable setting, usually within the participants' homes, to encourage open communication. Each interview was guided by a set of open-ended questions designed to explore mothers' perceptions related to immunization. The primary question guiding the interview was: "What are the reasons or factors that led you not to complete your child's immunization?" Follow-up questions were used to probe deeper into participants' perceptions of disease risk, vaccine safety, personal experiences, and social influences.

All interviews were audio-recorded with participants' permission to ensure accurate documentation of responses. In addition, field notes were taken to capture contextual observations such as emotional expressions, pauses, and non-verbal cues that could provide additional meaning during data interpretation. After the interviews were completed, all recordings were transcribed verbatim to ensure that participants' perspectives were preserved accurately for analysis adaptive responses to the nursing intervention.

Data Analysis

The collected data were analyzed using thematic analysis, which allows researchers to identify, analyze, and interpret patterns of meaning within qualitative data. Thematic analysis was chosen because it provides a flexible yet systematic approach for organizing large volumes of narrative data while maintaining sensitivity to participants' perspectives.

The analysis followed the six-phase framework proposed by Braun and Clarke. The first phase involved familiarization with the data, during which the researcher repeatedly read the interview transcripts to gain a comprehensive understanding of participants' narratives. During this stage, initial observations and potential patterns were noted.

The second phase involved generating initial codes. Coding was conducted by systematically identifying segments of text that represented meaningful units related to mothers' perceptions of immunization. Each relevant statement or idea was assigned a code that represented the essence of the data.

The third phase involved searching for themes. Codes that shared conceptual similarities were grouped together and organized into potential themes. These themes represented broader patterns that captured significant aspects of participants' perceptions regarding immunization.

The fourth phase involved reviewing and refining the themes. During this stage, the researcher re-examined the coded data extracts within each theme to ensure that they accurately represented the participants' narratives. Themes that lacked sufficient supporting data were revised or merged with other themes.

The fifth phase involved defining and naming the themes. Each theme was carefully defined to clarify its meaning and conceptual boundaries. The researcher also examined how each theme related to the theoretical framework of the Health Belief Model, particularly the concept of perceived susceptibility.

The final phase involved producing the analytical narrative. In this stage, the themes were presented in a coherent and logical manner supported by verbatim quotations from participants to illustrate key findings. This process ensured that the results reflected the authentic perspectives of the participants.

Trustworthiness

To ensure the rigor and credibility of the findings, this study applied the qualitative trustworthiness criteria proposed by Lincoln and Guba, which include credibility, transferability, dependability, and confirmability.

Credibility was achieved through prolonged engagement with the data and careful interpretation of participants' narratives. The researcher repeatedly reviewed interview transcripts to ensure that interpretations accurately reflected participants' experiences and perceptions. In addition, verbatim quotations from participants were used in the results section to provide transparency and allow readers to assess the authenticity of the findings.

Transferability was supported by providing detailed descriptions of the research context, participant characteristics, and study procedures. These detailed descriptions enable readers to determine the potential applicability of the findings to other settings with similar sociocultural contexts.

Dependability was ensured through systematic documentation of the research process. The researcher maintained detailed records of interview procedures, coding decisions, and theme development. This documentation allows the research process to be traced and evaluated by other researchers.

Confirmability was maintained by ensuring that the findings were grounded in the data rather than influenced by researcher bias. All interpretations were supported by direct evidence from the interview transcripts. Reflexive awareness was also maintained throughout the research process to minimize subjective influence during data analysis, and justice in human subject research (Akbar, 2026).

Ethical Consideration

Ethical approval for this study was obtained from the Research Ethics Committee of Universitas Padjadjaran prior to data collection. The ethical review process ensured that the study complied with ethical principles related to human subject research, including respect for autonomy, beneficence, non-maleficence, and confidentiality.

Before participating in the study, each participant received both verbal and written explanations regarding the purpose of the research, the procedures involved, and the potential risks and benefits of participation. Participants were informed that their participation was entirely voluntary and that they had the right to withdraw from the study at any time without any consequences.

Written informed consent was obtained from all participants before the interviews were conducted. Confidentiality was maintained by removing identifying information from transcripts and replacing participant names with coded identifiers. All audio recordings and research documents were securely stored and accessible only to the research team

Results

Participants involved in this study were as many as 9 mothers who had children with incomplete basic immunization status. The educational level of the participants varied from elementary to high school. All participants were married and Muslim. Most of the participants are housewives, not workers. Participants have a varying number of children, at least two and at most 6 children. Of the 9 participants, it was found that 3 mothers with children who had not

been immunized from birth or had HB0 immunization.

Table 1. Characteristics of the participants

Participant	Age	Job	Many children	Immunitation children status
P1	22 years	Housewife	3	Hb0
P2	24 years	Housewife	2	-
P3	31 years	Housewife	2	-
P4	29 years	Housewife	5	Hb0
P5	29 years	Housewife	6	-
P6	30 years	Housewife	4	Hb0,BCG, polio 1, DPT 1, polio 2
P7	33 years	Housewife	2	Hb0,BCG, polio 1, DPT 1, polio 2, DPT 2, polio 3, DPT 3, polio 4
P8	28 years	Housewife	2	Hb0
P9	35 years	Teacher	3	HB0

Note: Hb0= Hepatitis B birth dose; BCG= Bacillus Calmette–Guérin vaccine; DPT 1/2= Diphtheria–Pertussis–Tetanus vaccine dose 1/2;

The results of this study provide an overview of the mother's barriers to giving complete basic immunization to children in the Argamakmur Health Center, North Bengkulu, which found 4 essential themes which are then described in narrative form. These themes include:

Table 2. Themes and sub-themes

No	Theme	Subtheme
1	Fear of Children Getting Sick from Injections	The assumption that injections actually bring new diseases
		Trauma from seeing other children suffer after injections
2	Suspicious about Drug Safety	Influenced by viral health issues in the media
		Doubting the benefits of fluids introduced into the body
3	Assuming the Child's Condition is Weak	The reason for cough/cold as a shield for rejection
		Assessing a child's physical readiness from body weight
4	Surrender to God's Destiny	The belief that natural protection is more important
		Refusal of medical coercion

Theme 1. Fear of Children Getting Sick from Injections

Subtheme 1.1 The assumption that injections actually bring new diseases

Some participants expressed concerns that immunization could trigger high fever, which they perceived as a sign that the child had actually become ill. One participant stated, *"I don't want my child to be immunized, it might cause a high fever and make them truly sick"* (P1, P4).

Another participant said, *"I feel sorry if my child gets injected because their body will become hot, fussy, and it will add to their suffering"* (P4). These perceptions indicate a belief that immunization may have negative effects on the child's health, both physically and emotionally.

Subtheme 1.2 Trauma from seeing other children suffer after injections

Several participants expressed feelings of fear and concern after witnessing or hearing about negative experiences of other children following immunization. These experiences shaped their perception that immunization could cause painful or even harmful effects for their children. One participant stated, *"Rather than being injected and having the leg swell, it is better not to do it."* (P3), reflecting concern about physical reactions such as swelling after immunization. Additionally, another participant expressed fear influenced by information from their surroundings, including the possibility of

more serious effects, "*I am afraid something might happen to my child; people say it could cause paralysis if the injection is done incorrectly.*" (P1).

Theme 2. Suspicious about Drug Safety

Subtheme 2.1 Influenced by viral health issues in the media

Participants expressed increased fear and concern due to various health issues circulating widely, particularly those related to the safety of medications for children. One participant stated, *"It's scary to see the diseases nowadays, especially with the issue of (syrup) medicines that are not allowed for children."* (P7). Another participant added, *"Nowadays medicines are frightening; it is better to rely on natural protection."* (P9).

Subtheme 2.2 Doubting the benefits of fluids introduced into the body

Participants expressed uncertainty regarding the contents of vaccines and the potential effects that may occur after immunization. This doubt arose from limited understanding and lack of clear information, as well as concerns that the injected substance might trigger illness rather than prevent it. One participant stated, *"We don't know what it contains; it might even cause illness." (P4).*

In addition, these concerns were influenced by the perception that diseases today are increasingly diverse and difficult to understand, which contributes to distrust toward medical interventions, including immunization. This condition led participants to question the safety of substances administered into their child's body. This is reflected in another participant's statement: *"Diseases nowadays are strange, and the treatments are also frightening." (P7).*

Theme 3. Assuming the Child's Condition is Weak

Subtheme 3.1 The reason for cough/cold as a shield for rejection

Some participants expressed concerns about continuing immunization when their child was experiencing symptoms such as cough or runny nose, as these conditions were perceived to be unsafe for vaccination. One participant stated, *"The child is currently coughing... I'm afraid to proceed with the injection." (P5),* indicating fear that immunization could worsen the child's health condition. In addition, the participant associated this condition with environmental factors, as expressed in the statement, *"It seems like it's currently cough season, so it's better to postpone it."* (P5).

Subtheme 3.2 Assessing a child's physical readiness from body weight

Mothers perceived that the child's physical condition, particularly body weight, was an important indicator in determining the child's readiness to receive immunization. Several participants stated that a decrease in body weight was considered a sign that the child was not in optimal condition, and therefore immunization should be postponed. One participant stated, *"When the weight was measured and it had decreased... there might be a problem, so the injection should be delayed."* (P1, P3). This statement indicates that mothers used body weight measurements as a basis for assessing their child's health status before proceeding with immunization.

Theme 4. Surrender to God's Destiny

Subtheme 4.1 The belief that natural protection is more important

Several participants demonstrated a sense of acceptance and resignation, perceiving their child's health condition as part of God's will. As a result, medical intervention was not always viewed as the primary determining factor in disease prevention. One participant stated, *"If it is destined for the child to get sick, then it will happen; it is already fate"* (P4), reflecting the perception that illness is part of divine destiny and cannot be fully prevented through medical measures. Furthermore, resistance to perceived medical coercion was also reflected in the belief that all forms of protection and well-being for the child, including access to healthcare services, are determined by God. Participants expressed acceptance of their circumstances without feeling the need to pursue or insist on specific medical interventions. This was expressed by participants who stated, *"If it is not given (assistance), then it is alright; sustenance is determined by Allah"* (P1, P6).

Subtheme 4.2 Refusal of medical coercion

Some participants expressed fear influenced by information they had heard from people around them regarding the possibility of errors in the injection procedure. This concern was mainly related to the perception that technical mistakes during immunization could cause serious consequences for the child, such as paralysis. One participant stated, *"Some people said that a wrong injection could make a child paralyzed, and that's what makes me afraid."* (P1, P2). This statement indicates that risk perception was shaped not only by personal experience but also by socially transmitted information, which subsequently affected mothers' trust in the competence of healthcare workers. Furthermore, concerns about potential negative consequences in the future led some mothers to delay or even refuse immunization for their children. One participant explained, *"It's better not to do it than to risk something happening later."* (P1).

Discussion

This study demonstrated that perceived susceptibility among mothers in Arga Makmur was not directed toward vaccine-preventable diseases, but rather toward the immunization process itself. Within the Health Belief Model, perceived susceptibility refers to an individual's belief about the likelihood of experiencing harm, which significantly influences preventive health behavior (Champion & Skinner, 2008). However, the present findings revealed that mothers perceived immunization as a greater source of vulnerability than infectious diseases. This shift in perceived susceptibility emerged clearly across all identified themes, indicating that immunization decisions were shaped more by perceived intervention-related risks than disease-related risks (Astari et al., 2018).

Participants believed that immunization could introduce new illness, as reflected in concerns about fever, swelling, and suffering after injections. These perceptions demonstrate that mothers interpreted normal post-immunization reactions as indicators of increased biological vulnerability rather than expected immune responses. According to the Health Belief Model, perceived susceptibility increases when individuals interpret physical symptoms as signals of harm, even if the symptoms are clinically mild (Sari et al., 2021). Furthermore, traumatic observations of other children experiencing adverse reactions reinforced perceived susceptibility through social learning processes. Observational experiences and socially transmitted narratives have been shown to increase perceived vulnerability and contribute to vaccine hesitancy, particularly when adverse events are emotionally salient and easily remembered(Dubé et al., 2022)

Suspicion about drug safety, further illustrates how perceived susceptibility was shaped by uncertainty and mistrust toward vaccine contents. Participants expressed fears about unknown substances entering their child's body, reflecting perceived chemical and physiological vulnerability. This aligns with previous research showing that lack of knowledge and exposure to misinformation increase perceived susceptibility to vaccine-related harm(Azizi, 2024). Viral health issues circulating in media environments amplified perceived risk by increasing mothers' awareness of potential pharmaceutical dangers. According to risk perception theory, individuals are more likely to perceive higher susceptibility when risks are unfamiliar, invisible, and poorly understood(Islamiyah & Fatah, 2019). As a result, mothers perceived immunization not as protection but as a potential source of harm, indicating a reversal of the intended preventive meaning of vaccination.

Mild illnesses such as cough, cold, or minor weight loss were interpreted as indicators that the child was highly vulnerable and unable to tolerate immunization. This reflects heightened perceived physiological susceptibility, where mothers believed that immunization could worsen an already fragile condition. This finding is consistent with previous studies showing that parents often overestimate susceptibility to vaccine harm when children appear physically weak, even when vaccination is medically safe(Kurup et al., 2017). Within the Health Belief Model framework, subjective perception of vulnerability can override objective clinical recommendations, particularly when parents

prioritize immediate perceived safety over long-term disease prevention (Champion & Skinner, 2008).

Fatalistic beliefs reduced perceived susceptibility to infectious diseases because illness was viewed as predetermined and beyond human control. At the same time, mothers remained highly sensitive to perceived susceptibility related to human medical intervention, particularly immunization. This reflects a dual perception in which susceptibility to divine will is accepted, while susceptibility to human-caused harm remains feared. Previous studies have shown that fatalistic beliefs can reduce engagement in preventive health behavior by lowering perceived susceptibility to preventable diseases while maintaining concerns about intervention-related risks (Saptarini & Mutahar, 2023)

In addition, fear of medical errors, such as incorrect injection techniques, further strengthened perceived susceptibility to immunization-related harm. Participants expressed concerns that improper injection could cause serious consequences such as paralysis, reflecting vulnerability attributed to healthcare provider actions rather than disease exposure. This perception demonstrates how perceived susceptibility is influenced not only by biological vulnerability but also by institutional trust and perceived competence of healthcare providers (Dubé et al., 2022). When trust in medical systems is weakened, perceived susceptibility to intervention-related harm increases, reducing willingness to engage in preventive care.

Overall, these findings indicate that perceived susceptibility among mothers had shifted from susceptibility to infectious diseases toward susceptibility to immunization itself. This reversal represents a critical cognitive mechanism underlying vaccine hesitancy. According to the Health Belief Model, preventive behavior is unlikely to occur when perceived susceptibility to the intervention exceeds perceived susceptibility to the disease (Champion & Skinner, 2008). The success of immunization programs in reducing visible disease prevalence may have unintentionally reduced perceived susceptibility to infectious diseases, while misinformation, emotional experiences, and sociocultural beliefs increased perceived susceptibility to vaccines (Dubé et al., 2022). This imbalance in perceived susceptibility ultimately contributes to delayed or incomplete immunization. These findings highlight the importance of interventions that address maternal perceptions of susceptibility directly. Improving risk communication, strengthening trust in healthcare providers, and enhancing understanding of both disease risk and vaccine safety are essential to restore balanced perceived susceptibility and improve immunization uptake (Smith, 2023).

Conclusion and Recommendation

Low immunization coverage in Arga Makmur is not caused by access barriers, but rather by a shift in mothers' perceived susceptibility. Mothers no longer perceive infectious diseases as a significant threat, but instead view vaccines and their potential side effects as more dangerous. This altered perception is reinforced by misinformation, concerns about pharmaceutical safety, false contraindications, omission bias, and religious fatalism, all of which reshape how mothers evaluate health risks and protective actions.

These findings highlight important implications for policy and public health practice, particularly the need for targeted risk communication strategies that directly address distorted susceptibility perceptions, strengthen trust in immunization programs, and improve the capacity of health workers to communicate vaccine safety effectively. In addition, culturally sensitive interventions that acknowledge community beliefs while reinforcing scientific understanding are essential to restore accurate perceptions of disease vulnerability. Future research should further explore how susceptibility perceptions are formed and influenced by social, cultural, and digital information environments, as well as evaluate the effectiveness of interventions designed to rebuild accurate risk perception and increase immunization acceptance.

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Declaration on the Use of AI
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