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The Role of Suku Anak Dalam (SAD) Malaria Control Efforts in Jebak Village, Jambi Province, Indonesia

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ABSTRACT

Malaria is a significant public health problem in various regions, especially in developing countries. Suku Anak Dalam (SAD) is a tribe that lives in the jungle by foraging for forest products. SAD always lives in the forest and carries out activities such as hunting and living in the wilderness or in the garden. This research aims to highlight the importance of strengthening the role of SAD in malaria control efforts through a sustainable and integrated approach in public health programs. This research method is an observational type with an ecological study method, a cross-sectional design was carried out by involving interviews and observational, data were analyzed using the chi-square statistical test, this study as a population is the community living in the Senami forest of Jebak village as many as 40 people as a sample and the total population, this study evaluated knowledge, attitudes, and practices of malaria control. The results show that SAD has a varied understanding of malaria, with most showing high concern for control efforts. The active involvement of SAD in counseling and the implementation of preventive practices, such as the use of mosquito nets and antimalarial drugs, has increased awareness and reduced the prevalence of this disease. However, challenges such as limited access to health resources and environmental changes that affect malaria vectors remain obstacles that must be overcome.

INTRODUCTION

Malaria remains an infectious disease that poses a global health burden, especially in areas with limited resources. Although efforts have been made to control malaria, including through the use of insecticides, antimalarial drugs, and vector eradication efforts, the number of cases and deaths from malaria remains high, especially in developing countries (Aida et al., 2023; Sugiarto et al., 2022; Lordemus, 2022; Aria Arina et al., 2023). Based on the Jambi Provincial Health Service Profile as of 2022, there are 7 (seven) districts/cities that have eliminated Malaria, namely Sungai Penuh City, Bungo Regency, Muaro Jambi Regency, East Tanjung Jabung Regency, and West Tanjung Jabung Regency, with an API below 1%, but there are still indigenous cases (local transmission) in 4 (four) districts, such as Batanghari Regency, Sarolangun Regency, Tebo Regency, and Merangin Regency (Dinas Kesehatan Provinsi Jambi, 2022). One important aspect in efforts to control malaria is community participation. The community plays a significant role in understanding, preventing, and controlling this disease. Local experience and knowledge of the environment, human behavior, and traditional health practices are key to finding practical solutions to reduce the burden of malaria.

The community has the capacity to be an agent of change in malaria control efforts. They can provide information about the presence of malaria cases, assist in prevention activities such as the use of insecticide-treated bed nets, and adopt healthy behaviors to reduce the risk of transmission. In addition, active community participation in outreach and monitoring programs can strengthen the public health system and increase the effectiveness of control efforts (Obeagu & Obeagu, 2024; Benjamin-Chung et al., 2024; Salas et al., 2021; Madayanti et al., 2022). Malaria research has been widely conducted; however, research in remote indigenous communities that observes the participation and role of Suku Anak Dalam in malaria control has not been conducted. This study,

therefore, reveals the role of SAD. For Suku Anak Dalam (SAD), the role in malaria control is complex. It cannot be equated with that of urban communities, as socio-cultural factors, lifestyle, and limited access to resources influence it. Their role is divided into two main aspects, namely: the role in prevention based on tradition and the role as participants in modern health programs.

Malaria can cause death if it is not treated or if the treatment given is not effective. This is a disease caused by a parasite that is transmitted through the bites of infected Anopheles mosquitoes. If left untreated, this parasite can attack red blood cells in the human body, causing symptoms such as fever, chills, nausea, vomiting, headaches, and weakness (Arisco et al., 2024; Terças-Trettel et al., 2019; Khofifah Sidik et al., 2022). Malaria can develop into more severe forms, such as severe malaria, which can cause serious complications, including anemia, kidney failure, brain damage, and even death. Factors that influence the severity of the disease include the type of parasite causing the infection, the individual's body's ability to fight the infection, and access to appropriate medical care (Daily et al., 2022; Caldas et al., 2023; Wantim et al., 2021).

Although much progress has been made in the prevention and treatment of malaria, there are still regions of the world where the disease remains a serious public health problem, especially in resource-limited countries in Sub-Saharan Africa and parts of Asia. Prevention efforts, such as vector control, use of insecticide-treated bed nets, and timely treatment, are critical to reducing malaria mortality (Wetzler et al., 2022; Guntur et al., 2022). Therefore, it is important to understand better the role of communities in malaria control efforts, including the factors that influence their participation, the challenges they face, and strategies to increase their involvement in malaria control programs. Through a community-based and sustainable approach, it is hoped that malaria control efforts will become more effective and sustainable in reducing the burden of this disease (Pasangka et al., 2023; Castellanos et al., 2016; Chow et al., 2023). His research will contribute to malaria control efforts among indigenous tribes, examining their participation and role.

METHOD

The study employed a quantitative research design with a cross-sectional approach. The study was conducted from June to July 2024 with a sample size of 40 respondents. The study was approved by the Research Ethics Commission of the Jambi Ministry of Health Polytechnic, with Ethical Exemption No. LB.02.06/2/276/2025. The sampling technique was total sampling. Data collection techniques were employed through observation, interviews, and the review of supporting documents, utilizing a checklist assessment sheet. The analysis technique used in this study was a descriptive qualitative approach. High knowledge was determined if respondents were able to answer correctly >76%, while low knowledge (insufficient) if the correct answer was below <75%. Likewise, support from SAD is determined using an assessment of 75% of correct answers as good support and less than 75% as poor support.

RESULTS

Table 1. Frequency distribution respondents

Variable	f	%
Age		
>40	21	53
<40	19	47
Knowledge		
High	24	60
Low	16	40
Malaria prevention		
Good	31	77,5
Bad	9	22,5
Use of mosquito nets		
Good	29	72,5
Not good	11	27,5

Table 1 shows that the age distribution is dominated by individuals over 40 years old, with a percentage of 21 (53%), and is predominantly female, high knowledge is held by as many as 24 (60%) respondents, while 16 (40%) respondents also have low knowledge, malaria prevention is good, as many as 31 (77.5%) respondents still have poor prevention, while 9 (22.5%) respondents also have poor prevention, indicating that they do not use mosquito nets regularly.

Table 2. Use of mosquito nets in SAD

The role of SAD	Use of mosquito nets		Total	X^2	P	C
	Good	Not good				
Support	24	5	29			
Does not support	4	7	11	37,9	0,042	0,018

Table 2 shows can be seen that of the 40 SAD residents who played a supporting role, 5 people (12.5%) used mosquito nets effectively, while 24 people (60%) used them properly. Data from 40 residents with an unsupportive role but good use of mosquito nets was 4 people (10%), and the SAD role was not supportive, but the use of mosquito nets was not good for 7 people (17.5%). To determine the relationship between the role of SAD and the use of mosquito nets, the Chi-square test was employed. There was a relationship between the SAD role of support in the use of effective mosquito nets and Policy in decision-making. This test is used because the research uses 2×2 tables and data research (n) 40 respondents. From the table above, the values are obtained, Continuity Correction of 3.83 with asymptotic (p)=0.042.

DISCUSSION

Malaria remains a significant infectious disease in many countries, especially in areas with limited resources. Research and literature have extensively examined the role of the community in malaria control efforts and the factors that influence their participation (Susilawati & Prayatna, 2023; Ueno et al., 2021). This finding aligns with previous research by Siagian et al. (2020) in Kolongan Village, North Minahasa, where good knowledge was prevalent, and 16 (40%) respondents still demonstrated low knowledge. In contrast, Ward VI Taas had no respondents with poor knowledge. The high level of knowledge is because malaria has occurred in the village of Jebak, so with an understanding of knowledge about malaria, it is necessary to be aware of the factors that influence the process of spreading malaria, namely, people who do not care about environmental sanitation and the presence of bionomics around their homes, so that mosquitoes can breed easily. Increased knowledge does not always lead to changes in behavior. Knowledge is indeed an important factor, but it does not underlie changes in health. Although individuals are aware of malaria, they may not necessarily want to implement prevention and eradication efforts. Likewise, with social and cultural factors in society (Athalia et al., 2023).

Community perceptions and attitudes towards malaria, as highlighted in several studies, underscore the importance of understanding these perceptions and attitudes towards Malaria (Hasyim et al., 2023). The results of interviews with the SAD community understand that malaria is from mouth to mouth and that malaria can cause fever and pain. However, there are still 10% who do not understand, because those concerned say fever is something that SAD usually feels. According to Aria Arina et al. (2023), people's understanding and attitudes towards this disease influence their acceptance of health services, including the use of insecticide-treated bed nets. Showed that perceptions of the threat of malaria can influence people's compliance with preventive measures (Hasyim et al., 2023).

The participation of the SAD community in the malaria control program involves using anti-mosquito coils or lotion when they visit the garden. There are still 12 people (30%) who do not use mosquito nets when sleeping because they find the environment too hot and stifling, which prevents them from sleeping soundly. According to research, the role of the community in efforts to eradicate malaria using mosquito nets is that it can prevent and transmit malaria. They highlight the importance of active community participation in vector monitoring and

implementation of control strategies. Also emphasized the importance of community-based surveillance in identifying the habitat of malaria vector larvae. Factors influencing Community participation: Conducted research on factors influencing community participation in malaria control programs in Ethiopia. Community participation in malaria control programs: when they go to their gardens, they use mosquito coils or lotion; however, 12 people (30%) still do not use mosquito nets when sleeping because they feel hot and stuffy, making it difficult for them to sleep soundly. According to research on the role of communities in malaria eradication efforts involving the use of mosquito nets, this can prevent malaria transmission. They emphasize the importance of active community participation in vector monitoring, particularly in environments with standing water, as well as the implementation of effective control strategies. They also emphasise the importance of community-based monitoring in identifying the habitats of malaria vector larvae. Factors influencing community participation: research was conducted on the factors influencing the presence of standing water environments, which necessitate community participation in malaria control programmes in Ethiopia (Workineh et al., 2021).

They found that aspects such as access to health services, socioeconomic status, and education play an important role in determining community participation. The role of tribal children in malaria control: studied the contribution of tribal children to malaria control efforts in Tanzania. They highlighted the importance of local knowledge and traditional practices in preventing the disease as well as the challenges faced in addressing malaria at the community level (Shayo et al., 2015). The role of the SAD community in controlling malaria is crucial to achieving the goal of eliminating and eradicating this disease. The role of the family, especially household contact members, is essential in preventing the occurrence of malaria. Physical environmental factors must also be seriously considered, especially in the surrounding living environment; the family must maintain the cleanliness and health of the environment. The role of the family is crucial in reducing contact with mosquito bites, such as those caused by Anopheles, by using mosquito nets or insecticide-treated mosquito nets, and by installing nets in houses (Sangadjisowohy & Sunuh, 2023). The limitations of this study include access to the Anak Dalam tribe, which resides in the jungle, and the education regarding malaria prevention that relies on mantras and beliefs.

CONCLUSION

The role of the SAD community in controlling malaria is vital to achieving the goal of eliminating and eradicating this disease. A good level of knowledge about malaria and a positive attitude towards preventive measures indicate that outreach and education efforts have had a positive impact in increasing public awareness. However, there are still challenges in increasing compliance with antimalarial treatment and strengthening the role of children's tribes in controlling this disease.

AUTHOR'S DECLARATION

Authors' contributions and responsibilities

SF: Formulated the research problem, designed the research framework, collected data, processed the data, reviewed the discussion; **SA:** Examined the results, discussion, and references, reviewed the discussion and data analysis, reviewed the results, checked grammar, and reviewed the discussion.

Availability of data and materials

All data are available from the authors.

Competing interests

The authors declare no competing interests.

REFERENCES

Aida, P.N., Astuti, F.D. and Azka, A. (2023). Keanekaragaman Spesies dan Bionomik Anopheles spp. pada Daerah Endemis Malaria di Indonesia. *ASPIRATOR* - Journal of Vector-Borne Diseases Studies, 14(2). 89–104. https://doi.org/10.58623/aspirator.v14i2.11.

Aria Arina, C. et al. (2023). Community Empowerment in Household Clean and Healthy Behavior (PHBS), especially for Prevention and Early Action on Infectious Diseases and Cerebrocardiovascular Diseases in Pekan Village, Tanjung Beringin District, Serdang Bedagai. *Pengabdian Kepada Masyarakat, 8*(2), pp. 852–860. https://doi.org/10.32734/abdimastalenta.v8i2.9589

Arisco, N.J. et al. (2024). Ecological change increases malaria risk in the Brazilian Amazon. *Proceedings of the National Academy of Sciences of the United States of America, 121*(44). https://doi.org/10.1073/pnas.2409583121.

Athalia, Z. F., Rombot, D. V., & Monintja, T. C. N. (2023). Pengetahuan, sikap, dan tindakan masyarakat tentang malaria di Lingkungan VI Kelurahan Taas Kecamatan Tikala Kota Manado. *Jurnal Kedokteran Komunitas dan Tropik*, 477-482.

Benjamin-Chung, J. et al. (2024). Extension of efficacy range for targeted malaria-elimination interventions due to spillover effects. *Nature Medicine* [Preprint]. https://doi.org/10.1038/s41591-024-03134-z.

Caldas, R.J.C. et al. (2023). Incidence Of Malaria Among Indigenous People Associated With The Presence of Artisanal Mining. *Revista Gaucha de Enfermagem, 44*. https://doi.org/10.1590/1983-1447.2023.20220098.en.

Castellanos, A., Chaparro-Narváez, P., Morales-Plaza, C. D., Alzate, A., Padilla, J., Arévalo, M., & Herrera, S. (2016). Malaria in gold-mining areas in Colombia. *Memorias do Instituto Oswaldo Cruz*, *111*(1), 59-66. https://doi.org/10.1590/0074-02760150382.

Chow, W.K. et al. (2023). Seasonal Assessment On The Effects Of Time Of Night, Temperature And Humidity On The Biting Profile Of Anopheles Farauti In North Queensland, Australia Using a Population Naive To Malaria Vector Control Pressures. *Malaria Journal, 22*(1). https://doi.org/10.1186/s12936-023-04495-5.

Daily, J. P., Minuti, A., & Khan, N. (2022). Diagnosis, treatment, and prevention of malaria in the US: a review. *Jama*, *328*(5), 460-471. https://doi.org/10.1001/jama.2022.12366.

Dinas Kesehatan Provinsi Jambi. (2022). *Profil Dinas Kesehatan Propinsi Jambi Tahun 2022*. Jambi.

Guntur, R.D., Kingsley, J. & Amirul Islam, F.M. (2022). Malaria treatment-seeking behaviour and its associated factors: A cross-sectional study in rural East Nusa Tenggara Province, Indonesia. *PLoS ONE*, *17*(2 February). https://doi.org/10.1371/journal.pone.0263178.

Hasyim, H. et al. (2023). Risk Factors Of Malaria Transmission In Mining Workers In Muara Enim, South Sumatra, Indonesia. *Scientific Reports, 13*(1). https://doi.org/10.1038/s41598-023-40418-9.

Khofifah Sidik, N., Asrina, A. and Syam, N. (2022). Perilaku Pencarian Pengobatan Penyakit Malaria Pada Masyarakat Kampung Muari Kecamatan Oransbari Kabupaten Manokwari Selatan. *Window Of Public Health Journal, 3*(4).

Lordemus, S. (2022). Does Aid for Malaria Increase with Exposure to Malaria Risk? Evidence from Mining Sites in the D.R.Congo. *Oxford Bulletin of Economics and Statistics, 84*(4). https://doi.org/10.1111/obes.12483.

Madayanti, S., Raharjo, M. and Purwanto, H. (2022). Faktor Risiko Yang Mempengaruhi Kejadian Malaria di Wilayah Distrik Jayapura Selatan Kota Jayapura. *Jurnal Kesehatan Lingkungan Indonesia*, *21*(3). https://doi.org/10.14710/jkli.21.3.358-365.

Obeagu, E. I., & Obeagu, G. U. (2024). Understanding Hematocrit Fluctuations in HIV-Malaria Coinfection for Improved Management. *Elite Journal of Public Health*, *2*(1), 22-34.

Pasangka, O., Bre Boli, E. and Astuti, D. (2023). Edukasi Pencegahan, Pemeriksaan, Dan Pengobatan Penyakit Malaria Di Puskesmas Abepura. *Ebamukai, 1*(1).

Salas, D. et al. (2021). Malaria In Populations With Mining Occupation, Colombia, 2012-2018. *Biomedica*, *41*. https://doi.org/10.7705/BIOMEDICA.5899.

Sangadjisowohy, I. & Sunuh, H.S. (2023). Penggunaan Obat Nyamuk dan Kejadian Malaria di Kelurahan Sangadji Kota Ternate Use of Mosquito Repellent and the Incidence of Malaria

in Sangadji Village, Ternate City. *Jurnal Promotif Preventif, 6*(2). http://journal.unpacti.ac.id/index.php/JPP.

Shayo, E.H. et al. (2015). Social Determinants Of Malaria And Health Care Seeking Patterns Among Rice Farming And Pastoral Communities In Kilosa District In Central Tanzania. *Acta Tropica*, *144*. https://doi.org/https://doi.org/10.1016/j.actatropica.2015.01.003.

Siagian IET, Pijoh VD, Turalaki GLA (2020). Perilaku masyarakat Desa Kolongan Kecamatan Talawaan Kabupaten Minahasa Utara terhadap penyakit malaria di masa pandemi COVID-19. *BIOVERITAS J Biol, 01*(02).

Sugiarto, S.R. et al. (2022). The History And Current Epidemiology Of Malaria In Kalimantan, Indonesia. *Malaria Journal, 21*(1). https://doi.org/10.1186/s12936-022-04366-5.

Susilawati and prayatna, salsabila (2023). Analisis Faktor Yang Berpengaruh Terhadap Kejadian Malaria Di Wilayah Pesisir Berdasarkan Teori Hl. *Blum's Journal of Health and Medical Research, 3*(3), pp. 235–241.

Terças-Trettel, A.C.P. et al. (2019). Malaria And Hantavirus Pulmonary Syndrome In Gold Mining In The Amazon Region, Brazil. *International Journal of Environmental Research and Public Health, 16*(10). https://doi.org/10.3390/ijerph16101852.

Ueno, T.M.R.L. et al. (2021). Socio-Epidemiological Features And Spatial Distribution Of Malaria In An Area Under Mining Activity In The Brazilian Amazon Region. *International Journal Of Environmental Research And Public Health, 18*(19). https://doi.org/10.3390/ijerph181910384.

Wantim, M.N. et al. (2021). The Utilisation Of Satellite Imagery And Community Perceptions To Assess The Impacts Of Sea Encroachment In The West Coast Of Cameroon At Limbe. *Journal Of The Cameroon Academy Of Sciences, 16*(3). https://doi.org/10.4314/jcas.v16i3.

Wetzler, E.A. et al. (2022). Changing Transmission Dynamics Among Migrant, Indigenous And Mining Populations In a Malaria Hotspot In Northern Brazil: 2016 to 2020. *Malaria Journal, 21*(1). https://doi.org/10.1186/s12936-022-04141-6.

Workineh L, Lakew M, Dires S, et al. (2021). Prevalence of Malaria and Associated Factors Among Children Attending Health Institutions at South Gondar Zone, Northwest Ethiopia: A Cross-Sectional Study. *Glob Pediatr Heal*, *8*. https://doi.org/10.1177/2333794X211059107