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Case report

Optimization of basic immunization coverage at Paku Alam

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ABSTRACT

Background: Immunization plays a vital role in preventing infectious diseases, significantly reducing morbidity and mortality worldwide. Indonesia's national immunization program has been in place since 1956, focusing on vulnerable groups such as infants and pregnant women. However, despite these efforts, immunization rates in Paku Alam Village, South Kalimantan, remain suboptimal, with 90% of the target population yet to complete basic immunization in 2023. Factors contributing to this gap include misinformation, vaccine hesitancy, and low health literacy among the population.

Case presentation: In Paku Alam Village, only 27 out of the 30 targeted children for the 2023 immunization program received partial immunizations, with none completing the full schedule by mid-year. Misinformation spread via social media, coupled with fears about vaccine side effects, has fueled parental reluctance to immunize. Midwives and healthcare workers have struggled to combat these challenges due to a lack of effective communication tools and deep-rooted distrust in the healthcare system.

Discussion: Addressing the immunization gap in Paku Alam Village requires a multifaceted approach, including educational interventions tailored to parents. These interventions should include visual aids, interactive discussions, and community-based outreach to improve vaccine knowledge and trust. Additional strategies like offering incentives, collaborating with early childhood education centers, and strengthening healthcare worker training are also critical. Building trust through culturally appropriate messaging from trusted community leaders is essential to overcoming vaccine hesitancy.

Conclusion: The immunization program in Paku Alam Village faces challenges rooted in low parental knowledge and the spread of misinformation. However, targeted health education, collaboration between healthcare workers, schools, and community leaders, and incentivization strategies can improve immunization coverage. A comprehensive, multi-sectoral approach is required to meet the village's immunization goals.

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1. Background

Immunization is one of the most effective preventive measures in public health, contributing significantly to the reduction of morbidity and mortality from infectious diseases globally. Since its introduction in Indonesia in 1956, the national immunization program has aimed to safeguard vulnerable populations, including infants, school-age children, women of childbearing age, and pregnant women (Ministry of Health, 2022). Complete basic immunization consists of five vaccinations: Bacillus Calmette-Guerin (BCG) for tuberculosis, diphtheria-tetanus-pertussis-hepatitis B-Haemophilus influenzae type b (DPT-Hb-Hib), oral polio vaccine (OPV), hepatitis B, and measles (Ministry of Health, 2022). These vaccines provide crucial protection against diseases that can cause significant illness, disability, or death.

In South Kalimantan Province, particularly in Paku Alam Village, Banjar, South Kalimantan, Indonesia the immunization program has been implemented in line with national policy. However, coverage rates remain suboptimal, with the 2023 data showing that 90% of the target population has yet to complete the basic immunization schedule, despite the program being halfway through the year. Various factors contribute to this issue, including misinformation, parental anxiety, and low levels of health literacy among the population.

Education level has been identified as a key determinant of immunization uptake. Mothers with higher levels of education are more likely to complete their children's immunization schedules, while those with lower education levels are less likely to do so (Forshaw et al., 2017; Hendrick & Maslowsky, 2019; Jackson et al., 2017). Additionally, attitudes towards immunization play a significant role. Negative perceptions of vaccines, fueled by misinformation and distrust of healthcare systems, have become more prevalent, particularly with the increasing use of social media as a source of health information (Balgovind & Mohammadnezhad, 2022; Childers-Strawbridge et al., 2022).

The importance of community-based health education in improving immunization rates cannot be overstated. Evidence suggests that health education interventions, particularly those that utilize visual aids, discussions, and interactive tools, are effective in increasing knowledge and changing attitudes towards immunization (Balgovind & Mohammadnezhad, 2022). In Paku Alam Village, efforts are being made to address these challenges by providing targeted health education to parents of infants and pregnant women. These interventions aim to enhance understanding of

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the importance of immunization and alleviate the concerns that prevent parents from bringing their children to health services for vaccination.

2. Case presentation

The immunization program in Paku Alam Village has been met with several challenges. Although the target for 2023 was to immunize 30 infants and toddlers, only 27 children had received partial immunizations by the middle of the year, and none had completed the full schedule (Figure 1). This data reflects a substantial gap in the village's immunization efforts and highlights the influence of negative perceptions and misinformation, which often lead to vaccine hesitancy.

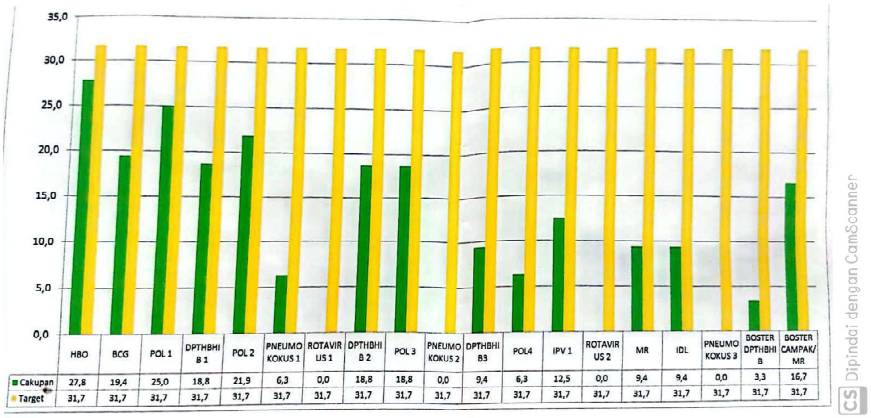

Figure 1. Immunization coverage in January to April 2023

The demographics of the respondents show that the majority of children who require immunization are under the age of one. The table below details the age distribution of the children in need of immunization:

Table 1. Respondent characteristics

Age	Frequency (n)	Percentage (%)
< 1 year	22	81,5
>1 year	5	18,5
Total	27	100,0

A key contributing factor to low immunization rates is a lack of awareness and understanding of the benefits of immunization. Mothers and caregivers expressed fear of potential side effects and doubt over the necessity of vaccinating against diseases they believed were no longer a threat (Balgovind & Mohammadnezhad, 2022; Bhattad & Pacifico, 2022). Misinformation from social

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media has further compounded these fears, contributing to vaccine hesitancy in the village (Galagali et al., 2022; Neely et al., 2022).

Midwives at the local Community Health Center have attempted to address these concerns through direct engagement with parents. However, these efforts have been met with limited success due to the deep-seated distrust in the health system and a lack of effective communication tools tailored to the local population's needs. Traditional one-on-one outreach methods have not been sufficient to counter the wave of misinformation that has spread through social media (Suarez-Lledo & Alvarez-Galvez, 2021)

3. Discussion

The immunization gap in Paku Alam Village underscores the need for a multifaceted approach to healthcare education, particularly in rural areas where traditional beliefs, limited access to information, and low education levels can impede public health initiatives (Balgovind & Mohammadnezhad, 2022). To bridge this gap, programs specifically targeting parents of children aged 0–1 year are crucial, included:

1) The importance of educating parents about basic immunization

Educating parents, especially those with children aged 0–1 year, is crucial for raising awareness about the benefits of immunization. Studies show that a mother's education level and attitudes significantly affect the success of immunization programs (Bhattad & Pacifico, 2022). This education can include using audiovisual media, leaflets, and interactive workshops to improve knowledge and compliance with basic immunizations.

2) Addressing parents' anxiety about immunization services

Many parents feel anxious about bringing their children to health facilities for immunization, either due to fear of vaccine side effects or a lack of accurate information. It is essential to provide the community with accurate information about the importance of immunization and to address their anxiety through open communication and active dialogue with healthcare workers (Feemster, 2020; Marotta & McNally, 2021).

3) Using incentives to motivate completion of immunization

Certificates of appreciation given to children who complete their immunizations can be an effective way to motivate parents. Incentives like these have been proven effective in increasing participation in immunization programs in several areas (Marotta & McNally, 2021; Sinuraya et al., 2022). This approach could be an additional strategy applied in Paku Alam Village.

4) Collaboration with early childhood education centers

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Requiring children to complete their basic immunizations before entering kindergarten is a strategy that has been proven effective in many countries. Such (Andreas et al., 2022; Cataldi et al., 2020). Collaborating with local schools and health authorities will be an important step in ensuring that children meet immunization requirements before starting school.

5) Strengthening the capacity of community health workers

Improving the skills and knowledge of healthcare workers, such as cadres and midwives, with culturally appropriate and locally based educational materials is necessary. With the right approach, healthcare workers can explain the benefits of immunization in ways that resonate with the community. Messages delivered by trusted community leaders can help rebuild trust in the immunization program (Gibson et al., 2023).

6) Using community interventions to increase immunization coverage

Community-based interventions involving direct education and outreach have been proven to increase maternal knowledge and immunization coverage. For example, a health program that involved hands-on workshops and practical demonstrations successfully improved understanding of childhood diseases and the importance of immunization (Lindstrand et al., 2021; Mantel & Cherian, 2020). This model can be applied in Paku Alam Village to address the gap in immunization coverage.

By implementing these steps, the basic immunization coverage in Paku Alam Village can be improved through a comprehensive approach that involves multiple stakeholders, from parents to healthcare workers and educational institutions.

4. Conclusion

The immunization program in Paku Alam Village faces significant challenges due to low parental knowledge, vaccine hesitancy, and the spread of misinformation. However, targeted health education interventions offer a promising solution to improving immunization coverage. By educating parents about the importance of vaccines and addressing their concerns, healthcare providers in Paku Alam Village can work towards achieving complete immunization coverage for all infants and toddlers.

The program also highlights the need for multi-sectoral collaboration, involving local schools, healthcare providers, and community leaders, to ensure that immunization becomes a community-wide priority. Incentivizing immunization through recognition and collaboration with educational institutions can create a culture that values and promotes health protection for children. Ultimately, improving immunization coverage in Paku Alam Village requires a comprehensive approach that

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addresses both the informational and emotional needs of parents, while also combating the spread of misinformation.

5. Conflict of interest

All authors declare no conflict of interest.

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