

Implementation of Basic Life Support Promotion in Table Tennis Community: A Preventive-Based Community Service Program

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ABSTRACT

Table tennis is low-middle impact, musculoskeletal injuries such as sprains, strains, and joint pain are common, especially in middle-aged and elderly players. Following two sudden cardiac arrest incidents resulting in death among members of the Table Tennis Community, this community service program aimed to improve knowledge and skills in Basic Life Support (BLS) and emergency response. A total of 40 participants took part through preparation, education, hands-on practice, and evaluation. Pre- and post-training results showed increased awareness and confidence: 42.5% felt capable of performing BLS, 90% viewed BLS as essential for the public, and 72.5% were willing to act in emergencies. Active learning through demonstration and simulation effectively strengthened participants' BLS skills and readiness.

INTRODUCTION

Table tennis is recognized as one of the most widely practiced racket sports globally, appreciated for its accessibility, low injury risk, and suitability across diverse age groups. As both a recreational and competitive activity, table tennis has gained popularity among community sports groups due to minimal equipment needs and the flexibility to play indoors or outdoors. However, like all forms of physical exercise, the sport still carries physiological demands that may pose risks to participants, especially those with underlying health conditions. Although considered a low-middle impact sport, injuries can still occur, especially among adults and seniors who are still active. Common injuries include musculoskeletal injuries such as sprains, muscle strains, and joint pain, particularly in the wrists, elbows, lower back, and knees. According to Kilic, Gouttebarga, & Kerkhoffs (2022), the main causes of sports injuries are generally related to improper technique, inadequate warm-up, and a lack of awareness of ergonomic principles in physical activity.

The incidence of severe sports-related emergencies in table tennis is relatively low compared to high-impact sports, events such as sudden cardiac arrest (SCA) have been reported across recreational sports settings. SCA remains a leading cause of sudden death during physical activity, affecting athletes and non-athletes alike. In the community where this community service was conducted, it was discovered that two community members experienced sudden heart attacks while doing routine exercises, which resulted in death. The survival rate from cardiac arrest outside hospital settings largely depends on immediate recognition and timely initiation of Basic Life Support (BLS), which includes cardiopulmonary resuscitation (CPR) and early activation of emergency services (Sayre, M.R., et al, 2020).

Unfortunately, knowledge and readiness to perform BLS among the general population remain suboptimal, especially within non-professional sports communities. Recreational athletes often assume that low-intensity sports do not require emergency preparedness, leading to gaps in response capabilities when critical events arise. This misconception highlights the need for structured educational efforts targeting community-based sports groups, including table tennis clubs.

Basic Life Support represents a fundamental life-saving skill set that can significantly improve survival in emergency conditions such as cardiac arrest, choking, drowning, or trauma-related unconsciousness (World Health Organization, 2022). Research indicates that individuals trained in BLS are more likely to respond confidently and effectively in emergency situations, reducing morbidity and mortality (Nishiyama et al., 2019). However, BLS training is still predominantly focused on healthcare settings, schools, and formal emergency training centers, with limited emphasis on grass-roots sports environments.

Community-based health promotion serves as a strategic approach to enhance emergency preparedness across populations. By integrating preventive health education into sports communities, public awareness, skill acquisition, and responsiveness to emergency incidents can be improved. Sports groups function as social units where health knowledge and behavioral practices can be effectively disseminated through peer learning and structured guidance. Despite this potential, many community sports groups lack access to structured emergency-response education, including BLS programs. Barriers such as limited resources, absence of medical personnel, and lack of awareness regarding the importance of emergency response skills contribute to low preparedness levels. Addressing these gaps requires collaborative efforts between healthcare educators, academic institutions, and sports communities.

In line with public health goals to strengthen preventive practices and community resilience, universities play a key role in delivering community service initiatives that integrate health education and empowerment. Programs that target sports communities align with efforts to promote active lifestyles while ensuring safety and emergency readiness. Engaging table tennis groups in BLS promotion and training therefore represents a strategic preventive health intervention. As a form of implementation of the Tridharma of Higher Education, a team of lecturers from the Faculty of Vocational and Postgraduate Studies of the Universitas Kristen Indonesia collaborated in a community service program to provide education. This program aims to strengthen emergency response readiness and health awareness within the table tennis community as part of a broader effort to promote safety in community members during sports.

IMPLEMENTATION AND METHODS

Community service activities were carried out at the Table Tennis Association Community (TTAC) located in Jakarta, Indonesia, and lasted for one semester, starting with preparation, implementation, and evaluation. The educational program was held on Friday, July 18, 2025, from 7:00 PM to 9:00 PM WIB. This location is the regular training location for TTAC members.

The activities were carried out in several stages: (1) Preparation, where the community service team coordinated with the TTAC leader and prepared training materials, props, and educational media such as PowerPoint presentations, standing banners, and stretching boards; (2) Implementation of education and demonstrations, namely the provision of materials in an active and participatory manner on the topic of introducing Basic Life Support (BLS) for emergency situations and simulating Cardiopulmonary Resuscitation (CPR); (3) Evaluation, conducted through pre- and post-tests using questionnaires to assess the increase in participants' knowledge, attitudes, and readiness in providing first aid; and; (4) Mentoring, After the activity, participants join a WhatsApp group for long-distance mentoring, sharing information, and questions and answers regarding preventing sports injuries.

As part of the practical component, participants were trained using the seven essential steps of Basic Life Support (BLS). The content and procedures followed the 2020 American Heart Association (AHA) Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care. The first step is to ensure scene safety. Rescuers must confirm that the environment is safe for both the victim and themselves before approaching. This precaution prevents further harm and ensures that the rescuer can provide uninterrupted assistance. The second step is to check the victim's responsiveness. The rescuer should tap the victim's shoulders and call loudly, "Are you okay?" Lack of response indicates potential unconsciousness, prompting immediate activation of the emergency response system. The third step is to call for help and activate emergency medical services (EMS). If other people are nearby, one should contact emergency services (such as dialing 112) and retrieve an Automated External Defibrillator (AED) if available. If the rescuer is alone, it is essential to activate EMS before beginning CPR, except in cases of drowning or pediatric victims where two minutes of CPR should be performed first.

The fourth step involves checking breathing and pulse simultaneously for no more than ten seconds. If the victim is not breathing normally or only gasping, and no pulse is detected, the rescuer must immediately begin chest compressions. The fifth step is to initiate chest compressions. The heel of one hand is placed on the center of the chest, with the other hand on top. Compressions should be performed at a rate of 100–120 per minute and a depth of 5–6 cm for adults, allowing full chest recoil after each compression. If the rescuer is untrained or unwilling to provide rescue breaths, hands-only CPR is recommended. The sixth step is to provide rescue breaths. For rescuers trained in ventilation, the airway should be opened using the head tilt–chin lift technique. Two effective breaths, each lasting about one second, should be delivered, ensuring visible chest rise after each breath. The recommended compression-to-ventilation ratio is 30:2. The final step is to use the AED and continue CPR. As soon as the AED arrives, it should be turned on and its voice



Figure 1. Standing Banner of Basic Life Support

Data regarding participant behavior and perception after the Basic Life Support (BLS) training were collected through a structured questionnaire administered at the end of the session. The questionnaire aimed to assess changes in participants' confidence, awareness, and willingness to respond to emergency situations following the educational intervention. Responses were measured using a five-point Likert scale, ranging from *Strongly Agree* to *Strongly Disagree*.

RESULTS AND DISCUSSION

This community service program focuses on enhancing awareness and practical skills in BLS among members of a local table tennis community. The program incorporates health promotion strategies, interactive learning sessions, and hands-on simulation activities designed to build participant confidence and competency in responding to emergencies. Emphasis is placed not only on technical skill but also on cultivating a supportive community culture of preparedness. The community service activity was carried out according to a schedule agreed upon with the partnering sports community. The program took place in the evening, lasting approximately two hours, and involved active participation from community members who regularly engage in recreational sports. The purpose of this activity was to promote awareness and practical understanding of Basic Life Support (BLS) as part of a preventive health initiative within the sports community.

A total of 40 participants attended the session, representing both amateur and experienced members of the sports group. The activity was facilitated by a multidisciplinary academic team consisting of four lecturers from different departments, including Physiotherapy, Nursing, and Postgraduate Studies. Their collaboration reflected an interdisciplinary approach to health promotion and emergency preparedness in sports settings. The event was conducted through a structured agenda that included an opening session, educational lectures, demonstrations, and practical skill training. The community representatives warmly welcomed the university team and expressed appreciation for the initiative, emphasizing its relevance to athlete safety and public health empowerment. Participants were encouraged to actively engage in discussions and hands-on practice during the session.

This collaboration between the academic team and the sports community exemplifies the role of higher education institutions in promoting health literacy and preventive care beyond the classroom. By delivering practical life-saving skills such as BLS, the program successfully bridged theoretical knowledge with real-world application, fostering community resilience and readiness to respond effectively during sports-related emergencies.



Figure 2. Education Activity



Figure 3. Demonstration of BLS Techniques

The training was attended by 40 members of the TTAC, consisting of 38 men (95%) and 2 women (5%). The majority of participants were over 56 years old and in relatively good health. Participants participated in the activities enthusiastically and actively. The training included theoretical education and hands-on BHD practice, including chest compression exercises and simulations by participants.

Table 1. Results of Participant Behavior Evaluation After Training

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Able to perform BLS when needed	12.5%	30%	40%	12.5%	5%
BLS training is important for the general public	57.5%	32.5%	10%	0	0
Willing to help a friend who faints during exercise	37.5%	47.5%	15%	0	0

As shown in Table 1, the results indicate that most participants demonstrated a positive behavioral response after the training. Regarding their ability to perform BLS when needed, 42.5% of participants agreed or strongly agreed, while 40% remained neutral. This suggests that although participants gained theoretical knowledge, additional practice sessions may be required to build stronger confidence and readiness. A majority of respondents (90%) strongly agreed or agreed that BLS training is important for the general public, reflecting a high level of awareness about the value of emergency preparedness within the community. Furthermore, 85% of participants expressed willingness to help a friend who faints during exercise, highlighting improved empathy and readiness to take action in sports-related emergencies.

Overall, these findings demonstrate that the BLS education and training program effectively enhanced participants' awareness and motivation to assist in emergency situations, though further reinforcement through repeated training could strengthen practical competence and confidence. The results of this study demonstrate that the implementation of Basic Life Support (BLS) promotion in the table tennis community successfully raised awareness and improved participants' behavioral readiness to act in emergencies. Although most participants expressed positive attitudes toward BLS, their level of self-perceived competence varied, highlighting the importance of continuous training and reinforcement.

This activity implements health promotion with a preventive approach that positions the community as the primary actor in maintaining their health. This aligns with the findings of Sawyer et al. (2023), who stated that hands-on training is more effective in improving emergency response skills than passive lecture methods. The results of the activity showed an increase in participants' knowledge and preparedness for emergency situations. This improvement indicates the effectiveness of the active learning approach used in the activity. Training using demonstration and hands-on practice methods allows participants to gain motor learning experiences, which have a greater impact on behavioral change than conventional lecture methods. This aligns with adult learning theory (andragogy), which emphasizes the importance of real-world experiences in the learning process (Knowles, 2020).

These results also indicate that the implementation of education and training by the community service team has increased the understanding and confidence of most participants in performing Basic Life Support. However, the varying levels of confidence among participants indicate that practical skills still need to be strengthened through more intensive and repeated follow-up training. Although Basic Life Support (BLS) training has been shown to improve participants' knowledge and skills, not all people have the courage to perform these actions when facing an emergency. An individual's courage to act is influenced by various factors, including psychological, social, and situational factors.

One key factor is self-confidence or self-efficacy. Many individuals feel unsure about their ability to perform BLS correctly. Fear of making a mistake or worsening the victim's condition often leads to hesitation to act. According to Pei et al. (2020), low self-efficacy is a major barrier to CPR implementation by lay people, even those with basic training. The results of the systematic review showed that self-efficacy can be formed through strategies: (1) enactive mastery through education, mentoring, goal setting, and feedback; (2) vicarious experience via discussion, demonstration, and communication; (3) verbal persuasion through encouragement and monitoring; and (4) physiological arousal through emotional support, empathy, and adaptive problem-solving (Juwita et al., 2023).

Furthermore, concerns about legal and social consequences also contribute to low public participation in performing CPR. Some people fear being blamed or considered guilty if their actions fail to save the victim. A study by Taniguchi et al. (2022) showed that public understanding of the Good Samaritan Law was positively associated with willingness to perform CPR. Therefore, education that emphasizes legal protection aspects can increase public participation.

Another contributing factor is skill decline due to a lack of ongoing practice. After initial training, BHD technical skills will decline significantly within 3–6 months if refresher training is not provided. According to Lin et al. (2023), repeated training with periodic simulations significantly improves skill retention and participants' preparedness to act in real-world situations.

In addition to technical factors, psychological and emotional barriers also play a significant role. Emergency situations involving unconscious victims can trigger fear, panic, or even disgust at direct physical contact. Nishiyama et al. (2019) reported that feelings of fear and panic were the dominant factors preventing people from performing CPR, especially in cases occurring in public places. A lack of social support and ongoing education also impacts community motivation and preparedness. One-off training without follow-up can reduce participant retention and interest in applying the acquired skills. Ro et al. (2021) emphasized the importance of a community-based continuing education system, including regular retraining and social support, to maintain skills and increase the courage to act.

Basic Life Support (BLS) training also plays a crucial role in improving the survival rate of sudden cardiac arrest victims in the community (Casa et al., 2022). Thus, this activity not only provides educational benefits but also contributes to strengthening the community's capacity to respond to sports emergencies. Additionally, the program encourages participants to adopt a preventive mindset in sports engagement by understanding health screening, warm-up routines, and safe exercise practices, which may reduce emergency occurrences. By fostering empowerment, skill development, and preventive health culture, this initiative contributes to improving public health outcomes and advancing university community collaboration in sports safety promotion.

The collaborative approach between lecturers from the fields of physiotherapy, nursing, education expert, and public health in this activity demonstrates the concrete implementation of the concept of interprofessional education (IPE) integrated into community service, as recommended by Wilkerson & Denegar (2023). Socially, this activity also strengthens relationships among community members and fosters a sense of togetherness in maintaining shared health. The ongoing mentoring model through online groups is an effective means of maintaining participant motivation in applying the knowledge gained. Going forward, similar activities can be integrated with other public health programs, such as cardiac risk screening, to expand the program's sustainable impact.

CONCLUSIONS AND RECOMMENDATIONS

Basic Life Support (BLS) education and training activities have proven effective in increasing participants knowledge, awareness, and preparedness for emergency situations and preventing sports injuries. Evaluation results showed an increase in participants confidence and willingness to help, although some still showed varying levels of confidence in performing BLS actions. Psychological, social, and practical experience factors are the main determinants of readiness to act, so that further training and ongoing mentoring are needed to strengthen participants' skills and retain their abilities. This activity also reflects the application of a promotive and preventive approach in health promotion, by involving interprofessional collaboration between physiotherapy, nursing, education expert, and public health, which significantly contributes to increasing the capacity and independence of the sports community in dealing with emergency situations and building a culture of safety and mutual assistance in the community.

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