

**ADOLESCENT EMPOWERMENT THROUGH SIMULATION-BASED HOUSEHOLD
EMERGENCY RESPONSE IN RIMBO RECAP VILLAGE**Leli Mulyati^{1*}, Fatimah Khoirini², Derison Marsinova Bakara³¹⁻³Nursing Study Program, Ministry of Health, Polytechnic of Bengkulu

Correspondence Email: mulyati1776@gmail.com

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Doi: <https://doi.org/10.33024/jkpm.v9i5.25230>**ABSTRACT**

Adolescents play an important role in assisting in the initial handling of emergencies. However, limited knowledge and skills in emergencies among adolescents remain a problem, especially in Rimbo Recap Village, Rejang Lebong Regency. Many adolescents do not yet have the basic knowledge and skills in handling emergencies such as fires, serious injuries, heart attacks, or other urgent medical situations. As a result, when an emergency occurs, treatment is often slow and inappropriate, which can be fatal for the victim and worsen the situation. Adolescent Knowledge and Skills are increased, at least 50% of adolescents in Rimbo Recap Village are expected to have basic knowledge and skills in handling emergencies at home, and are expected to reduce the rate of fatalities and serious injuries due to delays or errors in handling. The activity was conducted over 2 days (18-19 October 2025), with preparation, implementation, and evaluation stages. The first day focused on theory, and the second on practical activities for handling emergencies. Evaluation was conducted through pretests and posttests, participant skill observation, and follow-up monitoring, involving a total of 25 participants. There was a significant increase in adolescent knowledge after the training, with an average score increasing from 62.80 ± 11.00 in the pretest to 78.80 ± 4.10 in the posttest. The paired t-test showed a significant difference between the pretest and posttest scores (p -value < 0.001). Emergency training is effective in improving adolescent knowledge and skills in handling emergencies at home. This activity has the potential to strengthen adolescents' and village communities' preparedness to face emergency conditions on an ongoing basis.

Keywords: Emergency Nursing, Household Emergency, First Aid, Adolescents.**1. INTRODUCTION**

An emergency is a critical condition that requires immediate treatment to prevent worsening, permanent disability, or death. The term critical refers to a life-threatening situation, while urgency describes a situation that requires immediate action to eliminate or minimize the threat. Emergency conditions not only occur due to traffic accidents but also often arise in everyday life and can occur in various environments, such as homes, roads, and public places, and affect all age groups, including children, adults, and the elderly (Miranda, 2024).

Emergencies are not only understood as clinical problems, but also as systemic problems related to the preparedness of individuals, families, and communities. In modern healthcare, effective initial treatment within the first minutes of an incident is known as the golden hour, a crucial period that greatly influences patient safety and clinical outcomes. Prompt treatment and appropriate intervention strategies within the first 24 hours have been shown to significantly impact patient clinical outcomes. The success of response time is greatly influenced by the speed and quality of assistance from the scene, during transportation, until the victim receives treatment at a health facility, thus playing a crucial role in reducing the risk of disability and death (Wu et al., 2025). The pre-hospital emergency medical services (EMS) system also contributes significantly to the overall effectiveness of the health care system (Alanazy & Alruwaili, 2025).

An optimal emergency system is ideally supported by community readiness to recognize danger signs and provide first aid. However, conditions on the ground show that there is still a capacity gap. In countries with robust emergency education systems, the general public is equipped with basic first-aid skills to provide an initial response before professionals arrive. On the other hand, in many developing regions, including Indonesia, these capabilities are still limited, so that victims often experience delays in treatment in the early stages of an incident.

Nationally, emergencies remain a public health challenge. Data from the Ministry of Health (2023) shows that the incidence of emergencies at the household level remains high, primarily due to domestic accidents and the increasing prevalence of non-communicable diseases such as hypertension, diabetes mellitus, and heart disease. Various emergencies, such as burns, falls, choking, heart attacks, bleeding, and acute respiratory distress, can occur at any time in the home environment and often occur without family members being prepared to provide first aid. Burns even rank as the fifth cause of non-fatal injuries, with a higher risk of death in low- and middle-income countries. This condition reflects the gap between the high need for first aid and the low capacity of communities to provide it.

Prompt and appropriate initial treatment has been shown to reduce the risk of complications, disability, and death. Conversely, delays and errors in providing first aid remain a major cause of preventable morbidity and mortality (Susila, 2020). Individuals who have received first aid training tend to respond more quickly and appropriately than those who have not. In addition to limited skills, low health literacy is a contributing factor to the low level of community preparedness for emergencies. Individuals with good health literacy tend to be better able to recognize danger signs, understand risks, and make informed decisions. On the other hand, low health literacy makes individuals less able to recognize emergency conditions, less confident in their ability to act, and even more likely to take the wrong actions, thereby delaying the seeking of medical help. Therefore, increasing community capacity through structured, sustainable first aid education and training is an urgent need.

One group with strategic potential in emergency preparedness is adolescents. In Indonesia, the number of adolescents reaches nearly 46 million, or approximately 17% of the total population, making them a highly potential group for strengthening community preparedness. Adolescents have the physical, cognitive, and social capacities to act as first responders

within their families and communities (Maharani, 2024). However, limited knowledge and basic first-aid skills remain common problems, particularly in rural areas.

The results of the initial survey and field observations in Rimbo Recap Village showed that most teenagers do not yet understand the basic steps for handling household emergencies, such as fainting, bleeding, choking, or injuries from accidents. In addition, there is no structured and sustainable emergency training program at the village level. This condition indicates a gap in community preparedness aspects that has the potential to worsen the impact of emergencies at the family and community level.

Based on these problems, this activity aims to improve adolescents' knowledge and skills in handling emergencies through first-aid education and training programs, thereby strengthening emergency preparedness at the family and community levels.

2. PROBLEMS AND QUESTION FORMULATION

Based on observations and coordination with village officials, it was found that teenagers in Rimbo Recap Village, Rejang Lebong Regency, still have limited knowledge and skills in handling emergencies at home. Emergencies such as burns, bleeding, fainting, and choking frequently occur in the home, yet initial treatment often falls short of first aid principles. Initial treatment delay due to the lack of structured emergency training programs for adolescents and to limited supporting resources, such as first-aid kits, at the village level. If left untreated, these situations can increase the risk of delayed treatment, errors in first aid, and potentially even death in emergency victims. Therefore, a systematic community empowerment effort is needed, including emergency training that increases adolescents' capacity as first aiders in the home environment.

Based on the problem description, the questions formulated in this community service activity not only focus on increasing knowledge but also encompass the effectiveness of the empowerment process. The broader questions formulated in this activity are as follows:

- a. What is the level of knowledge and skills of Rimbo Recap Village youth in handling emergencies before being given training?
- b. How is the process of implementing emergency training based on education, simulation, and direct practice for adolescents?
- c. How does emergency training influence the improvement of adolescents' knowledge and skills in providing first aid in the home environment?
- d. What role does this training play in building youth preparedness as part of a community-based emergency response system?

This community service activity was carried out in Rimbo Recap Village, Rejang Lebong Regency, Bengkulu Province. The activity is approximately 5 km from the Bengkulu Ministry of Health Polytechnic Campus. Attached is a map of the location where the community service activities will be carried out.



Figure 1. PKM location

3. LITERATURE REVIEW

An emergency is a sudden condition that can be life-threatening if not treated immediately and appropriately. This situation can arise due to accidents or acute health problems that often occur in households (Zaenal et al., 2025). Emergency management emphasizes the importance of a rapid, safe, and appropriate initial response before the victim receives further health care to prevent worsening conditions (Roswendi et al., 2025). Determining the success of first aid in an emergency situation depends greatly on the speed and accuracy in carrying out the initial assessment which will determine the next steps (Maharani, 2024; Kartini et al., 2025). An effective emergency system includes early detection, layperson-administered first aid, and rapid referral to health facilities (Aliun et al., 2024). First aid (P3K) is a crucial component of the emergency system because members of the public can perform it as first responders. First aid encompasses various forms of care that laypeople can administer before professional assistance is available. The main goal of first aid is to maintain life and prevent worsening of medical conditions (Jawad et al., 2024). Proper first aid administration has been shown to reduce the risk of death and complications, particularly in cases of bleeding, respiratory arrest, choking, trauma, and acute cardiovascular disorders. On the other hand, errors in providing first aid can worsen the victim's condition and increase the risk of disability (Rohmani et al., 2022). Therefore, increasing community capacity in basic first aid skills is an urgent need for community-based health protection.

This community service program is designed to promote and prevent community empowerment through a promotive and preventive approach. In the context of emergencies, empowerment means equipping the community, including adolescents, with the ability to recognize critical conditions, make appropriate decisions, and take initial action independently before professionals arrive. Empowerment involves not only the transfer of knowledge but also the process of building awareness, self-confidence, and the ability to act to maintain their own and others' safety. Adolescents were chosen as the primary target group because they possess adequate physical, cognitive, and social capacities and are at a developmental stage responsive to the formation of positive habits and long-term life skills. Simulation-based training and hands-on practice are more effective than conventional learning methods such as one-way instruction or lecture-based approaches, as participants are actively involved in the learning process. This is in line with

the findings of (Chaudhary, 2020; Suswitha & Arindari, 2020), which state that hands-on practice is the most effective approach in improving first aid skills, as it provides direct experience for participants in performing actions. According to (Liu et al., 2025) simulation teaching is a method of teaching and clinical practice that uses simulation technology to create high-fidelity models or simulated clinical scenarios as substitutes for real patients. Simulation provides the opportunity to practice in a safe, controlled environment that closely resembles real-life emergency scenarios without posing any risk to actual patients (Andrayani et al., 2025). Trainees are trained in simulation scenarios to develop communication, leadership, and teamwork skills before interacting with real patients, thereby increasing their confidence in their medical abilities, reducing medical errors, and improving patient safety (Jallad, 2025). This approach enables adolescents not only to understand concepts but also to apply skills independently and safely in everyday emergencies (Purwacaraka et al., 2025).

This program plan integrates emergency theory, adult learning theory (andragogy), and active learning approaches. Andragogy emphasizes the effectiveness of learning when participants are directly involved, and the material is relevant to real needs. Therefore, training is not only about delivering theory, but also includes case simulations, group discussions, and hands-on practice to create a meaningful learning experience.

In addition, this program is based on the principle of community-based intervention, namely, health interventions tailored to the characteristics and potential of the target community. Teenagers were chosen because they have a strategic role in the family and society, are more adaptive to new information, and have the potential to become agents of change in their environment. With this approach, training not only increases individual capacity but also strengthens communities' social resilience.

This community service activity is highly significant in improving emergency preparedness at the family and community levels. Improving adolescents' knowledge and skills is expected to expedite initial treatment and reduce the risk of complications from delays (Brumberg et al., 2024). Good community preparedness helps reduce morbidity and mortality from preventable emergencies.

In addition to its direct benefits, this program supports community-based health promotion and prevention efforts by positioning the community as active participants. This activity also strengthens the role of higher education institutions in the Tridharma (three pillars of health), particularly in community service, and has the potential to serve as a development model in other regions (Rahmawati et al., 2021).

Academically, this activity enriches the youth empowerment model in the context of community-based emergencies. The integration of emergency theory, community empowerment, and active learning makes a conceptual contribution to the development of more participatory, context-specific health education. Thus, this activity not only impacts practice but also adds value to the development of science and community service practices in the health sector.

Despite growing evidence on the importance of emergency training and community empowerment, activities specifically targeting youth in rural areas in the context of household emergency preparedness remain rare. This

indicates a gap in the implementation of structured, youth-oriented community-based emergency training programs.

This activity aims to improve youth's knowledge and skills in handling emergencies at home through educational approaches, simulations, and hands-on practice. Furthermore, this activity aims to assess the effectiveness of the training in strengthening youth's preparedness and their role as first responders in the household.

More specifically, this activity examines the level of knowledge and skills of youth prior to the training, the process of implementing the simulation-based training, the training's impact on improving first aid knowledge and skills, and the training's contribution to building youth preparedness as part of a community-based emergency response system.

4. METHOD

- a. This community service activity utilizes educational and training methods, including counseling, simulation, and hands-on practice. The counseling method is used to provide participants with a conceptual understanding of the basic principles of emergencies and first aid. The material is delivered interactively through lectures and discussions. Simulation and hands-on practice are used to hone participants' skills and enable them to perform first aid correctly and safely.
- b. The participants in the activity were 25 junior high and high school students from Rimbo Recap Village, Rejang Lebong Regency. The selection of adolescents as the target of the activity was based on the recognition that they are a productive age group with strong physical and cognitive capacities and the potential to be agents of change in their families and communities. Participants were selected as representatives from each hamlet, with the hope that they would pass on the knowledge they gained to their peers and families. During the activity, participants were accompanied by 6 village officials as a form of institutional support. The activity was facilitated by a community service team comprising 3 lecturers as main facilitators and 5 students as activity assistants.
- c. The program is implemented through three main stages: preparation, implementation, evaluation, and follow-up.

1) Preparation Stage

The preparation stage begins with coordination with the Rimbo Recap Village government to agree on the activity objectives, target participants, timing, and the implementation location. Next, needs identification was carried out through discussions with village officials to obtain an overview of the initial condition of adolescent preparedness in facing emergencies.

Based on the identification results, the implementation team prepared training materials that included the theory and practice of handling emergencies at home, including cardiopulmonary resuscitation, wound and bleeding management, burns, fainting, seizures, choking, poisoning, venomous animal bites, and dressing and splinting techniques for injuries. The material is systematically arranged and adapted to teenagers' level of understanding, making it easy to understand. The implementation team also prepared various supporting instruments for the activities, including teaching materials,

first-aid kits, practical demonstration tools (phantom CPR and choking, bandages and splints, and patient evacuation tools), and other items. In addition, an evaluation instrument was prepared as a pretest and posttest questionnaire to measure increases in knowledge and the completeness of activity administration.

2) Implementation Stage

The training was held for two days, from October 18 to 19, 2025, at the Mini Hospital Campus B of the Ministry of Health's Bengkulu Polytechnic of Nursing Diploma Program, Curup. The location was chosen based on the availability of adequate practice facilities, such as simulation rooms and nursing skills demonstration equipment, to support optimal learning. Participants were adolescents from Rimbo Recap Village who had previously been registered and agreed to participate in the entire training series.

The event began with participant registration to record attendance and ensure administrative readiness. Following registration, the event opened with remarks from the implementation team and a general overview of the training's objectives, benefits, and expected outcomes. This phase aims to ensure participants have a clear understanding of the importance of the material to be learned and are motivated to participate in the event actively until its completion.

Before the material was given, all participants were asked to complete a pretest to assess their initial knowledge of emergency management at home. The pretest was administered as a written questionnaire covering basic emergency concepts, common emergencies, and basic first aid principles. The results of this pretest served as a basis for evaluating changes in participants' knowledge levels before and after the training and as a reflection for the implementation team in assessing the effectiveness of the learning methods used.

The training is divided into two main sessions: the material-delivery session on the first day and the practical session on the second day.

a) The material delivery session was conducted with a lecture and question-and-answer methods on

The presentation session consisted of a lecture and a question-and-answer session on the concepts and principles of home emergency management. The lecture method was used to systematically convey basic material, including the definition of an emergency, the types of critical conditions that frequently occur in the home environment, the basic principles of first aid, and the initial steps to take before the victim receives further assistance. The material is delivered in simple, clear language so participants can easily understand it.

In addition to the lecture, an interactive question-and-answer session was provided to encourage the youth's active participation in the learning process. Through the discussion, participants were allowed to ask questions related to situations they might encounter in everyday life, such as handling victims of fainting, injuries, choking, and other emergencies. The facilitator also provides

feedback on participants' answers to correct any misconceptions and reinforce the concepts presented. This approach aims to create a more active, non-one-way learning environment, allowing participants not only to receive information but also to engage in critical thinking.

b) Skills by the facilitator first.

Demonstrations include cardiopulmonary resuscitation (CPR) skills, handling choking victims, bandaging and splinting techniques for injuries, and simple and safe patient evacuation techniques. This demonstration aims to provide a clear picture of the correct procedure before participants practice independently. The facilitator demonstrates each step in stages, accompanied by an explanation of the safety principles for rescuers and victims.

Following the demonstration session, all participants were allowed to take turns practicing under the guidance of facilitators and student mentors. The practice was conducted using simple tools and simulation media adapted to field conditions to help participants understand the application of skills in realistic situations. Participants were not only asked to imitate movements but were also guided to understand the rationale behind each action, ensuring that the skills acquired were not mechanical but rather grounded in understanding.

To increase learning effectiveness, practical activities are divided into small groups. This group division allows the facilitator to give more intensive attention to each participant and makes it easier to provide direct feedback on the techniques used. Feedback is given constructively to correct errors, reinforce correct techniques, and increase participants' confidence in performing actions.

3) Evaluation and Follow-up Stage

Evaluation is carried out through two approaches, namely knowledge evaluation and skills evaluation. The activity evaluation stage is conducted by administering a posttest to all participants after all training sessions are completed to assess the increase in participants' knowledge from attending the training. Meanwhile, skill evaluation is carried out through direct observation of participants performing first aid practices, focusing on the accuracy of the steps, the safety of the actions, and participants' self-confidence. As a follow-up to the activity, the Rimbo Recap Village Youth Emergency Response Team (TTDR) was formed, with a clear organizational structure and task division. The team's formation aims to maintain the program's sustainability and strengthen emergency preparedness at the village level. This team is expected to be a pioneer in providing first aid and driving health education among peers and families.

5. RESULTS AND DISCUSSION

a. Results

The characteristics of the participants who took part in this community service activity are presented in detail in Figures 1 to 4. Based on Figure 1, the majority of participants were female (18), while 7 were male.

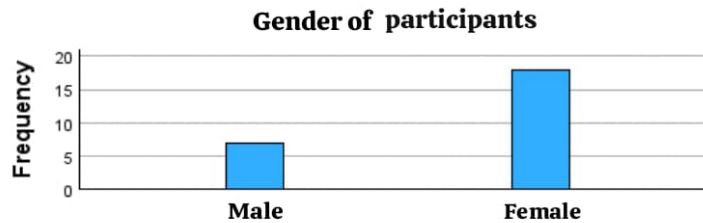


Figure 1. Gender of participants

In the age distribution in Figure 2, participants ranged from 14 to 19 years old, falling within the early to late adolescent age range. This age range is strategic for health education because it falls within a phase of cognitive development that supports optimal information reception. Compared with children, adolescents in this age range demonstrated a better understanding of the material presented and were able to follow practical instructions more systematically.

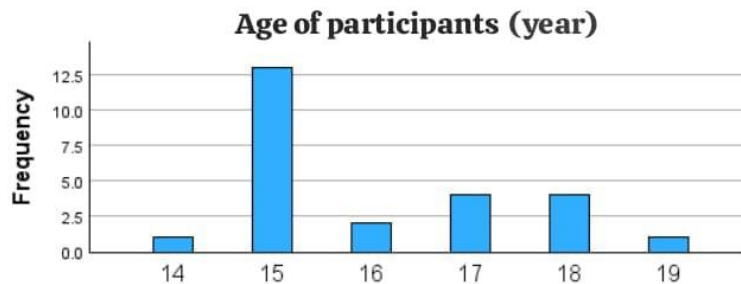


Figure 2. Age of Participants

The participants' educational levels are shown in Figure 3, with the majority (20) being high school students, and the remainder (5) being junior high school students. This situation supported the training's implementation, as most participants had sufficient literacy skills to understand the emergency materials presented. During the activity, differences in response were observed between junior high and high school participants. High school participants generally grasped theoretical concepts more quickly, while junior high students required repetition of instructions, especially during practical sessions. However, after the mentoring session, all participants were able to follow the practical sessions effectively.

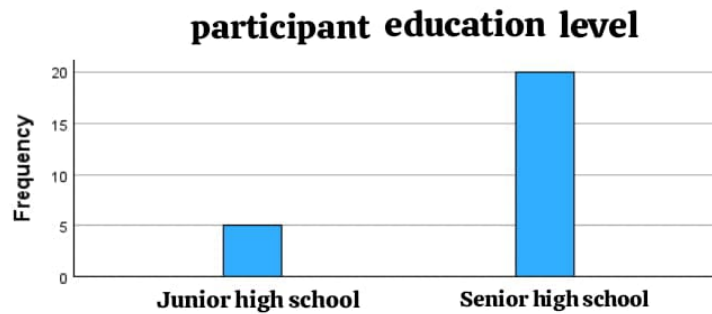


Figure 3. Participant Education Level

Furthermore, Figure 4 shows that most participants had never attended emergency training, and there was variation in participants' initial knowledge levels. This result shows that the training program being conducted is highly relevant and needed for youth in Rimbo Recap Village, given the low level of prior educational exposure to emergency response.

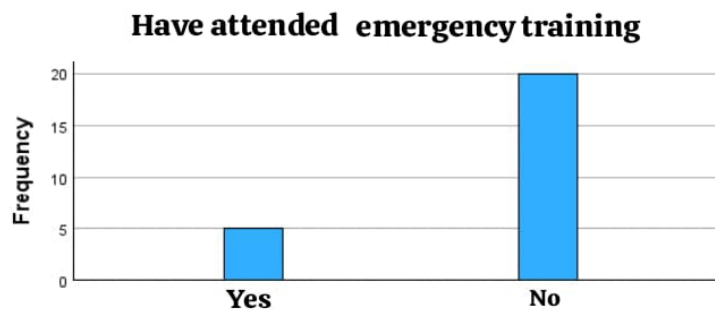


Figure 4. Participants who have and have not participated in emergency training

Following two days of theoretical and practical activities, a knowledge evaluation was conducted on 25 participants. The results of the participant knowledge evaluation are presented in Table 1 as follows:

Table 1. Average description, pre-post differences in knowledge of emergency management training among adolescents in Rimbo Recap Village in 2025

Variables	Mean	Elementary School	Min-Max	Mean Difference	P Value
Pre-Training	62.40	10:59	30-77	16.00	0.001
Post Training	78.80	4.10	72-87		

Based on Table 1, the average level of participants' knowledge before the training was 62.40, and after the training, it increased to 78.80. This result shows a difference in the mean before and after

receiving the theory and practice of emergency handling, with a mean difference of 16.00, indicating an increase in participants' knowledge after participating in emergency handling training activities.

The results of the paired t-test also showed a significant difference between the pretest and posttest scores ($p < 0.001$). This finding indicates that the training provided significantly improved adolescents' knowledge of emergency management.

In addition to increased knowledge, observations of participants' skills also indicated an improvement in their ability to perform emergency procedures. Prior to the training, only 12.5% of participants had basic skills, while 87.5% had not received any prior training. It was evident during the initial simulation session, where most participants remained uncertain, awkward, and unfamiliar with the sequence of actions. On the other hand, after the training and hands-on practice sessions, all participants were able to practice basic skills, including cardiopulmonary resuscitation, choking management, splinting, and evacuating victims, as instructed by the facilitator. Compared with the initial conditions, participants' accuracy, courage to act, and confidence changed clearly during the simulation. As documentation of the activity, three photos are displayed that represent the program's implementation process: the presentation of materials, the practice of cardiopulmonary resuscitation (CPR), and the posttest. These three photos illustrate that the activity was conducted actively, participatory, and directly involved participants in the learning process.



Figure 2. Presentation of Material



Figure 3. CPR Practice



Figure 4. Post Test

b. Discussion

Home emergency response training for youth in Rimbo Recap Village was designed to improve understanding of various emergencies, basic first-aid principles, and practical skills for providing initial care to victims. This goal aligns with community needs, as prompt and appropriate first aid has been shown to reduce the risk of death or serious injury due to delayed or incorrect action. The results of the activity indicate that this goal has been achieved, as evidenced by participants' increased knowledge, skills, and preparedness after the training.

This training has been shown to increase knowledge significantly. This finding aligns with studies showing that individuals who receive first aid training have significantly higher levels of knowledge and understanding than those who are not trained (Huntley et al., 2025). The greater difference between posttest and pretest scores demonstrates the effectiveness of this educational method in improving adolescents' knowledge of home emergency management.

Apart from the knowledge aspect, the participants' skills also developed significantly after the practical session. All participants were able to carry out emergency response simulations well after receiving assistance. These findings underscore the importance of practice-based learning in mastering emergency skills. These results align with research, which found that simulations and hands-on practice were more effective at increasing preparedness and confidence than lectures alone. Adult learning theory (experiential learning) also supports the belief that practical skills are more easily retained when participants are directly involved in the learning experience. Teenagers who received systematic training demonstrated a better understanding of first aid steps than those who had never received training.

Significant changes were also seen in the affective aspect, particularly increased participant confidence during practice. Many were initially hesitant to act, but after training, they showed greater courage and confidence. It is important because in an emergency, the courage to act is often the deciding factor before technical skills are applied. Knowledge without courage tends to make a person passive in the face of emergencies. Therefore, increased self-confidence is an indicator of the program's success.

Overall, the results of this activity are consistent with previous community service reports that emphasized the effectiveness of combining theory and practice in improving adolescent emergency competency (Purwacaraka et al., 2025). Training-based education is more impactful than one-way information delivery. Compared to the lecture-only method, this approach is more comprehensive because it not only conveys information but also builds a deeper conceptual understanding. Thus, education and simulation-based training can be considered appropriate strategies to strengthen adolescents' capacity as first aiders at home. In the context of the initial problem in Rimbo Recap Village, namely the low preparedness of youth due to limited access to training, this activity successfully addressed that need. The program created a group of youth who were better prepared and trained to become first responders within their families and communities.

It is hoped that increasing adolescent knowledge and skills in this activity will minimize the risk of delays and errors in handling emergencies at home. The expected long-term impact is the formation of teenagers who are better prepared, more alert, and more empowered to face emergency conditions, thereby reducing the risk of fatalities and serious injuries in the community and strengthening village community preparedness sustainably.

6. CONCLUSION

Home emergency response training conducted for adolescents in Rimbo Recap Village has proven to be an effective approach for increasing adolescents' capacity to respond to household emergencies. Through a combination of theoretical education, simulations, and hands-on practice, teenagers can understand basic emergency concepts and develop stronger initial first aid skills.

The practice-based training approach helps participants become more confident and better prepared to act appropriately in emergencies. Thus, emergency training can be a sustainable, promotive, and preventive strategy to reduce the risk of delays and errors in handling emergencies at home.

The community service team hopes that similar activities can continue in the future and be expanded to other villages or areas to assess their generalizability and broader impact. Collaboration with community health centers, schools, and local community organizations is also recommended to ensure sustainability. Future programs are also recommended to involve parents or family members, along with ongoing monitoring and periodic refresher training to maintain and improve adolescent emergency response competencies.

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