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Original Article

Perceptions of Health Workers on the Implementation of Polio Immunization in Manokwari District, Indonesia

[1]Hendrik Marisan, [2]Cicilia Windiyaningsih, [3]Anna Sunita

[1,2,3]Public Health Universitas Respati, Jakarta, Indonesia

E-mail Corresponding: hendrikmarisan45@gmail.com

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ABSTRACT

Background: Polio immunization remains a crucial strategy for polio eradication in Indonesia. Understanding health workers' perspectives is important for strengthening program implementation and ensuring optimal community participation.

Method: This qualitative study was conducted in Manokwari District in 2024. Data were collected through in-depth interviews with 15 health workers selected purposively. The interviews explored perceptions, challenges, and strategies related to the polio immunization program. Data were analyzed thematically.

Result: The analysis revealed two overarching themes. The first was health innovation, encompassing knowledge, perceived susceptibility and severity, observability, and complexity of the immunization program. Health workers emphasized the importance of clear information and simple procedures to increase acceptance. The second theme was social communication strategies, highlighting the crucial role of interpersonal communication, health worker commitment, and family support in motivating communities to participate. Barriers such as misinformation and limited resources were also identified.

Conclusion: Health workers' perceptions underline the significance of innovation and communication in enhancing community involvement in polio immunization. Strengthening health workers' communication capacity and engaging family support are recommended to improve program effectiveness.

INTRODUCTION

Poliomyelitis is an acute and highly contagious infectious disease caused by one of the three serotypes of the poliovirus (type 1, 2, or 3). It continues to pose a global health threat, particularly in regions with low immunization coverage and suboptimal surveillance systems[1]. The disease can lead to permanent paralysis and even death due to respiratory failure, yet it is both preventable and eradicable through immunization[2]. Wild poliovirus type 2 has been eradicated since 1999, but the risk of vaccine-derived polioviruses (VDPV) remains a concern[3].

Surveillance and reporting of all acute flaccid paralysis (AFP) cases aim to increase sensitivity in detecting poliomyelitis. AFP surveillance remains the gold standard for identifying poliovirus circulation, conducted through active surveillance, passive

surveillance, community-based monitoring, and hospital record reviews[4]. In Indonesia, polio cases continue to emerge, including one reported in Mimika District, Central Papua, in April 2024, underscoring that polio remains a threat[5]. In response, the government relaunched the National Immunization Week (PIN) Polio campaign across 33 provinces to prevent further transmission[6].

Immunization is one of the most effective public health interventions to prevent infectious diseases, including polio, which can cause lifelong disability[7]. Indonesia's polio immunization program has been in place since 1988 and has significantly reduced the number of cases[8]. Nevertheless, challenges persist, particularly in areas with limited healthcare access, inadequate infrastructure, and diverse socio-cultural contexts such as Manokwari District in West Papua[9].

Manokwari faces geographical challenges, with mountainous terrain and dispersed small islands complicating access to health services[10]. Cultural diversity and varying education levels also influence community acceptance of immunization programs[11]. Data from 2024 reported a total of 3,380 under-five children targeted for polio immunization, with IPV and OPV coverage achieving 100% of the target[12]. However, not all primary healthcare centers (puskesmas) reached the Minimum Service Standard (SPM) of 95%, as observed in Mowbja (92%) and Maripi (94%)[13].

Community perception plays a crucial role in determining the success of immunization programs. Health literacy levels, prior interactions with healthcare providers, and the type and quality of information obtained from media or community leaders strongly affect immunization participation[14]. Studies in other countries have shown that cultural factors, religious beliefs, and misinformation can act as barriers to vaccination[15]. These findings are highly relevant to Manokwari, given its cultural diversity and geographic limitations.

Participatory approaches involving community leaders, local health workers, and religious figures have been shown to enhance vaccine acceptance[16]. Furthermore, effective communication strategies, the use of social media, and the integration of information technologies such as SMS reminders could improve immunization coverage in remote areas[17]. Strong commitment and support from local governments have also been identified as critical to the success of public health programs[18].

Against this backdrop, the present study focuses on evaluating the implementation of polio immunization in Manokwari District, with particular attention to the perceptions of both communities and healthcare workers. This qualitative research seeks to identify context-specific barriers and facilitators that shape program outcomes and to provide actionable recommendations for improving immunization coverage and supporting Indonesia's efforts toward polio elimination[19].

METHOD

Polio eradication remains a global health priority, and Indonesia still faces challenges in achieving optimal coverage. In Manokwari District, repeated campaigns have been implemented, yet community participation is not always consistent. This situation indicates that program success is closely related to the role of health workers who serve as the main actors in planning, implementation, and communication with the community. However, their perceptions and experiences in managing polio immunization have not been widely explored. Therefore, this study sought to analyze the perspectives of health workers to identify barriers and opportunities in strengthening the polio immunization program.

This study used a qualitative research design with a phenomenological approach to capture in-depth information from health workers. The research was conducted from April to June 2025 across 15 community health centers (puskesmas) in Manokwari District. Participants were selected purposively based on specific criteria. The inclusion criteria were health workers actively

employed at a puskesmas in Manokwari, with direct experience in implementing or managing polio immunization, having served in the program for at least six months, and receiving approval from facility leadership to provide information. Exclusion criteria included health workers who were inactive during the interview period and those without a valid practice license, such as interns or contract staff.

Data were collected through in-depth interviews using a semi-structured guide designed to explore perceptions, challenges, and strategies related to polio immunization. All interviews were conducted face-to-face, audio-recorded with consent, and transcribed verbatim. Data analysis followed a thematic approach, beginning with familiarization, coding, categorization, and identification of themes. To ensure research credibility, triangulation and member checking were conducted at several stages of the analysis. The overall research process followed a systematic flow, beginning from problem identification, site and participant selection, data collection, transcription, coding, categorization, thematic analysis, and finally the interpretation of findings.

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RESULT AND DISCUSSION

Theme 1: Relative Advantage of Polio Imunization

Health workers highlighted that polio immunization was perceived as more acceptable and convenient than other vaccines. This advantage was reflected not only in the technical simplicity but also in the emotional reassurance it provided. Oral administration was described as painless, safe, and free from common side effects, while the urgency of preventing polio, a disease seen as incurable and disabling, reinforced its importance in the community.

"For Polio National Immunization Week (PIN), I think parents prefer polio immunization compared to others because it is just drops. The others involve injections." (PKM_15)

"Even for injectable polio (IPV), parents agree, because there is no fever afterwards." (PKM_02)

"Polio can cause permanent paralysis. Compared with other vaccines, polio is much more important for children." (PKM_10)

"Polio cannot be cured, only prevented through immunization." (PKM_06)

These findings reflect Rogers' diffusion of innovation theory, where the relative advantage of an intervention strongly determines its acceptance[20]. Similar patterns have been found in studies showing that less invasive and highly beneficial vaccines are more likely to be embraced by communities[21,22]. The perception of polio immunization as both technically superior and morally imperative illustrates why it is better received compared to other vaccines.

Theme 2: Complexity of the Immunization Program

Health workers emphasized that the simplicity or difficulty of the polio immunization program influenced community participation. The procedure of oral drops was seen as easy to administer and well accepted, while logistical barriers such as time, distance, and coordination with parents created complexity.

"Actually, polio immunization is easy, just drops, but the difficulty is gathering the children at the same time." (PKM_07)

"Sometimes parents complain about the schedule; they say it's too frequent and interferes with daily activities." (PKM_03)

These findings demonstrate that although the technical procedure is simple, operational challenges create perceptions of complexity. In diffusion of innovation theory, lower complexity increases the likelihood of adoption[23]. Similar results were reported in rural immunization programs in Africa, where logistical burdens limited participation despite community awareness[24].

Theme 3: Trialability of the Immunization Program

Informants described that parents were more willing to accept immunization when they had opportunities to observe or try it

without fear. The repeated campaigns under Polio National Immunization Week allowed families to build trust and gain direct experience.

"Because this program is repeated several times, parents become familiar and more willing to join." (PKM_12)

"At first some parents were hesitant, but after seeing that the drops did not cause harm, they came again for the next round." (PKM_05)

Trialability, or the ability to experiment on a limited basis, is a central attribute in diffusion of innovation.[25] Evidence from vaccination campaigns in South Asia also shows that repeated exposure builds confidence and reduces hesitancy[22]. This supports the idea that continuity and repetition are essential in sustaining acceptance of polio immunization.

Theme 4: Observability of Immunization Outcomes

Health workers reported that the visible absence of polio cases sometimes created mixed perceptions. On one hand, parents felt reassured of vaccine effectiveness; on the other, some underestimated the urgency of immunization because they had never seen a case.

"Parents often say: 'Why vaccinate, there is no polio here?' That makes them less serious about bringing their children." (PKM_09)

"But when we explain that polio causes paralysis for life, then they realize the importance." (PKM_04)

Observability is an important factor in innovation adoption[24]. In areas with low incidence, reduced visibility of the disease often lowers risk perception, as seen in studies from Nigeria and Pakistan[2]. Health workers' role in highlighting both the visible and invisible benefits of immunization therefore becomes crucial.

Theme 5: Knowledge of Polio and Immunization

Health workers emphasized that knowledge strongly influenced parents' decisions to participate in the program. Parents who understood that polio causes permanent paralysis were more committed to vaccination, while those with limited information were often hesitant.

"Some parents still ask what polio is, they don't really know the disease." (PKM_11)

"When we explain that polio has no cure, only prevention, they are more motivated." (PKM_06)

Knowledge is a key construct in the Health Belief Model, shaping perceptions of risk and benefits[9]. Studies in Indonesia and other low-resource settings have consistently shown that lack of knowledge is one of the strongest predictors of vaccine hesitancy[22].

Theme 6: Perceived Susceptibility

Informants described that some parents underestimated their children's risk of contracting polio, especially because no cases had recently been observed in the area. Others believed all children were equally at risk, regardless of background.

"Parents say, 'There is no polio here, so why should my child get drops?'" (PKM_08)

"Actually, every child is at risk if they are not immunized." (PKM_13)

Perceived susceptibility is central to the Health Belief Model[2]. Low risk perception has been documented as a barrier to immunization in many countries, including Pakistan and Afghanistan, where absence of visible cases led to complacency[24]. Increasing awareness of susceptibility is therefore crucial in maintaining high coverage.

Theme 7: Perceived Severity

Health workers consistently emphasized that polio was understood as a very severe disease, with irreversible consequences such as permanent paralysis. This perception made immunization appear urgent and non-negotiable.

"If children get polio, they can be paralyzed forever, and it cannot be treated." (PKM_10)

"Polio is not like fever or flu; once it attacks, it changes life completely." (PKM_01)

Perceived severity reinforces motivation to act, according to the Health Belief Model[24]. Similar findings were observed in immunization studies in Africa and South Asia, where acknowledgment of severity increased compliance with vaccination programs[13]

Theme 8: Perceived Benefits

Health workers described that parents generally recognized the benefits of polio immunization, especially as protection from disability and lifelong dependence. Immunization was also valued because it was free and easily accessible through health facilities.

"Parents know that immunization keeps children healthy and prevents paralysis." (PKM_14)

"They also say it helps because it is free and available in the village." (PKM_02)

According to the Health Belief Model, perceived benefits strongly motivate preventive health behaviors[7]. Prior studies confirm that when communities believe vaccines are effective and accessible, acceptance increases significantly[21,22].

Theme 9: Perceived Barrier

Informants noted several obstacles affecting participation, including misinformation about vaccine safety, traditional beliefs, limited transportation, and competing family priorities. These barriers often discouraged parents from attending immunization sessions.

"Some parents worry about side effects, like fever or pain, even when we explain it's safe." (PKM_05)

"For remote villages, transportation is difficult, sometimes parents just give up." (PKM_09)

Perceived barriers are a major factor in the Health Belief Model, often reducing intention to act[4]. Studies in Indonesia and other low-income contexts found that distance, costs, and misinformation were consistent challenges to polio immunization[21,22]. Addressing these barriers requires targeted strategies such as outreach services and culturally tailored health education.

Theme 10: Self Efficacy

Health workers highlighted the role of parents' confidence in managing their children's immunization. Parents who felt capable of making health decisions and overcoming challenges were more consistent in attending immunization schedules. Conversely, those with low confidence often postponed visits.

"Some mothers feel strong, they take initiative and bring children on time." (PKM_07)

"Others wait until we remind them, they say they don't know if it's really necessary." (PKM_03)

Self-efficacy, or belief in one's ability to perform a health behavior, is a critical determinant in the Health Belief Model[3]. Evidence from vaccine uptake studies shows that higher parental self-efficacy is linked to better adherence to immunization schedules[21].

Theme 11: Cues to Action

Health workers explained that reminders and encouragement strongly influenced parents' participation. Direct invitations, home visits, and campaigns through community leaders functioned as triggers that motivated families to attend.

"*We usually go house to house to remind them, then they come." (PKM_06)*

"If there is a village announcement from the head, parents feel more obliged to bring their children." (PKM_12)

Within the Health Belief Model, cues to action are essential in transforming intention into behavior[6]. Studies in Southeast Asia show that community-based reminders, including door-to-door strategies, significantly increase vaccine uptake[7,8].

Theme 12: Health Worker Support

Informants consistently highlighted the role of health workers' presence, dedication, and communication skills in shaping

community trust. Parents felt more confident when health workers explained clearly, provided reassurance, and demonstrated empathy.

"If we give good explanations, parents are more willing to accept." (PKM_04)

"They believe us because we always come to the field, not just wait in the clinic." (PKM_01)

Health worker support has been identified as a critical determinant of immunization program success[9]. In diffusion of innovation theory, health workers serve as change agents who accelerate adoption through interpersonal communication[21,22].

Theme 13: Family Support

Health workers observed that family influence, particularly from fathers and grandparents, could either strengthen or weaken mothers' decisions to immunize their children. Supportive family members encouraged participation, while opposition sometimes led to refusal.

"Sometimes the mother agrees, but the father says no, so they don't come." (PKM_07)

"If the grandmother reminds them, they usually come quickly." (PKM_10)

Family support aligns with social support theory and is closely tied to cues to action in the Health Belief Model[5]. Prior research in Indonesia and South Asia confirms that family endorsement increases compliance with vaccination schedules[21,22].

CONCLUSION

This study revealed that the successful implementation of polio immunization in Manokwari is strongly influenced by two overarching dimensions: health innovation and social communication strategies. From the perspective of health workers, the immunization program was perceived as relatively advantageous, simple, observable, and trialable, which reflects attributes of the Diffusion of Innovation theory. At the same time, parents' decisions were shaped by their knowledge, perceived susceptibility, perceived severity, perceived benefits and barriers, self-efficacy, and cues to action, aligning with constructs of the Health Belief Model.

The strengths of this study lie in its ability to capture in-depth insights from health workers who are directly involved in program implementation, and in highlighting the contextual factors unique to Manokwari, such as cultural diversity, geographic barriers, and family dynamics. The findings also emphasize the central role of interpersonal communication, health worker commitment, and family support in strengthening vaccine acceptance.

However, this study is limited to qualitative data from health workers' perspectives and does not include voices from the broader community or quantitative validation. Future studies should integrate multi-stakeholder perspectives and mixed methods to provide a more comprehensive understanding. Despite these limitations, the study underscores that the success of polio immunization depends not only on technical availability but also on how communities perceive innovation, risk, and social support within their cultural context.

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