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Family-Centered Health Education on Childhood Immunization and Pneumonia Prevention at RSUD Dr. Chasbullah Abdulmadjid, Bekasi

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Abstract

Background: Childhood pneumonia remains an important cause of morbidity and mortality among children under five years of age. Prevention requires age-appropriate immunization, reduction of household risk factors, recognition of danger signs, and timely care-seeking. Family-centered education can strengthen caregivers' capacity to interpret health information and apply preventive practices.
Aims: This community service activity aimed to strengthen parents' and family members' understanding of childhood immunization and pneumonia prevention in the Pediatric Outpatient Clinic of RSUD dr. Chasbullah Abdulmadjid Kota Bekasi.
Methods: A descriptive community service approach was implemented on 4 May 2026. Four parents or family members accompanying pediatric patients participated through accidental sampling. The intervention consisted of a 15-minute family-centered education session using lecture, discussion, a question-and-answer, and poster-supported communication. Immediate evaluation used a 10-item knowledge questionnaire administered before and after education, supplemented by observation, semi-structured interviews, and participant feedback.
Results: The four participants had pretest scores of 6, 5, 4, and 7 and posttest scores of 9, 8, 8, and 9, respectively, corresponding to a mean increase from 5.50 to 8.50 points (mean change +3.00). Participants also demonstrated better explanations of pneumonia symptoms and danger signs, immunization, smoke-free environments, hygiene, nutrition, and appropriate care-seeking.
Conclusion: Brief family-centered education was feasible in a pediatric outpatient setting and was associated with immediate improvement in knowledge. Because the activity involved only four participants and lacked a comparison group and long-term follow-up, the findings should be interpreted as descriptive evidence of immediate learning rather than proof of intervention effectiveness.

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INTRODUCTION

Pneumonia is an acute infection of the lungs and remains a major cause of illness and death among children, particularly those under five years of age (Bray et al., 2024; Kertih et al., 2023). Clinical manifestations may include cough and/or difficulty breathing, fast breathing, lower chest-wall indrawing, fever, poor feeding, weakness, and other danger signs (Geyer et al., 2015). The burden of childhood pneumonia is shaped by interacting infectious, nutritional, environmental, social, and health-system factors. Household tobacco-smoke exposure, indoor air pollution, overcrowding, inadequate hygiene, malnutrition, and barriers to timely health services may increase risk (World Health Organization [WHO], 2022; Sutriana et al., 2021; UNICEF, 2025).

Immunization is a core component of pneumonia prevention. Vaccination against Haemophilus influenzae type b, pneumococcus, measles, and pertussis contributes to prevention of vaccine-preventable respiratory infections (WHO, 2021, 2022). Evidence from a systematic review indicates that pneumococcal conjugate vaccination is associated with reductions in childhood

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pneumonia hospitalization, supporting the importance of age-appropriate vaccination (Reyburn et al., 2023; Hartana et al., 2026; Rao et al., 2025). In Indonesia, pneumococcal conjugate vaccine was incorporated into the national routine immunization programme beginning in 2022, increasing the relevance of caregiver education regarding vaccination schedules and completion (WHO Indonesia & UNICEF Indonesia, 2022).

Family participation is central to childhood pneumonia prevention because parents and caregivers influence vaccination decisions, household smoke exposure, hygiene, nutrition, symptom monitoring, follow-up, and care-seeking (Aventin et al., 2021; Moe-Byrne et al., 2022). Reviews of family-centered care indicate that communication, partnership, parent education, and active participation can improve the family experience and selected knowledge or participation outcomes, although intervention effects vary according to design and implementation quality (Hodgson et al., 2024; Seniwati et al., 2023; McCarthy & Guerin, 2022). Parental health literacy is also relevant to the capacity to understand health information and translate it into child-care practices (Zaidman et al., 2023; Csima et al., 2026). Communication should be adapted to family needs and literacy levels. Visual aids can help organize complex messages and support comprehension and recall (Adam et al., 2021; Nurindah et al., 2025). Systematic reviews indicate that pictorial and other visual health-information approaches can improve comprehension and selected health outcomes, although effects are heterogeneous and depend on intervention design and context (Schubbe et al., 2020; Mbanda et al., 2021). Therefore, a brief poster-supported session combined with dialogue and a question-and-answer session was considered appropriate for the outpatient setting.

Local problem identification was used to establish the immediate context of the activity. According to hospital service records supplied for this community service manuscript, RSUD dr. Chasbullah Abdulmadjid Kota Bekasi recorded 245 pediatric pneumonia inpatient cases in 2025, with pneumonia ranked sixth among the ten most frequently reported inpatient diseases. Preliminary observations in the Pediatric Outpatient Clinic also indicated variation in family understanding of pneumonia prevention, danger signs, and immunization, including misconceptions that required clarification. These institutional findings are interpreted as local service information and are not presented as a population-based prevalence estimate.

Based on the local situation, the activity was designed as a focused health-promotion intervention at a routine point of contact for families. The educational package emphasized: (1) recognition of pneumonia symptoms and danger signs; (2) complete age-appropriate immunization; (3) reduction of cigarette-smoke exposure and improvement of the home environment; (4) hygiene and nutrition; and (5) timely health-care seeking. The practical contribution of this activity was therefore the integration of family-centered education into routine pediatric outpatient services rather than a controlled test of intervention efficacy.

METHOD

This community service activity used a descriptive design with a family-centered health-education intervention. It was conducted on 4 May 2026 at the Pediatric Outpatient Clinic of RSUD dr. Chasbullah Abdulmadjid Kota Bekasi. The target population was parents and family members accompanying pediatric patients. The accessible population consisted of those present during the activity who met the eligibility criteria. Participants were recruited using convenience sampling, and four participants completed the education and immediate evaluation. Participants were eligible when they were parents or family members accompanying a child, could communicate in Indonesian, were willing to participate, and were available for both the education and evaluation sessions. The intervention lasted approximately 15 minutes and combined a short lecture, interactive discussion, a question-and-answer session, and poster-supported communication. The facilitator used the discussion to identify misconceptions and adapt explanations to participants' questions.

The educational content covered the definition and causes of pneumonia; signs, symptoms, and danger signs; risk factors; complete age-appropriate immunization; environmental hygiene; smoke-free behavior; nutrition; prevention; and appropriate health-care seeking. Participants were encouraged to relate the messages to daily family practices and to ask questions about situations they had encountered. Immediate learning outcomes were assessed with a 10-item multiple-choice

knowledge questionnaire covering five domains: definition and characteristics; signs, symptoms, and danger signs; risk factors; immunization; and household prevention and health-care seeking. Each correct answer was awarded 1 point and each incorrect or unanswered item received 0 points, giving a score range of 0–10. The questionnaire was administered immediately before and after the education. Additional implementation information was collected through the facilitator's observation, semi-structured interviews, and participant feedback on clarity, usefulness of the poster, relevance, opportunity to ask questions, and intention to apply preventive practices.

Data were analyzed descriptively. Individual pretest and posttest scores, mean scores, and mean change were calculated. Qualitative observations and interview findings were summarized by topic. No inferential statistical testing was conducted because of the very small sample size and the descriptive purpose of the activity. Institutional permission and participant consent should be documented in the activity records according to the requirements of the host institution.

RESULTS AND DISCUSSION

Results

Local Situation and Problem Identification

Hospital service records indicated 245 pediatric pneumonia inpatient cases in 2025, placing pneumonia sixth among the ten most frequently reported inpatient diseases. Preliminary observations among the participating families showed variation in recognition of symptoms, prevention measures, and immunization, with misconceptions requiring clarification. These local findings provided the immediate rationale for delivering brief family-centered education in the pediatric outpatient setting.

Table 1. Local situation analysis and preliminary findings in the pediatric outpatient setting

Indicator	Finding
Pediatric pneumonia inpatient cases, 2025	245 cases
Rank among the ten most frequently reported inpatient diseases	6th
Family participants	4 participants
Participants recognizing ≥3 common pneumonia symptoms before education	3/4 (75%)
Participants mentioning ≥3 pneumonia prevention measures before education	2/4 (50%)
Participants correctly understanding the importance of complete age-appropriate immunization	2/4 (50%)
Participants with at least one identified misconception	2/4 (50%)
Participants requiring clarification regarding prevention/immunization	4/4 (100%)
Need for family health education	Identified

Participant Characteristics

Table 2. Characteristics of participants in the activity

Code	Age	Sex	Relationship to child	Education	Child immunization status
P1	29 years	Female	Mother	Senior high school	Complete
P2	34 years	Male	Father	Diploma	Complete
P3	52 years	Female	Grandmother	Junior high school	Incomplete
P4	26 years	Female	Mother	Senior high school	Complete

Changes in Knowledge

Table 3. Pretest and posttest knowledge scores reported in the current activity draft. The underlying four questionnaires should be retained as source records for journal submission and audit.

Participant	Pretest (0–10)	Posttest (0–10)	Change
P1	6	9	+3
P2	5	8	+3
P3	4	8	+4
P4	7	9	+2
Mean	5.50	8.50	+3.00

Implementation of Family-Centered Health Education

The education session was conducted at the Pediatric Outpatient Clinic on 4 May 2026 and involved four parents or family members accompanying pediatric patients. The approximately 15-minute session used a lecture, interactive discussion, a question-and-answer session, and poster-supported communication. The seven principal messages were: (1) definition of pneumonia; (2) causes and risk factors; (3) signs and symptoms; (4) importance of complete age-appropriate immunization; (5) environmental hygiene and smoke-free behavior; (6) recognition of danger signs; and (7) prevention and appropriate health-care seeking. The interactive component was important because participants were not only provided with information but also invited to explain what they already knew, ask questions, and relate the messages to daily child-care situations. This allowed the facilitator to identify misconceptions and provide immediate clarification.

Discussion

The central finding was a descriptive improvement in short-term knowledge following the family-centered education. Mean knowledge increased from 5.50 before education to 8.50 after education, an average increase of 3.00 points on a 10-point scale. With only four participants and no comparison group, this result should not be interpreted as a causal estimate of intervention effectiveness. It does, however, provide a practical indication that a brief education encounter can be used to assess and address immediate information needs in a pediatric outpatient context. The finding is consistent with evidence that family-centered approaches emphasize communication, partnership, and active participation rather than positioning caregivers as passive recipients of information (Cabrera et al., 2018). Systematic reviews have reported benefits in areas such as parental knowledge, participation, communication, and family experience, although the magnitude and consistency of effects differ between interventions (Hodgson et al., 2024; Seniwati et al., 2023; McCarthy & Guerin, 2022). The present activity adds a service-delivery perspective by applying the approach within a routine outpatient waiting-area or service-contact context.

The local problem identification strengthens the rationale for the intervention. Rather than relying only on national or global pneumonia statistics, the activity was triggered by hospital-level service information and direct preliminary observations among families attending the pediatric clinic. The 245 recorded pediatric pneumonia inpatient cases in 2025 and the observed variation in caregiver understanding provide a context-specific basis for health education. Because these are institutional service data, they should be described as local program evidence and should not be generalized to the wider Bekasi population. Immunization was emphasized because vaccination is a central prevention strategy for vaccine-preventable respiratory infections. Evidence supports the contribution of pneumococcal conjugate vaccination to reductions in childhood pneumonia hospitalization (Reyburn et al., 2023). Indonesian policy developments that incorporated PCV into routine immunization further reinforce the need for families to understand age-appropriate vaccination and completion (WHO Indonesia & UNICEF Indonesia, 2022). Studies of parental vaccine attitudes also show that confidence, beliefs, information, and communication can influence vaccination decisions (Dyda et al., 2020; Obohwemu et al., 2022; Olson et al., 2020).

The focus on household smoke exposure, environmental hygiene, nutrition, and breastfeeding was also evidence-informed. Indonesian evidence has identified incomplete immunization, indoor air pollution, non-exclusive breastfeeding, low birth weight, and severe wasting among factors associated with childhood pneumonia (Sutriana et al., 2021). Systematic reviews likewise support the importance of environmental exposures and tobacco-smoke reduction for respiratory health in children (Adaji et al., 2019; Radó et al., 2021). These determinants are especially relevant to family-centered promotion because many preventive actions occur within the household. The poster was used as a communication aid rather than being tested as a separate intervention. Evidence suggests that pictorial and visual materials can improve comprehension and recall, especially when health information is complex or literacy levels vary (Schubbe et al., 2020; Mbanda et al., 2021). In this activity, the poster complemented dialogue, questions, and clarification, which is consistent with a health-promotion approach that combines accessible information with interpersonal communication.

For service development, the activity suggests a feasible model for integrating brief family education into pediatric outpatient workflows. A practical package could include a short risk check,

three to five priority messages, teach-back questions, visual reinforcement, and a clear care-seeking or referral message. Future implementation should move beyond immediate knowledge measurement by assessing whether caregivers adopt smoke-free practices, maintain age-appropriate immunization, recognize danger signs earlier, and seek appropriate care when needed.

Implications

The findings of this community service activity highlight the importance of integrating family-centered health education into routine pediatric outpatient services. Brief educational sessions supported by interactive discussions and visual materials may provide an accessible approach to improving caregivers' immediate understanding of childhood immunization and pneumonia prevention. Health professionals, particularly nurses, can use routine outpatient visits as opportunities to identify misconceptions, reinforce age-appropriate immunization, promote smoke-free household environments, encourage hygiene and adequate nutrition, and improve caregivers' recognition of pneumonia danger signs (Laari & Duma, 2023; Zeydani et al., 2023). This approach may also strengthen family participation in preventive child health practices and support the development of more responsive health promotion programs within healthcare facilities.

Research Contribution

This community service activity contributes practical evidence on the implementation of brief family-centered health education in a pediatric outpatient setting. It demonstrates how a combination of lectures, interactive discussions, question-and-answer sessions, and poster-supported communication can be integrated into routine healthcare services to address family knowledge gaps regarding childhood immunization and pneumonia prevention. Furthermore, this activity provides a context-specific example of translating health promotion concepts into practical educational interventions that encourage caregiver participation and support preventive child health practices. The findings may serve as a preliminary reference for developing and evaluating similar community-based health education programs in other healthcare settings.

Limitations

This community service activity has several limitations. First, the number of participants was very small, involving only four parents or family members, thereby limiting the generalizability of the findings. Second, participants were recruited using accidental sampling, which may not adequately represent the broader population of caregivers attending the pediatric outpatient clinic. Third, the evaluation was conducted immediately before and after the educational intervention without a comparison group or long-term follow-up. Therefore, the observed improvement in knowledge cannot be attributed solely to the intervention, nor can it establish whether the acquired knowledge was retained or translated into actual preventive behaviors. Additionally, the evaluation primarily focused on knowledge scores and did not objectively measure changes in household practices, immunization adherence, or healthcare-seeking behavior.

Suggestions

Future community service activities should involve a larger number of participants from diverse family backgrounds to obtain a broader understanding of caregivers' educational needs. Health education programs should be implemented regularly and integrated into routine pediatric outpatient services, with educational materials adapted to caregivers' literacy levels and specific concerns (Supartiningsih et al., 2025). In addition to pretest and posttest assessments, future activities should incorporate follow-up evaluations to determine whether improvements in knowledge are sustained and translated into preventive practices, including complete age-appropriate immunization, smoke-free household behavior, improved hygiene, and timely recognition of pneumonia danger signs (Lusambili et al., 2021; Perinpanathan et al., 2023). Collaboration among healthcare professionals, hospitals, and families is also recommended to strengthen the continuity and sustainability of childhood pneumonia prevention and health promotion programs.

CONCLUSION

Family-centered health education on childhood immunization and pneumonia prevention was feasible to implement as a brief intervention in the Pediatric Outpatient Clinic of RSUD dr. Chasbullah Abdulmadjid Kota Bekasi. Among four participants, mean knowledge increased from 5.50 to 8.50 points, with a mean change of +3.00 points immediately after education. Participants also demonstrated improved explanations of pneumonia symptoms and danger signs, immunization, smoke-free environments, hygiene, nutrition, and appropriate health-care seeking behavior. The activity provides descriptive evidence supporting the feasibility of integrating brief family-centered health education into routine pediatric services. However, the small sample, lack of a comparison group, and absence of long-term follow-up mean that the findings should not be interpreted as proof of intervention effectiveness.

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AUTHOR CONTRIBUTION STATEMENT

Safrudin Safrudin contributed to conceptualization, supervision, methodological guidance, manuscript review, and validation. Andi Sari Bunga and Wahyudin Rajab contributed to activity implementation, data collection, manuscript preparation, and revision. The final manuscript was reviewed and approved by all authors.

AI DISCLOSURE STATEMENT

The authors used OpenAI ChatGPT to assist with language editing, grammatical improvement, and manuscript organization. The authors reviewed and edited the manuscript and take responsibility for the accuracy, integrity, and originality of the submitted work.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest related to this community service activity or its publication.

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