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An Overview of the Immunization Behavior of the Suku Anak Dalam Community Along the Central Sumatra Line

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Abstract
Toddlers have a high level of vulnerability to various diseases. The purpose of this study was to determine the description of immunization behavior and the determinants of immunization behavior of the Suku Anak Dalam community along Lintas Tengah Sumatra. The study used a Cross-Sectional design. Conducted in Bungo Regency and Sarolangun Regency from November 2024 to June 2025. Total sampling technique with a total of 33 mothers of toddlers (0-59 months) in the SAD community. Data were collected through interviews using a questionnaire. Data analysis was descriptive. All mothers of toddlers in the SAD community did not immunize. Some determinants are lack of knowledge (97%), negative attitude (100%), family income <UMK (87.9%), husband does not support (90.9%), access to health facilities is difficult (49.5%), negative customary norms (81.8%) and not exposed to media (42.4%). It is necessary to educate and provide health services that directly reach the SAD community and interpersonal approaches using local languages.

Keywords: Imunization Behavior, Toodlers, Suku Anak Dalam

INTRODUCTION

Young children (toddlers) have a more vulnerable immune system compared to adults. Illnesses in toddlers, if not addressed promptly, can lead to physical and mental health problems, disabilities, or even death (Astrea et al., 2023). In primary healthcare services, one of the promotive and preventive efforts aimed at maintaining child health is immunization. Immunization is an effort to actively induce or enhance an individual's immunity against a particular disease so that if exposed to the disease in the future, they will either not become ill or only experience mild symptoms (Kemenkes RI, 2017). The lack of complete immunization can result in increased morbidity and mortality from diseases such as tuberculosis, poliomyelitis, measles, hepatitis B, diphtheria, pertussis, and neonatal tetanus (Yundri et al., 2017). Based on data from the World Health Organization (WHO) in 2022 there are around 14.3 million children worldwide who do not receive complete immunization, even some of them do not receive immunization at all (WHO, 2023). In Indonesia, complete basic immunization coverage based on Basic Health Research (RISKESDAS) reached 59.2% in 2013, decreasing to 57.9% in 2018 (RISKESDAS, 2018; RISKESDAS, 2013).

Based on the Indonesian Health Profile, complete basic immunization coverage in 2021 reached 84.2%, but this figure still did not meet the 2021 Strategic Plan target of 93.6%. In 2022, complete basic immunization coverage increased to 99.6%, which successfully exceeded the Strategic Plan target of 90%. However, in 2023, it decreased to 95.4%, and has not yet reached the Strategic Plan target of 100% (Kemenkes RI, 2023). Based on the Jambi Province Health Profile, the coverage of Complete Basic Immunization (IDL) in 2019 reached 102.06%, decreased to 95.28% in 2020 and decreased again to 94.2% in 2021. In 2022, IDL coverage in Jambi Province increased to 96.47% and has exceeded the target of the Jambi Provincial Health Office Strategic Plan of 76% (Dinkes Provinsi Jambi, 2021; Dinkes Provinsi Jambi, 2022). Although the coverage of basic immunization in the general public is quite high and has reached the target of the Jambi Provincial Health Office strategic plan, in Jambi Province there are remote indigenous groups, namely Suku Anak Dalam (SAD).

Suku Anak Dalam (SAD) are often far from access to health services. Poverty and underdevelopment make SAD vulnerable to various health problems.(Saputra et al., 2018) Mortality

and morbidity rates are quite high due to infectious diseases and the detection of non-communicable diseases, including nutritional problems in toddlers, adolescents and women of childbearing age such as malnutrition, stunting and anemia (Asparian et al., 2022; Haris et al., 2019; Saputra et al., 2018).

The role of the mother is very important in the success of the immunization program. The provision of immunization is related to maternal behavior. Based on Lawrence Green's PRECEDE-PROCEED theory, a person's behavior related to health can be determined by predisposing factors, namely the knowledge and attitudes of the person concerned. In addition, the availability of facilities and affordability to health services are enabling factors for behavior. The role of family support and support from health workers are reinforcing factors in the occurrence of a behavior (Notoatmodjo, 2018).

Factors associated with the completeness of immunization in children include knowledge, number of children, health worker attitudes, family support, distance from home, education, maternal attitudes, motivation and socio-culture or beliefs in the community (Rahmi et al., 2022). Mothers' knowledge and attitudes may influence their decision to refuse basic immunization for children under five years of age (Siswanto et al., 2020). Some mothers have the perception that immunization is not the best way to prevent disease, and is even considered to bring disease to children, so they refuse immunization.

The Suku Anak Dalam (SAD) community lives semi-nomadic and sedentary lives in the forest and inland areas along the Sumatra Central Line. The closed lifestyle, limited information, and limited access to transportation and health services, cause this community to lag behind in the utilization of preventive health services such as immunization (Siti & Sidiq, 2020). Previous studies have shown that low levels of education, knowledge, and the strong influence of local culture and beliefs are important factors that hinder immunization coverage in these communities (Guspianto et al., 2020). Research on Remote Indigenous Communities (KAT) highlights that their relatively primitive social, economic, cultural, and environmental conditions make them vulnerable to various health issues, including challenges in accessing health services. These communities often face difficulties in accessing health services due to factors such as challenging travel routes, scattered living groups, and traditional practices like "*melangun*"(Siti & Sidiq, 2020). For instance, a study on the health conditions of Remote Indigenous Communities (KAT) in the Mentawai Islands found that operational policies for health services are generally the same for remote and non-remote areas, but remote areas require more focused attention (Siska, 2018). Key health program priorities for KAT include immunization, and challenges in service delivery often include frequent earthquakes, bad weather, transportation difficulties, and issues with community empowerment-based activities (Muhammad Zulfan Hakim, 2019).

Another study focusing on the perceptions of the Suku Anak Dalam (SAD) community towards health services noted that while SAD members generally have a positive perception, there is a need for more effective communication from health workers and the empowerment of SAD cadres to assist health personnel. Increasing the frequency of mobile health services (pusling) is also crucial to reach all SAD members and improve their health outcomes. Furthermore, efforts to empower remote indigenous communities to alleviate poverty also face challenges due to limitations in policy, access, and education, which can hinder their ability to meet daily needs and access social protection and guarantees provided by the government (Sari et al., 2019). This condition is a challenge for health workers in socializing the importance of immunization among SAD.

The problem of low immunization coverage in SAD communities is at risk of increasing the incidence of immunization-preventable diseases (PD3I). Therefore, a deeper understanding of the determinants of immunization behavior in SAD communities is needed so that interventions can be more targeted. This study aims to determine the description of immunization behavior in the Suku Anak Dalam (SAD) community along the Sumatra Central Line and identify its determinants. The results of this study are expected to be a basis for consideration in the preparation of policy strategies

and local culture-based approaches to improve immunization coverage in remote indigenous communities, especially Suku Anak Dalam.

RESEARCH METHODS

The study used quantitative methods, with a cross-sectional design. According to (Notoatmodjo, 2010), a quantitative method is a research approach that emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys. Meanwhile, cross-sectional research is a study to study the dynamics of the correlation between risk factors and effects, by means of approaches, observations, or data collection. Cross-sectional research only observes once and measurements are made of subject variables at the time of the study (Notoatmodjo, 2010). This study used primary and secondary data types and then collected data in different districts, namely in Dwi Karya Bakti Village (Bungo District) and Sukajadi Village, Pulau Lintang (Sarolangun District) in November 2024–June 2025. The study population was mothers of toddlers (0–59 months), the sampling technique used total sampling with a sample size of 33 people. Inclusion criteria are mothers who have toddlers and can communicate directly or translated by officers at the Dwi Karya Bakti SAD Community, Sukajadi and Pulau Lintang.

Exclusion criteria were unable to be found during the data collection process or could not be found after three visits (bermalom in the forest / melangon) and the husband was divorced / had died when the toddler was more than 12 months old. The independent variables analyzed were knowledge, attitude, husband support, family income, access to health facilities, media exposure, and norms/customs while the dependent variable was immunization behavior. Data collection was done by interview through questionnaires. Univariate data analysis with descriptive and bivariate using the chi-square test. This study has received ethical clearance by the Ethics Commission of the Faculty of Medicine and Health Sciences, Jambi University with Number 1123/UN21.8/PT.01.04/2025 on April 17, 2025.

RESULTS AND DISCUSSION

Respondent Characteristics

This study was conducted in 3 Suku Anak Dalam communities with a total of 33 respondents. In the Suku Anak Dalam (SAD) community, most respondents were Christian (48.5%). The majority of marital status was married, which amounted to 90.9%. The education level of the respondents was mostly out of school (87.9%), as was the education of the head of the family, who was also dominated by those who did not receive formal education, at 81.8%. The main occupation of the head of household in the SAD community was hunting and gathering, at 63.6%. A total of 45.5% of respondents had a monthly family income between Rp1,500,000 and Rp2,500,000. In addition, most of the household members, 51.5%, consisted of five or more people. (Table 1)

Table 1. Demographic Characteristics of the Suku Anak Dalam Community (n=33)

Characteristics	n	%
Religion		
Islam	10	30,3
Christian	16	48,5
Tribal Religion	7	21,2
Marriage Status		
Married	30	90,9
Divorced	3	9,1

Respondent Education		
No Formal Education	29	87,9
Not Completed Elementary School	1	3,0
Completed Elementary School	1	3,0
Not Completed Junior High School	1	3,0
Completed from Senior High School	1	3,0
Head of Household Education		
No Formal Education	27	81,8
Not Completed Elementary School	2	6,1
Not Commpleted Junior High School	2	6,1
Completed Senior High School	2	6,1
Respondent Occupation		
Not Working	29	87,9
Hunter and Gatherer	4	12,1
Head of Household Occupation		
Farmer	10	30,3
Laborer	1	3,0
Hunter and Gatherer	21	63,6
Pastor	1	3,0
Family Income per Month		
< Rp. 500.000	1	3,0
>= Rp. 500.000 - Rp. 1.000.000	4	12,1
Rp. 1.000.000 - Rp 1.500.000	2	6,1
Rp. 1.500.000 - Rp. 2.500.000	15	45,5
> Rp. 2.500.000 - Rp. 5.000.000	11	33,3
Rp. 5.000.000 - Rp. 7.500.000		
Number of Household Members		
< 5 Persons	16	48,5
≥ 5 Persons	17	51,5

Source: Primary Data Processed 2025

The age of respondents in this study ranged from 20 years to 59 years, with an average age (Mean) of 35.45 years in the SAD community. (Table 2)

Table 2: Age Characteristics of Respondents in the SAD Community

Variabel	*Min*	*Max*	*Mean*	*95% CI*	*Median*	SD
Age	20	59	35,45	31,65-39,26	34	10,739

Source: Primary Data Processed 2025

Overview of Determinants of Immunization Behavior of SAD Community

Most of the SAD community (97.0%) had poor knowledge about immunization. All respondents (100%) showed a negative attitude towards immunization. In addition, the majority of the SAD community (87.9%) had an income below the minimum wage. Husband support for immunization in the SAD community was low, with only 9.1% supporting immunization. Regarding access to health facilities, 48.5% of the SAD community stated that it was difficult to access them. Regarding immunization behavior, all toddlers in the SAD community (100%) were not immunized.

In terms of norms/customs, most of the SAD community (81.8%) still followed norms/customs that did not involve health workers in childbirth. Finally, 42.4% of the SAD community was not exposed to information about immunization through the media. (table 3)

Table 3. Overview of Determinants of Immunization Behavior of SAD Community

Variabel	n	%
Knowledge		
Poor	32	97,0
Good	1	3,0
Attitude		
Negative	33	100,0
Positive	0	0,0
Family Income		
< RMW (Rp. 3.037.121)	29	87,9
≥ RMW (Rp. 3.037.121)	4	12,1
Husband's Support		
Not Supportive	30	90,9
Supports	3	9,1
Access to Health Facilities		
Difficullt	16	48,5
Easy	17	51,5
Immunization Behavior		
No	33	100,0
Yes	0	0,0
Norms/Customs		
Negative	27	81,8
Positive	6	18,2
Media Exposure		
Not Exposed	14	42,4
Exposed	19	57,6

Source: Primary Data Processed 2025

The results of this study showed that all mothers of toddlers from the SAD community did not immunize their children. The basic immunization target for children under five years of age in 2024 set in the 2019-2024 National Medium-Term Development Plan (RPJMN) in Indonesia, is 90% for children aged 12-23 months and 80% for infants aged 0-11 months. In the SAD community, there are still various obstacles in the implementation of clean and healthy living behavior, including in terms of immunization. The implementation of 10 indicators of Clean and Healthy Living Behavior (PHBS) in the SAD community is still very low, one of which is related to the behavior of bringing children to Posyandu or health facilities (Ridwan et al., 2023).

Mothers of SAD toddlers with poor knowledge do not know the types of basic immunizations and the timing of basic immunizations. Maternal knowledge is one of the factors that facilitate (predisposing factor) to the occurrence of behavior change, especially immunizing children. Knowledge becomes the foundation in the process of thinking and weighing things to find answers to questions that exist (Syahailatua & Kartini, 2020). The role of mothers is very important in providing basic immunization to infants, because most of the responsibility for childcare lies with parents, especially mothers. The lack of maternal knowledge in the SAD community can be influenced by the education factor of mothers who are not in school (81.85). Mothers with low education tend to have limited access to health information, including the importance of immunization and its schedule (Saleha & Fitria, 2021).

All mothers of toddlers in the SAD community have a negative attitude towards immunization. Attitude is defined as a closed response to a stimulus, so this attitude cannot be seen directly but needs

to be interpreted first from the closed behavior shown (Pawiliyah et al., 2020). In the SAD community, many mothers stated that their children were still healthy without immunization, fearing that their children would become hot or feverish if immunized, indicating that they still had a low understanding of the importance of immunization and the risks of diseases that can be prevented by immunization and side effects after immunization.

Most of the SAD community has an income below the minimum wage (Rp. 3,037,121). Theoretically, economic status has a close relationship with health. Sufficient family income allows individuals to access nutritious food, decent housing, and adequate health services. Conversely, low economic conditions can reduce a family's ability to access health information and facilities (Manan & Lubis, 2022). There are still infants who do not get complete immunization in families with income <UMK due to lack of information, lack of family support and other things.

The majority of husbands in the SAD community were less supportive about immunization. Husband's support for immunization is not only limited to financial and physical, but also includes emotional and motivational support (Masrifah, 2022). To increase immunization coverage in the SAD community, a family-based approach is needed that involves husbands as the target of education. Health education is not enough only for mothers but must include all family members who have influence in decision making, especially in indigenous communities such as Suku Anak Dalam.

Most SAD communities still find access to health facilities difficult. Access to health services can be seen in terms of the availability of means of transportation, the travel time needed to reach the place of health services, the cost of travel to the place of health services, the distance from home to the place of health services, and others (Yundri et al., 2017). Although immunization is a freely available health service, limited access remains a barrier especially in marginalized communities such as SAD. Geographical location, lack of private transportation, dependence on weather or road conditions, and lack of information on immunization service schedules are often factors that hinder immunization delivery (Guspianto et al., 2020). There is a need for more flexible community-based approaches such as mobile services or mobile posyandu, which can reach SAD communities in a sustainable manner.

In the SAD community, there are still quite a lot of mothers of toddlers who have not been exposed to media about immunization. The media has an important role as a source of health information that can influence individual perceptions, attitudes and decisions in taking preventive measures (Palmer, 2022). Need to provide information in visual or audio form that is easy to understand, using local language, and utilizing community-based media such as educational video screenings at the SAD settlement hall.

Most SAD communities still give birth without the help of health workers. In Lawrence Green's PRECEDE-PROCEED theory, norms or customs are included in the reinforcing factors. Strong cultural norms are often a challenge in health promotion, especially in remote areas and indigenous communities. Limited information and experience, as well as trust in traditional birth attendants or traditional methods, reinforce non-medical delivery practices among SAD communities (Guspianto et al., 2019).

Low immunization behavior in the SAD community is also influenced by the poor perception of health services. Although SAD communities have positive perceptions of health services, communication limitations, low understanding, and geographical barriers cause this acceptance to be inconsistent with daily behavior (Sari et al., 2019). In addition, cultural norms and strong traditional beliefs also play a major role in shaping health behaviors in the SAD community. The SAD community tends to believe more in traditional medicine, jampi, and ancestral practices, and strongly upholds customs which may influence the decision not to follow modern health programs such as immunization (Guspianto et al., 2020).

The reasons for not immunizing toddlers in the SAD community in this study were mostly fear of the child becoming feverish, not allowed by the family and health facilities are far away. The main and most dominant reasons for the SAD community were fear of fever 78.8% and not allowed by the

family 54.5%. (Table 5)

Table 5. Overview of Reasons for Not Immunizing Children in the SAD Community (n=33)

No	Reason	n	%
1	Forgetting / Not knowing the Immunization Schedule	1	3,0
2	Not knowing the posyandu schedule	1	3,0
3	Health facilities are far away	9	27,3
4	Transportation is difficult/expensive	7	21,2
5	The child is often / currently sick	6	18,2
6	No family permission	18	54,5
7	Fear of Heat/Fever	26	78,8
8	Not due for immunization	1	3,0

Source: Primary Data Processed 2025.

Most mothers are afraid that after their children are immunized they will experience fever, fussiness, or illness so they are reluctant to carry out complete basic immunization (Nanda Kharin et al., 2021). There is still a perception in the SAD community that immunization will only make their children sick. Some parents expressed fear of their children having a fever after immunization and preferred not to bring their children to the posyandu due to long distances or no permission from their husbands (Nur Afni et al., 2023). The refusal of immunization is due to fear of side effects such as fever and the prohibition of extended family or traditional leaders (Siswanto et al., 2020).

The results of this study indicate that commonly used health interventions are still not effective in SAD communities, thus requiring a different approach. An approach that is more in line with the circumstances and culture of the local community is needed to increase understanding of the importance of health including immunization. This study has limitations in sample size which may magnify the effect of chance variation. A relatively small or unrepresentative sample size has the potential to increase sampling error, which in turn impacts the reliability of the findings. Further research with more robust designs and larger samples is needed to ensure that the results obtained truly reflect real relationships, rather than simply being the result of chance variation.

CONCLUSION

In the SAD community, the majority of mothers had poor knowledge about immunization, negative attitudes towards immunization, the majority of family income was below the minimum wage, low husband support, mostly negative norms/customs and almost all had difficult access to health facilities and no toddlers were immunized by their mothers. It is necessary to educate and provide health services that directly reach the SAD community and interpersonal approaches using local languages.

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