



**PEER EDUCATIONAL SUPPORT FOR THE ELDERLY OF
MALARIA PREVENTION IN ENDEMIC AREAS**

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ABSTRACT

Malaria cases that occur in the elderly are still a problem that requires a solution. The involvement of various parties plays an important role in efforts to overcome this problem, including peers. In Biak district,

Papua, the phenomenon needs to be studied. The aim of this research is to provide evidence of social support for elderly education by their peers. This quantitative research with a purposive sampling design was conducted in Mamoribo, West Biak district, Papua. The population was 70 respondents. Inclusion criteria were elderly people over 60 years, residents of Mamoribo-Biak, family members or friends. The exclusion criteria were not being elderly, nor being willing to provide social support. Secondary data were documents of reputable journals. The results show majority of respondents are active farmers (45%) and housewives (25%), willing to participate was 45%. Respondents who had been exposed to malaria were 82.9%. The average attendance rate was 92.9% and showed good indicators (>70%). The biggest challenge was physical condition (31%). The conclusion was that steps to prevent malaria as recommended by experts taken by elderly respondents were 0%, and the level of social support for peer education programs to prevent malaria has the potential to participate in eradication programs.

Keywords: Education elderly, malaria, Mamoribo.

ABSTRAK

Kasus malaria yang terjadi pada lansia masih menjadi masalah yang membutuhkan solusi. Keterlibatan berbagai pihak memegang peranan penting dalam upaya penanggulangannya termasuk dan teman sebaya. Di kabupaten Biak, Papua fenomena tersebut perlu dikaji. Tujuan penelitian ini adalah untuk memberikan bukti dukungan sosial pendidikan lansia oleh teman sebayanya. Penelitian kuantitatif dengan desain purposive sampling ini dilakukan di Mamoribo, kabupaten Biak Barat, Papua. Populasinya 70 responden. Kriteria inklusi adalah lansia di atas 60 tahun, penduduk Mamoribo-Biak, anggota keluarga atau teman. Kriteria eksklusinya adalah bukan lansia, atau yang tidak bersedia memberikan dukungan. Data sekunder merupakan dokumen lembaga negara resmi dan jurnal bereputasi. Hasilnya menunjukkan mayoritas responden adalah petani aktif (45%) dan ibu rumah tangga (25%). Bersedia berpartisipasi dalam program ini adalah 45%. Sedangkan responden yang pernah terkena malaria n=58 (82,9%). Tingkat kehadiran rata-rata 92,9% dan menunjukkan indikator yang baik (>70%). Tantangan terbesarnya adalah kondisi fisik (31%). Kesimpulannya adalah langkah pencegahan malaria sebagaimana rekomendasi para ahli yang dilakukan oleh responden lansia 0 % dan tingkat dukungan sosial terhadap program pendidikan sebaya untuk mencegah malaria berpotensi untuk berpartisipasi dalam program pemberantasan malaria.

Kata kunci: Malaria, Mamoribo, pendidikan lansia.

INTRODUCTION

For the elderly, malaria is still a serious public health problem because of the high morbidity and mortality rates, especially in areas outside Java and Bali (Ipa et al., 2020). The Ministry of Health noted that 304,607 cases of malaria occurred in Indonesia in 2021 (Sroyer et al., 2022). This number increased by 19.9% from the previous year which amounted to 254,055 cases (Istiana, Hadi, et al., 2021). Seeing the trend, cases of malaria in the country have increased in the last four years (Kemenkes RI., 2022). The highest increase in malaria cases occurred last year (Rizkyansah & Rahayu, 2021). Malaria is an infectious disease that is still a health problem in several parts of Indonesia, especially the eastern region (Ipa et al., 2020). In Indonesia, the highest morbidity rate due to malaria is in Papua (Budiarti et al., 2020). The figure is even far below the national and other provincial averages, reaching 64.03 per 1,000 population (Manangsang et al., 2021). Other provinces that recorded the highest malaria API were West Papua (7.38), East Nusa Tenggara (2.37), and Maluku (0.72) (Rahmasari et al., 2021). Annual Parasite Incidence (API) per 1,000 population is the proportion of malaria-positive patients to the at-risk population in the region with a constant of 1,000 (Istiana, Prenggono, et al., 2021). The problem of endemic malaria in Papua is never out of the spotlight of researchers, considering that the prevalence rate is still high and the causes are complex, requiring the

involvement of many parties. Research conducted by Watofa et al, for example, highlights the involvement of health students and people on the shores of Lake Sentani (Watofa et al., 2018). Moreover, geographically, Papua's conditions are relatively difficult, which creates a big challenge for implementing health programs. (Irma Kue et al., 2023; Mursid & Nurjazuli, 2021). Papua is also known as an area prone to various endemic cases (Andini et al., 2022; Santosa et al., 2023).

The prevalence and incidence of malaria cases in Papua are high, including in Biak District where malaria is included in 10 categories of infectious diseases (Debora et al., 2018). This means that the threat of malaria outbreaks in Indonesia, especially Papua is still potential (Ouédraogo et al., 2018; Yang et al., 2020). The hidden danger of malaria, apart from causing epidemics, also lowers human immunity, especially among infants and the elderly (Dewi Chusniasih. Anisa Putri. Sobirin, 2019; Utami, 2018). Conditions when and where the occurrence of malaria outbreaks generally occur beyond human expectations (Oyibo et al., 2021). Various studies recommend that one of the wisest solutions is to remain alert to malaria outbreaks by always carrying out malaria prevention on an ongoing basis (Schwalbe & Wahl, 2020). The government has made several efforts to eliminate the disease, including advocating between regional heads, distributing mosquito nets, providing antimalarial drugs, to expanding early case detection (Rizkyansah & Rahayu, 2021). Papua Province has launched activities for the Acceleration of Malaria Elimination and Acceleration of SBS in Papua Province to realize a Malaria-Free Indonesia in 2030 and Indonesia to Stop Open Defecation (SBS) in 2028 to pursue the SDGs target for Universal Access to Sanitation by 2030 (Manangsang et al., 2021). An accelerated effort is needed to reduce malaria cases as soon as possible, especially in the 9 regencies/cities so that the malaria situation in Papua can be better controlled and controlled towards malaria elimination faster than what has been determined. Accelerating the reduction of malaria cases can be achieved through movement by finding and treating cases thoroughly as well as taking efforts to prevent transmission by carrying out vector control (nets, spraying, environmental management) and community behavior (Utami, 2018). To obtain optimal results the movement must be carried out in a total, simultaneous, integrated, massive, and continuous manner. Reducing malaria cases and the absence of indigenous transmission (transmission in local areas) is one of the conditions for malaria elimination and environmental modification, one of which is by increasing access to sanitation can reduce malaria cases (Yang et al., 2020). Recent research on malaria in vulnerable areas such as Papua recommends that community involvement and the role of cadres is the key to success in bringing access to health services closer and encouraging communities to become agents of change, creating healthy lifestyles, and supporting the achievement of malaria elimination and acceleration of SBS (Watofa et al., 2018). In essence, what differentiates this research from previous research related to malaria cases in Papua, especially Biak district, is the focus of this research on the elderly.

This quantitative research is part of the community service held in Biak Numfor, specifically in Mamoribo and Ransbari Villages. West Biak includes tropical climates. The health condition of the elderly in Mamoribo village based on the results of data collection by semester VI students and lecturers in 2020 in the context of community nursing clinical practice activities, shows that 5-10% of the elderly in the six months before the data collection had experienced clinical symptoms of malaria, but there were no health service facilities elderly such as elderly *Posyandu* or *Posbindu*. By conducting an initial assessment, efforts can be made to prevent malaria at all levels of society, especially among the elderly. This study aimed to prove the role of social support education for

elderly human peers in malaria prevention. The implication of the study can be used to improve the prevention and eradication program of malaria, including will be an added value for the research concerning malaria.

METHODS

This community service-based research used a quantitative method with a purposive sampling design. The community service activities consisted of social support through non formal education for elderly peers as partners in preventing and eradicating malaria. The program was conducted at the multipurpose hall for the Lahai Roy church building and the Mamoribo village hall in the West Biak of Papua province in Indonesia. The target of this study was 70 elderly people (n=70) in Mamoribo village, West Biak district, started from 17 February to 12 March 2021. The research began by providing an explanation to respondents in Mamoribo village and offering their willingness to be involved in the research by signing a questionnaire. The explanation includes their rights including not wishing to continue involvement in the research. The results of direct data collection from these respondents became the primary research data. . The secondary data were obtained from official documents from the Ministry of Health and the World Health Organization, as well as reputable journals in published in Indonesian and English languages which were filtered according to topics for the last five years (2017-2022). The variables consisted of demographic data, willingness to join the program, level of support for participants to join the program, evaluation of the frequency of education, and future challenges. The inclusion criteria were elderly over 60 years old, residents of Mamoribo-Biak, family members or friends, and those willing to provide social support education. The exclusion criteria were not being elderly, people living outside Mamoribo, or being elderly but not willing to provide social support related to malaria. This research analysis was carried out univariately, where the data analysis technique for one variable was carried out independently, and each variable was analyzed without being linked to other variables. After that, it is complemented by descriptive analysis which aims to describe the conditions of the phenomenon being studied.

RESULTS AND DISCUSSION

Demographic Data

Table 1: Demographic Data to Support Malaria Education in Mamoribo

Sex	Categories				Education				
	Pre-Elderly < 60 yrs	Elderly > 60 yrs	N	%	Elementary	Junior High School	Senior High School	N	%
Male	13	18	31	55	18	15	7	40	35
Female	12	17	29	45	8	12	10	30	65
F	25	55	70	100	26	27	17	70	100

The data above shows that the male elderly population (n=11 or 55%) is more than the female (n=9 or 45%), with the majority having an elementary education (n=12 or 60%).

Willingness to Participate in the Program and have a background of having been exposed to malaria

Table 2: Willingness to Participate in Social Support Education Programs Based on Occupational Background and have been exposed to malaria

No	Jobs	Willingness			N	%	Exposure	
		Yes	No	Not sure			Yes	No
1	Businessman	3	0	0	3	7.1	12	0
2	Farmers	10	0	21	31	45.0	19	0
3	Fisherman	3	0	3	6	21.4	8	0
4	Housewife	12	0	13	25	24.3	7	12
5	Retirement F	5	0	0	5	7.1	4	0
		33	0	37	70	100	58	12

The table above shows that based on their work background, many participants (n=37 or 52.8%) still doubted they would be able to take part in the activities, especially farmers and fishermen. There were 33 people (n=33 or 47.1%) who were sure they were willing to take part in the elderly peer education program, who were also farmers (n=21 or 30%) and housewives (n=13 or 18.6%). While respondents who had been exposed n=58 (82.9%).

Level of Participant Support following the Program

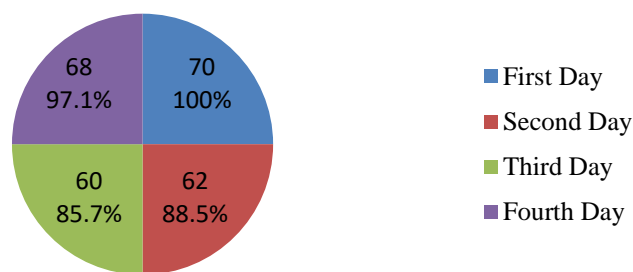


Chart 1: Level of Support based on Participant Attendance in training

Diagram 1 above shows the 100% participant attendance rate in attending the debriefing training who were following the program.

Evaluation of Education Frequency Based on Partnership Activities

Table 3: Evaluation of Frequency and Indicators of Participant Attendance in Activities

No	Program Activity	Attendance		Presence Indicator		
		Present	absent	good >70%	Fair 50-70%	Bad <50%
1	First	70	0	X	-	-

2	Second	62	8	X	-	-
3	Third	60	10	X	-	-
4	Fourth	68	2	X	-	-
Averages		65	5	100	-	-

The table above indicates the level of participation of participants in providing good program support with an indicator of more than 70% of the five programs held, with an average attendance of n = 65 (92.9%).

Future Challenges

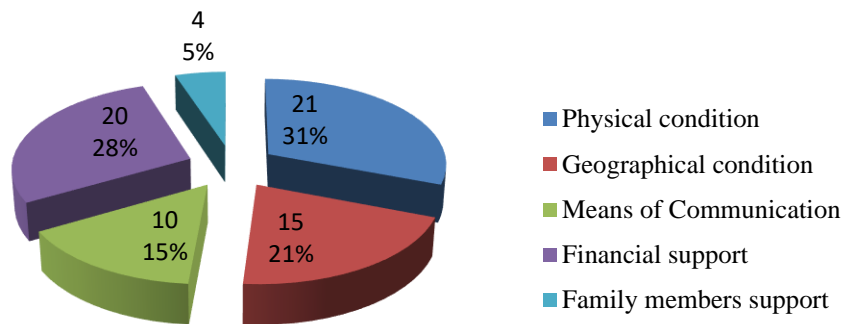


Diagram 2: Future Challenges of the Program

The data above shows that the biggest challenges in the implementation are the client's physical condition (31%), geographical condition (21%), and financial (28%).

Self-care Prevention Categories in Endemic Area

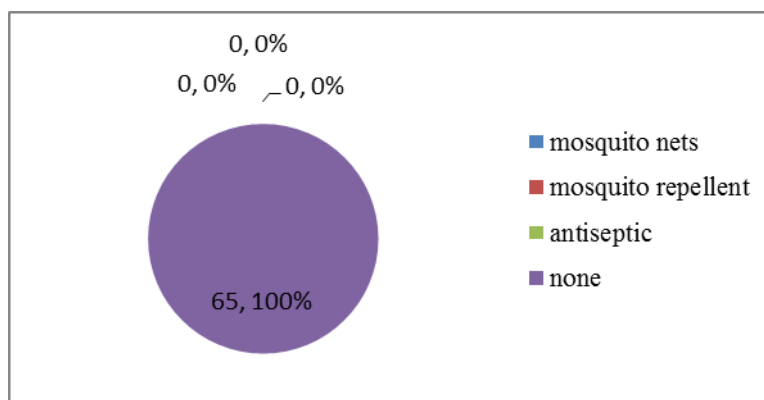


Diagram 3: Self-care Prevention among Participants

The diagram above shows that there are no malaria prevention steps taken by participants at all, whether it is the use of mosquito nets, mosquito coils or antiseptics (0%).

Descriptive Analysis

Using the univariate analysis, the six data above proves that there is a slight difference in

the gender of the respondents (55% male, 45% female), the majority are still actively working as farmers (45%) followed by housewives (25%). The biggest challenge faced is the client's physical condition as an elderly (31%) and geographic (21%). Regardless of the magnitude of the challenges and doubts they had at the beginning of joining the program (55%), it turned out that the attendance rate of the elderly in Mamoribo village, West Biak showed a good indicator (>70%). No participants use the malaria prevention steps (%). Those data prove the level of social support for peer education programs to prevent malaria in the elderly in Mamoribo who are active and have the potential to participate in malaria eradication programs.

Discussion

This research discusses one of the endemic cases as a serious health problem faced by Indonesia (Firmansyah et al., 2021; Kemenkes RI., 2022). The four basic problems from the results of this study are malaria as a chronic endemic disease (Table 2), lack of community empowerment, in this case, the elderly's peers as one of the integrated steps in eradicating malaria was not yet maximal (Diagram 1 and Table 3), the vulnerable condition of the elderly (Table 2, Diagram 1), as well as the client's physical condition and the geographical environment (Diagram 2). Many global studies discuss the prevention and eradication of malaria, where the house must be mosquito-proof, mosquito shelters, the benefits of sleeping using mosquito nets, changing the habit of staying up late outside the house at night, health center for health checks, and medicine regularly taken according to the advice of health workers (Dieng et al., 2020; Ghosh & Rahi, 2019; Tizifa et al., 2018). Some discuss about the role of the closest people including peers in public health theory is needed to provide mental, physical, and social support (Ndiaye et al., 2019; Ouédraogo et al., 2018). Therefore, fellow elderly peers are expected to provide emotional social support or remind each other about keeping the environment clean, how to take medicine, and avoiding mosquito bites.

Elderly peers provide social and financial support to each other or invite each other to go for health checks together if they hear that their elderly peers are not feeling well, they are invited to take them to the Public health center (*Puskesmas*). Elderly peers give each other material social support or facilitate each other in preventing and eradicating malaria, for example giving each other mosquito repellents, mosquito nets, mosquito larvae, typical for mosquitoes, environmental cleaning tools (Jarona, 2020). The physical condition of the elderly needs consistent attention from healthcare workers, especially home visits (Guenther et al., 2020; Ma'mur, 2019). Several public health researchers recommend home visits as an effective and efficient method of improving public health status, especially for the elderly who experience physical limitations (Sepriyani et al., 2019; Shaiqiena A, 2019). Geographical constraints are a major barrier in many areas of Papua (Tukayo et al., 2021). To minimize this obstacle, efforts are made to maximize visits, for example, integrated through *Posyandu* or other health programs (Bandzuh et al., 2022). Therefore the formation of cadres from the community is very important as a focal point that health workers can work with to facilitate the flow of communication between health workers and elderly clients.

The formation of elderly malaria cadres or elderly *Posyandu* was suggested by several researchers (Bandzuh et al., 2022; Dewi Chusniasih. Anisa Putri. Sobirin, 2019). *Posyandu* is needed by Biak people who generally live in endemic areas that are prone to malaria exposure. Research also mentions the success factors of partnership activities indicating

that partnership activities are following the needs of the elderly community in the health service sector through increasing knowledge and experience in dealing with health problems themselves as needed to produce a positive impact (Afoakwah et al., 2018; Padonou et al., 2018). Other factors that affect partnership support are education, based educational level, socio-economic, geographical, and the availability of healthcare facilities (Abossie et al., 2020). A person's education, for example, affects the way he views himself and his environment because he will have a different attitude from the elderly with a low level of education, medium and high in carrying out a health action. The essence of the high level of education attained so that it is hoped that the level of knowledge/educational experience in partnership through social support from an increasing number of elderly people, will make it easier to accept/adopt positive health behaviors.

In summary, apart from various program challenges, the level of participation of the elderly in implementing the importance of peer social support for the elderly in preventing and eradicating malaria in this study was relatively good (100%). Implementation of social support for elderly peers as partners in preventing and eradicating malaria can be developed on an ongoing basis by the elderly themselves, with the establishment of communication and support from health workers as cross-program health services, village government, and social institutions as cross-sectoral support in improving quality of life elderly. In addition to maintaining the level of participation in peer support is maintained.

STUDY LIMITATIONS

This study did not provide an overall picture of the elderly population in Biak who support the peer-to-peer education program for malaria prevention. This research did not involve the whole picture of elderly people in Biak which is our limitation in covering more research population, due to limited time, funds, and human resources in the research, bearing in mind the Covid-19 pandemic during which Government restrictions were still in place to prevent transmission of the virus. Many studies have discussed the elderly but rarely have examined their involvement in eradicating malaria. The very small number of respondents in the statistics of this study is an obstacle, therefore it cannot be used as a reference for pilot projects in the provincial category.

CONCLUSION AND SUGGESTIONS

This research was part of a community service carried out by the campus of polytechnic of health of Jayapura that focused on empowering the elderly community through peers. The aim was to determine the level of social support of elderly peers in preventing malaria in endemic areas of Mamoribo, West Biak-Papua. This research discussed four conspicuous problems found in the study were the vulnerable physical condition of the client, geographical conditions, and endemic cases of malaria in Papua. The results of this study conclude that despite the willingness of the elderly to be involved in programs related to malaria prevention, there has been no effort to prevent malaria among them as recommended by both WHO and experts. Therefore the study suggested that elderly peers are very important factor to prevent malaria among the elderly was proven by this study. However the results of this study were still not universal because the scope was still limited, even for a remote area. Those were due to various limitations and challenges during research during the Covid-19 pandemic. The study recommended that formation of cadres in the community is very important to support the program, besides regular home

visit by healthcare workers. Therefore, in the future, further research involving more respondents in several endemic areas of Papua that can represent the elderly population would be beneficial and more valid professionally and academically.

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ETHICAL CONSIDERATIONS

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Conflict of Interest

The author declared that no conflict of interest took place during the study.

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