

Community-Based Educational Intervention to Increase Knowledge of Complete Basic Immunization in Mothers of Toddlers in Cot Karieng

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Abstract

The problem of incomplete basic immunization coverage among toddlers remains a public health challenge in several regions, including Cot Karieng Village. One of the main contributing factors is the low level of knowledge among mothers regarding the importance, benefits, and schedule of complete basic immunization. Insufficient knowledge can lead to delays or refusal of immunization, increasing the risk of vaccine-preventable diseases in children. This community service activity aimed to increase the knowledge of mothers of toddlers through a community-based educational intervention on complete basic immunization. The intervention was conducted using interactive lectures, group discussions, and participatory educational methods involving Posyandu cadres and village stakeholders. The activity took place in Cot Karieng Village and involved mothers who had toddlers as participants. The results showed an increase in mothers' understanding of complete basic immunization, including immunization schedules, benefits, and the risks of incomplete immunization. Participants demonstrated active involvement and were able to correctly restate the information provided after the intervention. This activity is expected to contribute to improving mothers' knowledge and to support sustainable efforts to increase complete basic immunization coverage in Cot Karieng Village.

Keywords: complete basic immunization, mothers of toddlers, health education, community-based intervention, community service

Introduction

In Cot Karieng Village, preliminary observations conducted through coordination with Posyandu cadres and village officials indicated that several mothers of toddlers had limited understanding of the importance of complete basic immunization. This condition was reflected in incomplete immunization records found on several Child Health Cards (KIA books) and mothers' uncertainty regarding immunization schedules and benefits. These findings indicate that inadequate maternal knowledge remains a key problem that requires targeted intervention at the community level.

Complete basic immunization for toddlers is one of the most effective public health interventions in reducing the morbidity and mortality rates due to infectious diseases. The World Health Organization (WHO) reports that immunization can prevent approximately 2–3 million deaths each year worldwide (WHO, 2023). In Indonesia, complete basic immunization has become a national priority program outlined in the National Medium-Term Development Plan (RPJMN) for the health sector.

However, immunization achievements are not yet evenly distributed across all regions. Basic Health Research (Risikesdas) data show that although there has been an increase in immunization coverage, there are still a number of provinces and districts that have not reached the national target of 95% (Kementerian Kesehatan RI, 2023). This condition indicates fundamental issues related not only to the availability of services but also to behavioral factors and community knowledge.

The knowledge factor of mothers of toddlers is proven to have a significant influence on the completeness of child immunization. Research by Putri et al. (2021) shows that mothers with good knowledge about immunization are 1.8 times more likely to complete their child's immunization compared to mothers with low knowledge. Low knowledge can be influenced by minimal access to information, the persistence of hoaxes related to immunization, and limited communication media that reach communities at the village level (Sari & Yuliana, 2022). Furthermore, other research also highlights the presence of cultural and religious belief factors that sometimes hinder the acceptance of immunization, thus requiring a more persuasive and community-needs-based educational approach (Rahman et al., 2020).

Although various immunization education programs have been implemented by government and non-governmental institutions, most still rely on one-way lecture methods. This approach often limits active participation and does not adequately address specific community needs. As a result, the impact on increasing maternal knowledge and behavioral change tends to be suboptimal. Recent studies emphasize that participatory and community-based educational approaches are more effective in promoting sustainable knowledge improvement and behavioral change.

The gap that arises is the lack of implementation of a participatory education model that integrates the Problem-Based Learning (PBL) method into basic immunization programs. However, the PBL approach allows the community, in this case, mothers of toddlers, not only to receive information but also to play a role in identifying problems, analyzing needs, and finding solutions. This model is believed to increase the sense of ownership over the implemented health program, thereby ensuring greater sustainability (Mustofa & Dewi, 2022).

Based on this description, this article aims to describe the implementation of community-based educational interventions in increasing the knowledge of mothers of toddlers about complete basic immunization in Cot Karieng Village. The novelty of this service lies in the application of the PBL method as an approach in educational activities. By actively involving the community, this intervention is expected to increase knowledge while encouraging behavioral changes in mothers of toddlers to complete their children's immunization, ultimately contributing to the increase in complete basic immunization coverage at the village level.

Methods

The duration of 24 days was determined to allow for gradual and repeated educational exposure, mentoring, and monitoring of parents of toddlers. This time frame enabled the implementation of sequential activities, including initial problem identification, delivery of educational sessions, follow-up home visits, and evaluation of changes in parental knowledge regarding complete basic immunization.

This community service activity employed a Participatory Action Research (PAR) design with a Personalized Health Education approach. The intervention was conducted in Gampong Cot Karieng, Blang Bintang District, Aceh Besar Regency, over a period of 24 days, from July 14 to August 6, 2025. The primary targets were parents of toddlers,

with the support of Posyandu cadres and village officials.

The stages of the activity consisted of five main phases. (1) problem identification was carried out during the first week through coordination with village authorities and Posyandu cadres, as well as examination of toddlers' immunization records to identify gaps in immunization status and parental knowledge. (2) planning of educational materials was conducted based on the identified needs, focusing on the definition, benefits, schedule, and importance of complete basic immunization. (3) the educational intervention was implemented over the second and third weeks through health promotion sessions, interactive discussions, cadre training, and door-to-door home visits. These activities were conducted two to three times per week to ensure repeated exposure and understanding among participants. (4) mentoring and monitoring were conducted using the "My Village My Home" media to remind parents about immunization schedules and reinforce key messages delivered during the educational sessions. (5) evaluation was carried out during the last week through pre-test and post-test assessments to measure changes in parents' knowledge regarding complete basic immunization. Data were collected using a structured immunization knowledge questionnaire and Posyandu records. Data analysis was performed descriptively by comparing pre-test and post-test knowledge scores.

Results

The educational intervention activity regarding complete basic immunization was conducted on 9 parents of toddlers in Gampong Cot Karieng. The level of respondent knowledge was measured before (pretest) and after (posttest) the intervention using a questionnaire containing 20 statements. The scores obtained represent the number of questions answered correctly, with a maximum value of 20.

Table 1. Respondent Knowledge Scores on Pretest and Posttest

Kode Responden	Skor Pretest	Skor Posttest
R1	8	12
R2	10	15
R3	7	12
R4	11	17
R5	9	15
R6	12	17
R7	10	14
R8	13	15
R9	9	15

(Data Primer, 2025)

The analysis results show an increase in the knowledge level of mothers of toddlers after receiving the community-based educational intervention. The average knowledge score increased from 9.89 in the pretest to 14.67 in the posttest, with an average increase of 4.78 points. All respondents showed an increase in scores, although the magnitude varied among individuals.

Average Pretest	Average Posttest	Increase
9,89	14,67	4,78

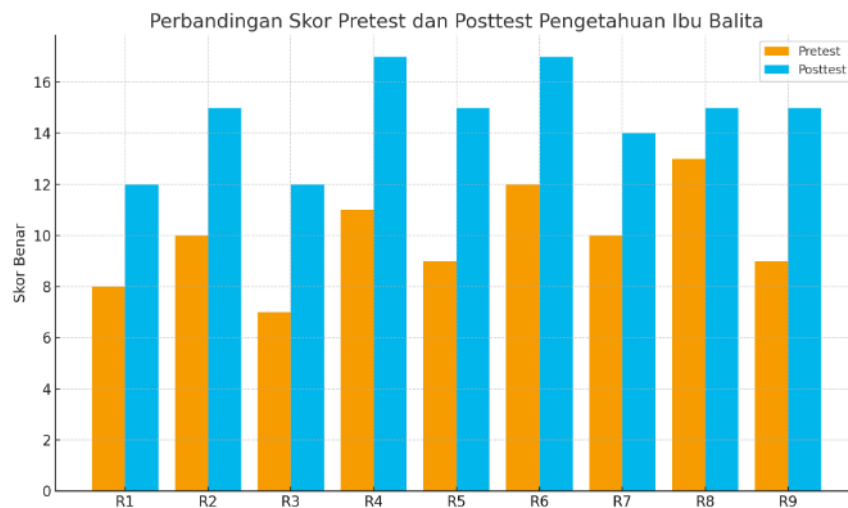


Figure 1. Chart of Knowledge Increase

Respondents with the highest increase were R4 and R6, each rising by 6 points and 5 points. Meanwhile, respondent R8 showed the smallest increase, only 2 points. This difference is influenced by the initial level of knowledge and individual factors such as previous experience related to immunization. Overall, this finding demonstrates that the educational approach with a participatory method can increase parents' knowledge about the importance of complete basic immunization for toddlers.

Discussion

The results of this community service show a significant increase in the knowledge level of mothers of toddlers regarding complete basic immunization after receiving community-based educational interventions. The average knowledge score increased from 9.89 in the pretest to 14.67 in the posttest. This average increase of 4.78 points indicates that the intervention conducted through health promotion, Posyandu cadre training, and door-to-door approach was effective in improving parents' understanding of the importance of complete basic immunization.

This finding is consistent with the study by Rahmawati et al. (2022) which states that direct health education to parents can increase awareness and adherence to the immunization schedule. Furthermore, Putri and Sari (2023) affirm that the use of educational media such as posters, leaflets, and interactive discussions is proven to increase community involvement in health programs. In the context of this activity, delivering materials using local language and including real examples from the experience of cadres in the field reinforced the understanding of mothers of toddlers.

The increase in knowledge scores varied among respondents. Respondents with lower initial scores, such as R3 and R1, showed a relatively large increase, 5 points and 4 points, respectively. Conversely, respondents with relatively high initial knowledge, such as R8, experienced a small increase (2 points). This phenomenon is consistent with the findings of Arifin et al. (2020), which state that individuals with a low initial level of knowledge tend to be more responsive to educational interventions than those who already have adequate knowledge. This emphasizes the importance of initial mapping of the target's knowledge condition so that educational materials can be better tailored to specific group needs.

The success of this activity was also influenced by the community-based approach used. The involvement of village figures, Posyandu cadres, and the support of the public health center (puskesmas) at every stage of the intervention made

a significant contribution to the program's effectiveness. This participatory model created a sense of ownership among the community towards the health program, making them more motivated to participate actively (Novianti & Dewi, 2021). Additionally, the door-to-door method allowed cadres to reach families who might have limitations in accessing the Posyandu, thereby minimizing access barriers.

However, although the results show an increase in knowledge, there are still limitations that need to be considered. First, measurement was only carried out through pretest and posttest questionnaires, which primarily reflects knowledge rather than actual behavioral change. The success of the immunization program is determined by direct practice, such as bringing children to the Posyandu according to schedule. Second, the number of respondents in this activity was limited (9 people), so the results cannot be generalized to a broader population. Nevertheless, these results still provide an important overview of the effectiveness of community-based educational approaches at the village level.

Overall, this discussion indicates that community-based educational intervention can be an effective strategy in improving parents' understanding of complete basic immunization. With the support of cadres and village officials, it is hoped that this increase in knowledge can be followed by a change in behavior and a sustained increase in toddler immunization coverage.

Conclusion

The community-based educational intervention in Cot Karieng Village successfully increased the knowledge of mothers of toddlers regarding complete basic immunization. The average knowledge score increased from 9.89 in the pretest to 14.67 in the posttest, demonstrating the effectiveness of interactive health promotion, Posyandu cadre training, and the door-to-door approach. The involvement of village figures, cadres, and the support of the public health center reinforced community participation and created a sense of ownership over the health program. Although the number of respondents was limited and the measurement focused on knowledge, this activity provides evidence that a participatory approach can be an effective strategy for increasing parental understanding of immunization. It is hoped that this increase in knowledge can encourage behavioral change and continuously increase complete basic immunization coverage for toddlers.

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