Water Rescue Training for Physical Education Teachers in Pakem District, Sleman Regency

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Abstract.

Background The increasing number of swimming pool accidents indicates frequent violations of pool safety regulations. Ensuring safety in swimming pools is a shared responsibility among visitors, lifeguards, physical education teachers (PJOK), and other adults present in the area.

Objectives This community service program (PkM DLK) in the form of water rescue training aimed to provide PJOK teachers with specific skills to help prevent risks of accidents occurring in swimming pools.

Methods The target group consisted of 30 elementary school PJOK teachers who were members of the PJOK Teacher Working Group (KKG) in Pakem District and surrounding areas. The training employed a theoretical and practical approach that included lectures, discussions, question-and-answer sessions, and hands-on water safety practice. A pre-test/post-test design was used to measure knowledge improvement, complemented by performance assessments focusing on participants' attention, willingness, and engagement with the training material. The program lasted for 32 hours and was carried out in three stages: (1) coordination and preparation, (2) implementation, and (3) evaluation and reporting. The training took place at Tirta Jaya Swimming Pool, Pakem.

Results The effectiveness of the program was measured using pre-test and post-test questionnaires. Pre-test results showed that 18 participants (60%) had no knowledge of water rescue. After the training, all 30 participants (100%) demonstrated an understanding of water rescue concepts. Practical sessions included various rescue techniques such as start, water treading (60"), underwater swimming (10 meters), temple hold, chin hold, armpit hold, victim lifting, rescue with equipment, and cardiopulmonary resuscitation (CPR). Out of all participants, 20 successfully mastered the techniques, while 10 had partial success.

Conclusion The water rescue training program successfully enhanced both the knowledge and practical skills of PJOK teachers in aquatic safety. This initiative is expected to increase teachers' preparedness in preventing accidents and to raise awareness of the importance of swimming safety in schools and communities.

Keywords: Water Rescue, Swimming Safety, PJOK Teachers, Community Service, Drowning Prevention

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INTRODUCTION

Swimming is one of the most popular forms of physical activity and recreation in Indonesia. Despite its benefits for health and education, aquatic activities are associated with considerable risks, including cramps, injuries, and drowning (Nurulita, 2019). Drowning remains a leading cause of unintentional death worldwide, particularly among children and adolescents, and it frequently occurs in swimming pools (Moran & Stanley, 2006; Zhang, Dai, & Nie, 2022). In many cases, accidents are linked to poor adherence to safety regulations and inadequate supervision (Johnson, Boriack, McConnell, & Lawson, 2022).

In the Indonesian context, the problem is further exacerbated by the limited availability of trained lifeguards at school or community swimming facilities. Consequently, the responsibility for water safety often falls on Physical Education, Sports, and Health (PJOK) teachers, who serve not only as instructors but also as supervisors during aquatic activities. However, previous research has shown that PJOK teachers often receive insufficient training in lifesaving techniques, resulting in limited preparedness to respond effectively to water emergencies (Freitas, Dias, & Fonseca, 2013).

Water rescue training, which equips participants with essential knowledge and skills for preventing and responding to aquatic accidents, is therefore critical. Studies indicate that even basic lifesaving instruction can significantly improve accident prevention and emergency response in aquatic environments (Irwin, Pharr, Layne, & Irwin, 2019; Lei, Zhu, Tang, & Wang, 2022). By strengthening teachers' competencies in water safety, schools can create safer learning environments and reduce the risk of drowning incidents.

Based on this rationale, a community service program (PkM DLK) was designed to provide PJOK teachers in Pakem District, Sleman Regency, with structured training in water rescue. The present study reports on the implementation and outcomes of the program, focusing on its effectiveness in improving teachers' knowledge and practical skills in aquatic safety.

METHOD

Participant

The study involved 30 Physical Education (PJOK) teachers (19 male and 11 female) from elementary schools in Pakem District, Sleman Regency, Indonesia. All participants were members of the local Teacher Working Group (KKG PJOK), which regularly organizes professional development activities in physical education. Participation was voluntary, and all teachers provided informed consent prior to the training.

Research Design

A quasi-experimental design with a one-group pre-test–post-test approach was employed to assess the effectiveness of the water rescue training program. The intervention consisted of 32 hours of training delivered over two days, combining theoretical and practical sessions. Theoretical sessions included lectures and discussions on water safety management and emergency response, while practical sessions focused on hands-on water rescue techniques, both with and without equipment. Training materials covered victim rescue grips, the use of rescue equipment (poles, lifebuoys, floats), and first aid for drowning victims, including cardiopulmonary resuscitation (CPR).

Data Analysis

Data were collected using a pre-test and post-test questionnaire to measure changes in participants' knowledge of water rescue concepts. Practical performance was evaluated through direct observation checklists during rescue drills. Descriptive statistics (frequencies and percentages) were used to summarize knowledge gains and performance outcomes. Improvement was determined by comparing pre-test and post-test results as well as the number of participants who successfully performed the required rescue techniques.

RESULTS AND DISCUSSION

Results

Table 1. Summary of Water Rescue Training Outcomes

Assessment Component	Evaluation Method	Results
Pre-test Knowledge	Written questionnaire	18 participants (60%) lacked understanding of water rescue concepts
Post-test Knowledge	Written questionnaire	30 participants (100%) demonstrated understanding of water rescue
Theoretical Sessions	Lecture and discussion	100% of participants actively engaged during class sessions
Practical Sessions (9 skills)	Demonstration & observation	20 participants (67%) successfully performed all skills; 10 (33%) partially successful
Attendance& Participation	Observation	100% attendance; participants were enthusiastic and actively involved

The implementation of the community service program began with coordination between the organizing team and the head of the Elementary School Physical Education Teacher Working Group (KKG PJOK) in Pakem District. This initial coordination meeting ensured that the water rescue training program could be carried out smoothly. The program was motivated by growing concern among teachers regarding cases of drowning in the Pakem area. Although comprehensive records of drowning incidents and other

pool-related accidents were not available, several teachers expressed the need for preventive measures, which led to the agreement to conduct water safety training.

The training consisted of both theoretical and practical components. The theoretical sessions included: (1) swimming pool safety management, (2) rescue techniques using and without equipment, and (3) practice in water rescue and cardiopulmonary resuscitation (CPR). The practical sessions focused on nine rescue skills: (1) start, (2) water treading for 60 seconds, (3) underwater swimming for 10 meters, (4) rescue using equipment, (5) chin hold technique, (6) armpit hold technique, (7) temple hold technique, (8) lifting a drowning victim, and (9) CPR.

A total of 30 PJOK teachers participated in the training, consisting of 11 female and 19 male teachers. The sessions were delivered by three experts and academics from the Faculty of Sports and Health Sciences, Universitas Negeri Yogyakarta: Dr. Ermawan Susanto, M.Pd.; Dr. Sridadi, M.Pd.; and Dr. A. M. Bandi Utama, M.Pd.

The program began with a pre-test to assess participants' baseline knowledge, followed by lectures, discussions, and hands-on practice, and concluded with a post-test. The pre-test results indicated that 16 participants (60%) did not understand the concept of water rescue. However, after completing the training, all 30 participants (100%) demonstrated an understanding of the concept, reflecting a significant improvement. During the practical sessions, 20 participants successfully performed all nine water rescue techniques, while 10 participants showed partial mastery.

The two-day training, held on 26–27 August 2025, was characterized by high levels of enthusiasm and engagement. Attendance was 100%, and participants demonstrated active involvement and strong interest in the training materials. Beyond the immediate outcomes, the program also established sustainability through the signing of an integrated agreement for continued collaboration in community service programs over the following calendar year.

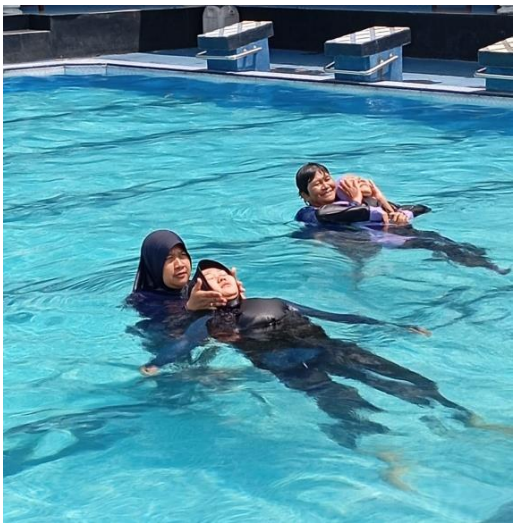

Figure 1&2. Instructors of the Water Rescue Training

Figure 3 & 4 . Trainers and Participants of the Water Rescue Training Program

Figure 5. Water Rescue Training – Practical Session 2

The findings of this study demonstrate that structured water rescue training significantly improved both the knowledge and practical skills of PJOK teachers in Pakem District. Prior to the intervention, most participants had limited understanding of water rescue, as shown by the pre-test results, where 60% lacked knowledge of basic concepts. After completing the training, all participants demonstrated substantial improvements, with 100% achieving conceptual understanding and two-thirds mastering the required practical skills. This outcome aligns with previous research emphasizing the effectiveness of non-formal training programs in enhancing aquatic safety competencies (Freitas, Dias, & Fonseca, 2013; Irwin, Pharr, Layne, & Irwin, 2019).

The high level of enthusiasm and active participation observed during the program reflects the relevance of aquatic safety to the teachers' professional responsibilities. Similar to findings by Côté, Salmela, and Russell (1999), participant motivation and engagement are critical determinants of the success of training programs. The collaborative and practice-oriented approach used in this study fostered active learning, consistent with the principle that practical exposure enhances knowledge retention and skill acquisition.

However, not all participants successfully mastered advanced water rescue techniques, such as underwater swimming and victim lifting. This may be attributed to variations in physical ability, prior swimming experience, and the short duration of the training. Previous studies have shown that water rescue skills require repeated practice, physical conditioning, and refresher sessions to be fully internalized (Moran & Stanley, 2006; Zhang, Dai, & Nie, 2022). Thus, while the short-term outcomes were positive, sustained improvement may depend on continued training opportunities and institutional support.

The study also highlights a broader issue: the lack of professional lifeguards and structured water safety programs in many Indonesian schools and community pools. As suggested by Lei, Zhu, Tang, and Wang (2022), drowning prevention requires not only individual preparedness but also systemic strategies, including surveillance, technology, and ongoing training. By equipping PJOK teachers with water rescue skills, this program addressed a critical gap in school-based aquatic safety. Nonetheless, scaling up such initiatives across regions would provide a more comprehensive approach to drowning prevention.

In summary, this program contributed to bridging the gap in aquatic safety competencies among PJOK teachers. The improvements observed in both knowledge and practice underscore the importance of targeted, context-specific training. Future programs should consider extending the training duration, incorporating periodic refresher sessions, and integrating water rescue education into formal teacher training curricula to ensure long-term sustainability.

CONCLUSION

This study demonstrated that water rescue training is an effective strategy to enhance the knowledge and practical skills of Physical Education (PJOK) teachers in aquatic safety. The program resulted in a marked improvement, with all participants showing a solid understanding of water rescue concepts and the majority successfully performing the required techniques. These outcomes highlight the importance of equipping teachers with lifesaving competencies, particularly in contexts where professional lifeguards are limited.

The findings suggest that structured, practice-oriented training not only increases preparedness for emergency situations but also fosters greater awareness of water safety in schools and communities. To maximize impact, future programs should be extended in duration, include refresher sessions, and be integrated into formal teacher training curricula. Expanding similar initiatives across different regions could contribute significantly to drowning prevention and the promotion of safer aquatic environments in Indonesia.

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AUTHOR CONTRIBUTION STATEMENT

Ermawan Susanto contributed to the conceptualization of the study, project administration, overall supervision, and drafting of the manuscript. Sridadi was responsible for designing the methodology, facilitating the training sessions, and validating the collected data. A. M. Bandi Utama provided essential resources, offered technical guidance, and carried out critical revisions of the manuscript. All authors approved the final version of the paper and agreed to be accountable for its content.

CONFLICT OF INTEREST AND FUNDING

The authors declare that there is no conflict of interest regarding the publication of this article.

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