

Bridging the fitness gap: Developing the capacity of PE teachers via a community empowerment model

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Abstract

Physical Education (PE) teachers play a central role as role models for a healthy lifestyle; however, PE teachers in Gowa Regency still face challenges, including fitness levels that tend to be moderate to low, coupled with minimal understanding and application of sport recovery techniques. This condition directly affects their teaching effectiveness and overall quality of life. This community service program aimed to address these issues by enhancing their physical fitness, mastery of sport recovery techniques, and development of community-based fitness entrepreneurship skills. The program employed an interactive training methodology consisting of socialization, direct practice, and continuous mentoring. The main activities involved 45 participants from the Subject Teacher Forum (MGMP) for PE in Gowa, followed by a three-month mentoring phase at their respective schools. The material taught included structured fitness exercises and post-exercise recovery techniques such as cool down, stretching, foam rolling, and simple cryotherapy. The results of the activity showed a substantial improvement in the teachers' fitness. The average general fitness score increased by 9.07% (from 18.22 to 19.88 points), and their VO₂max capacity increased by 15%. Qualitatively, complaints of post-exercise muscle soreness decreased by 30% after the application of recovery techniques. The long-term impact of this activity is also evident in the formation of the Gowa Fit Teachers Community (KGBG) as a platform for sustainability. Furthermore, approximately 25% of the participants successfully started or developed community-based fitness ventures, such as community aerobics classes or sports massage services. The program proved effective in improving physical condition and understanding of sport recovery, while simultaneously creating new economic opportunities for PE teachers in Gowa Regency.

Keywords: Physical fitness; Sport recovery; PE teacher; Community entrepreneurship

Mengatasi kesenjangan kebugaran: Pengembangan kapasitas guru PJOK melalui pendekatan pemberdayaan komunitas

Abstrak

Guru Pendidikan Jasmani, Olahraga, dan Kesehatan (PJOK) berperan sentral sebagai teladan gaya hidup sehat, namun guru PJOK di Kabupaten Gowa masih menghadapi tantangan berupa tingkat kebugaran yang cenderung sedang hingga rendah, serta minimnya pemahaman dan penerapan teknik pemulihan olahraga. Kondisi ini secara langsung mempengaruhi efektivitas pembelajaran dan kualitas hidup mereka. Kegiatan pengabdian kepada masyarakat ini bertujuan untuk mengatasi masalah tersebut melalui peningkatan kebugaran fisik, penguasaan teknik sport recovery, dan pengembangan kemampuan kewirausahaan kebugaran berbasis komunitas. Program ini menggunakan metode pelatihan interaktif yang terdiri dari sosialisasi, praktik langsung, dan pendampingan berkelanjutan.

Contributions to
SDGs

3 GOOD HEALTH
AND WELL-BEING



8 DECENT WORK AND
ECONOMIC GROWTH



Article History

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Kegiatan utama melibatkan 45 peserta dari Musyawarah Guru Mata Pelajaran (MGMP) PJOK Gowa, yang dilanjutkan dengan fase pendampingan di sekolah masing-masing selama tiga bulan. Materi yang diajarkan meliputi latihan kebugaran terstruktur dan teknik pemulihan pasca-latihan seperti cool down, stretching, foam rolling, dan cryotherapy sederhana. Hasil kegiatan menunjukkan peningkatan yang substansial pada kebugaran guru. Rata-rata skor kebugaran umum meningkat sebesar 9,07% (dari 18,22 menjadi 19,88 poin), dan kapasitas VO_{2max} meningkat sebesar 15%. Secara kualitatif, keluhan nyeri otot pasca-latihan menurun sebesar 30% setelah penerapan teknik pemulihan. Dampak jangka panjang kegiatan ini juga terlihat dari lahirnya Komunitas Guru Bugar Gowa (KGBG) sebagai wadah keberlanjutan. Selain itu, sekitar 25% dari peserta berhasil mengembangkan usaha kebugaran berbasis komunitas, seperti kelas senam atau layanan pijat olahraga. Program ini terbukti efektif dalam meningkatkan kondisi fisik dan pemahaman sport recovery, sekaligus menciptakan peluang ekonomi baru bagi guru PJOK di Kabupaten Gowa.

Kata Kunci: Kebugaran jasmani; Sport recovery; Guru PJOK; Kewirausahaan komunitas

1. Introduction

Physical fitness is fundamental to the quality of human resources, and Physical Education, Sports, and Health (PE) teachers hold a strategic role in fostering a healthy, active, and productive generation (Lengkana & Muhtar, 2021). These educators are expected to serve not only as instructors but also as role models for healthy lifestyles for their students (Khudhori, 2015). Research strongly emphasizes that a teacher's physical fitness level significantly impacts the effectiveness of physical learning and their long-term health (Hardie et al., 2022). Furthermore, studies suggest a positive relationship between a PE teacher's perceived physical literacy and students' enjoyment and literacy in physical activity, confirming the significant role teachers play in improving student health literacy (Acton & Glasgow, 2015; Azarhazin et al., 2024). However, field reports and various studies indicate that the fitness level of PE teachers in many areas remains in the medium to low category, potentially diminishing learning effectiveness and student motivation.

This challenge is acutely observed among the 45 PE teachers in Gowa Regency, who are organized under the MGMP PE institution. Observations and interviews revealed a dual problem: teachers possess a limited understanding of both general physical fitness principles and, critically, sports recovery strategies. This lack of knowledge is consistent with local indicators, such as the low documented physical fitness levels of students in Gowa and the minimal, poorly maintained sports facilities in the schools, which discourage active physical engagement (Kela & Zulu, 2023; Tanaka et al., 2023). Proper recovery strategies are essential not only to prevent chronic fatigue and lower injury risk but also to enhance productivity (Dupuy et al., 2018). Structured recovery management, including techniques like sport massage, cryotherapy, and active stretching, has been proven effective in accelerating physical performance recovery and preventing delayed onset muscle soreness (DOMS) (Fadillah, 2024). This complexity demands that teachers possess recovery literacy – an understanding of modern recovery strategies to maintain their fitness and improve teaching performance (Gao et al., 2024).

Beyond addressing physical and pedagogical deficiencies, the rapid growth of the fitness industry presents new, relevant economic opportunities for PE teachers. The concept of sports entrepreneurship can transform sports educators into agents of social change and successful business actors (Ratten & Nanere, 2020). Instructors have significant potential to develop community-based entrepreneurship, which not only improves their personal

well-being but also strengthens the public health ecosystem (Maaranen & Stenberg, 2021). Given the increasing global demand for personal training and community fitness classes (Wulandari, 2023), PE teachers can leverage their expertise to develop secondary businesses, such as offering community sports classes, sports massage services, or supplying simple fitness equipment (Rana & Bika, 2025). This aligns with the findings from community service research, which has shown that training and continuous mentoring can enhance the competence of athletic trainers and foster business motivation (Rafailes & Monteroso, 2024; Wati & Fajar, 2022).

Based on the identified local challenges, low teacher fitness, inadequate recovery knowledge, minimal facilities, and the latent opportunity for economic diversification, the program was designed. This initiative aims to address two main needs: 1) improving the physical fitness of PE teachers through measurable physical training, and 2) strengthening knowledge and skills in sports recovery through intensive training sessions and practical modules. Furthermore, the program integrates fitness-based entrepreneurship aspects, intending to open up new, sustainable business opportunities for PE teachers, thereby supporting both community empowerment and human resource development. This multi-pronged approach involves forming a dedicated community of PE teachers and providing continuous mentoring and evaluation, ensuring the program's impact and sustainability.

2. Method

The method employed in this Community Service activity was designed to ensure a systematic process for solution implementation, covering stages from initial planning through to evaluation and program sustainability. The activity was conducted over two days, specifically on July 22-23, 2025, in Gowa Regency. The participants consisted of 45 teachers who are members of the MGMP PE of Gowa Regency. The implementation framework involved four key stages: socialization, training on structured physical fitness and sport recovery techniques, subsequent mentoring in their respective schools, and a final evaluation of the program's impact and desired outcomes.

3. Results and Discussion

3.1. Socialization and training

The program commenced with the socialization and training stage, involving 45 PE teachers from various schools affiliated with the MGMP PE at the Gowa Regency Education Office. During this initial session, teachers were introduced to key concepts including physical fitness, crucial sport recovery strategies, and fitness-based business opportunities, such as personal trainer services, community fitness classes, and sports massage services. The teachers used this platform to share common challenges they face, including chronic fatigue due to high workloads, limited access to professional recovery facilities, and a lack of knowledge regarding the latest training methods. The high enthusiasm of the participants demonstrated the urgency of the program, a finding consistent with the literature on the necessity of timely interventions (Jaakkola, 2022). Furthermore, these results align with studies confirming that community-based socialization is effective in increasing public awareness of healthy lifestyles (Kolawole et al., 2023). The socialization featured two expert speakers: Etno Setyagraha S.Or., M.Or,

a certified Indonesian Fitness Trainer from the Indonesian Fitness Trainers Association (APKI), who presented material on fitness; and Harvina Mukrim S.Ft.PHSYO, M.Kes, a Physiotherapist Lecturer and Sports Injury Handling Specialist at KONI Makassar City, who focused on Sport Recovery.

The intensive training and practice stage was officially opened by the Head of the Gowa Regency Youth and Sports Office, engaging approximately 80 attendees, including agency guests and participants (see [Figure 1](#)). The first day consisted of a six-hour session, led by Etno Setyagraha, focusing on fitness material and practical application. The second day, also spanning six hours, was led by Harvina Mukrim, covering Sport Recovery material and the practice of handling minor injuries. This intensive training began with initial physical fitness measurements for the participants, revealing a critical need for intervention: 60% of the teachers were classified in the medium fitness category, 30% were low, and only 10% were good. This condition confirmed the program's necessity, as regular assessment of physical capacity and cardiovascular endurance, such as monitoring VO₂max, is essential for improving teachers' physical performance and promoting overall health in educational settings ([Gao et al., 2024](#)). Structured fitness monitoring and recovery practices are affirmed as playing a crucial role in enhancing teachers' physical performance, improving muscle regeneration, and reducing post-exercise soreness ([Sepahvand et al., 2025](#)).



Figure 1. Documentation of program socialization

3.2. Fitness entrepreneurship training

The program focused on equipping teachers with skills in fitness entrepreneurship, enabling them to create paid exercise programs, manage community sports classes, and promote sports massage services ([Figure 2](#)). This entrepreneurial focus aligns with the idea of sports entrepreneurship as a critical instrument of social and economic transformation ([Adamczyk, 2023](#)), with research further showing that it contributes to improving the economic well-being of teachers ([Wei, 2025](#)). To enhance the practical application and monitoring of physical activity, the training also included the integration of digital fitness technology. Specifically, teachers learned to monitor their activities using tools like Google Fit and Strava. This method of self-monitoring through mobile applications has been emphasized to significantly enhance intrinsic motivation and adherence to regular physical activity ([Basto & Ferreira, 2025](#); [Laranjo et al., 2021](#)).



Figure 2. Presentation of fitness and sport recovery materials

3.3. Mentoring and evaluation phase

The mentoring phase was a vital three-month component designed to ensure the program's sustainability and effectiveness. During this period, the implementation team conducted regular visits to partner schools, providing supervision, monitoring progress, and offering additional technical guidance to teachers who faced challenges in applying the new fitness and recovery strategies (Lengkana & Muhtar, 2021). Evaluation was carried out through two main methods: the re-measurement of physical fitness using the same instruments as the initial assessment, and in-depth interviews designed to explore the teachers' experiences, behavioral changes, and obstacles encountered (Hardie et al., 2022). This comprehensive process served not only as an objective assessment of physical improvement but also as a collaborative reflection involving the implementation team, teachers, and schools, aligning with the participatory empowerment principle that emphasizes active involvement in competence development (Azarhazin et al., 2024). The results confirmed significant progress in physical fitness, behavioral impact, and knowledge acquisition regarding sports recovery.

The re-measurement process, illustrated by the pre-test and post-test results of teachers' fitness levels in Figure 3 and detailed comparison in Figure 4, highlights substantial physical improvements. Specifically, the data showed a 9.07% increase in average fitness scores (from 18.22 to 19.88 points) and a 15% average increase in $VO_2\text{max}$, indicating enhanced cardiorespiratory capacity. These findings are consistent with studies that underscore the importance of physical fitness in teaching capacity and overall health (Azarhazin et al., 2024; Curran & Standage, 2017; Dupuy et al., 2018). Furthermore, the effectiveness of the taught recovery strategies was demonstrated by a 30% reduction in reported complaints of muscle pain following exercise.

Beyond the physical improvements, the program yielded important long-term outcomes, particularly in economic empowerment. A number of teachers successfully developed sport-based business ventures, such as community fitness classes, sports massage services, and sales of simple fitness equipment. This supports the notion that sport-based entrepreneurship can strengthen the public health ecosystem while creating new economic opportunities (Maaranen & Stenberg, 2021; Rafailes & Monteroso, 2024). The support from the Gowa Education Office and the formation of the Gowa Fitness Teacher Community (KGBG) further ensures the sustainability of these efforts as an ongoing annual program. The overall success of this phase, improving teachers' fitness, reducing health issues, enhancing teaching quality, and opening new business

opportunities, is summarized in the comprehensive evaluation findings presented in Table 1.

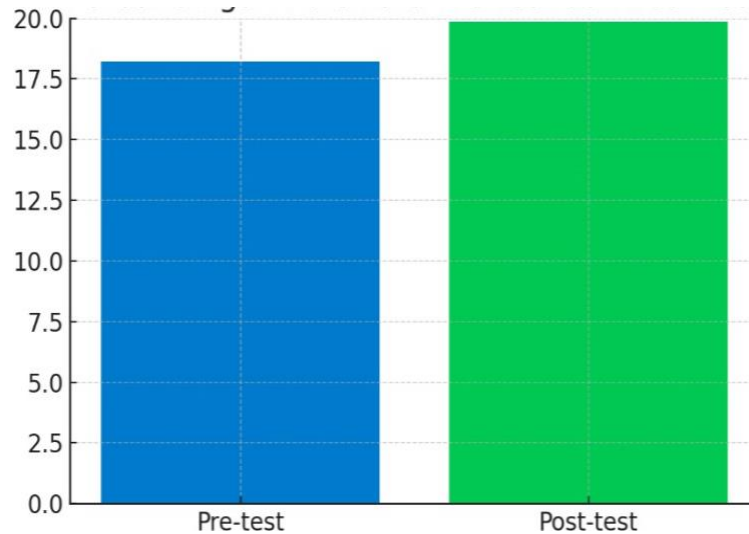


Figure 3. Pre-test and post-test results fit and healthy

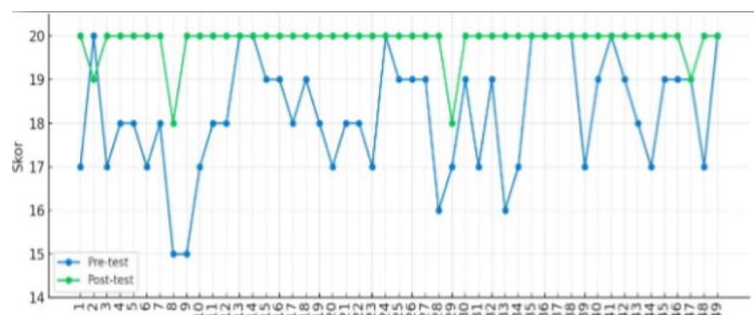


Figure 4. comparison of pre-test and post-test results

Table 1. Physical fitness, VO₂max, and behavioral changes after the program

No	Measured Aspects	Findings
1.	Average Increase	1.65 points or +9.07% compared to before the intervention
2.	Increased Participants	38 people (77.6%) – the majority experienced improved physical fitness
3.	Regular Participants	10 people (20.4%) – likely to be at optimal fitness level
4.	Declining Participants	1 person (2%) – likely to be affected by a post-test health condition
5.	Increased VO ₂ max	An average increase of 15%, indicating an improvement in cardiorespiratory capacity
6.	Impact on Behavior	Teachers become more disciplined in doing sports recovery, stretching, hydration, and adequate rest
7.	Impact on Learning	Teachers are fitter, focus when teaching, and become role models for students

4. Conclusion

The program successfully achieved its primary goal: to enhance the physical fitness, knowledge of sports recovery, and economic empowerment opportunities for PE teachers in Gowa Regency. The designed exercise interventions demonstrated a tangible impact on teacher fitness, evidenced by an average 15% increase in VO₂max, alongside notable improvements in flexibility, strength, and endurance. More than just physical gains, the program successfully fostered a greater awareness of healthy lifestyles, cultivating positive habits such as active cooling, adequate hydration, and structured post-activity recovery. Consequently, teachers reported feeling more disciplined, focused, and productive in their teaching roles.

Crucially, the aspect of economic empowerment was achieved through fitness-based entrepreneurship training, which successfully encouraged teachers to develop new business ventures, such as community fitness classes and sports massage services. This initiative not only created new economic opportunities but also established a more active sports ecosystem within schools and the surrounding communities. The high 85% participation rate confirms the program's relevance to local needs, while its sustainability is ensured through the establishment of the Gowa Fitness Teacher Community (KGBG) as a formal platform for long-term collaboration. Supported by the local Education Office, this program has the potential to become a replicable model for teacher capacity development in other regions. Overall, this program not only improved the quality of health of PE teachers but also built human resources who are fitter, productive, and economically empowered. The participatory and structured approach applied is proof that synergy between academics, practitioners, and local governments is able to produce real and sustainable impacts for improving the quality of education and public health.

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Authors Contribution

MBI designs the concept, leads coordination, and handles data analysis. Dr. AA manages data collection, evaluation tools, and methodology. HM supports documentation, data processing, and final editing, ensuring quality and scientific standards.

Conflict of Interest

The author expressly states that there is no conflict of interest in the publication of this article. The entire process of planning, implementing, analyzing data, and writing articles is carried out objectively for the sake of scientific development and improving the quality of human resources of PE teachers, without any influence from certain parties that can affect the results of the research.

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