

## Exploring Elementary PE Teachers' Knowledge and Skills in Sports Injury Management at Dewi Kunthi Cluster, Semarang

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### ABSTRACT

This study is based on the fact that sports injuries are the second most common type of accident after domestic accidents, and managing such injuries is an essential skill for all sports practitioners. The research aims to describe the knowledge and skill competencies of elementary school physical education (PE) teachers in handling sports injuries within the Dewi Kunthi cluster in Semarang City. Using a descriptive qualitative method, data were collected through semi-structured interviews, observations, and documentation, and analyzed using an interactive model consisting of data reduction, data display, and conclusion drawing. The findings reveal that the teachers' knowledge and skills in managing sports injuries fall into the "very good" category, with average percentages of 89.38% for knowledge and 88.28% for skills. The common causes of injuries were internal factors such as fatigue and lack of focus, and external factors such as unsafe field conditions and inadequate sports equipment. Teachers implemented preventive measures including structured warm-ups, field inspections, safety instructions, and equipment checks. Their knowledge came from various sources such as academic education, training, seminars, online resources, and peer discussions. Teachers were able to manage minor injuries—such as abrasions, small cuts, bruises, and sprains—calmly and effectively, and could demonstrate first aid procedures while coordinating with medical professionals for more serious injuries. The study suggests regular and structured training for PE teachers, involving health professionals, to enhance both theoretical understanding and practical ability in handling sports injuries..

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## INTRODUCTION

Physical education or currently known as PJOK, is a systematic and conscious educational process to teach a person as a member of society through various physical activities that can be used to work on physical development, health, and physical behavior, as well as improving abilities and skills, intelligence and character development, and a harmonious personality in the context of the formation of a whole

Indonesian human being based on Pancasila (Muzakki Abdurrohman, 2022). The main purpose of physical education is to develop physical skills, movement skills, critical thinking skills, emotional stability, social skills, reasoning, and moral values through participation in physical activities. In the context of lifelong learning, Physical Education has an important role in providing opportunities for students to engage in various learning activities through systematic physical activity (Sari et al., 2024).

Sports are a form of physical activity aimed at achieving enjoyment as well as physical and mental health. In engaging in sports activities, individuals may have various goals, such as recreation or achievement. Additionally, sports activities aim to maintain physical fitness, build a spirit of sportsmanship, foster good character and personality, and ultimately shape individuals into high-quality human beings. Therefore, sports are closely related to the risk of injury (Sahabuddin, 2022). The term "sports injury" refers to damage to the skin, muscles, or skeletal system caused by physical activity. Sports injuries can result from various factors, such as ineffective training methods, structural weaknesses, and the physical function of tissues and their supporting systems. Injury is an issue that arises when someone participates in a sports activity, such as training or competition, and it becomes difficult to explain exactly what has occurred (Muthmainnah, 2024).

Sports injuries are the second most common type of accident after domestic accidents, and managing such injuries is a crucial skill that every sports practitioner should possess (Nurrokhmah & Anggita, 2024). Several factors contribute to the occurrence of injuries, including internal, external, and overuse factors. Internal factors originate from within the individual, such as students' difficulty in performing warm-ups due to a lack of flexibility and insufficient training. External factors come from the environment, such as uneven playing fields or inadequate and unsafe facilities. Overuse injuries result from repetitive physical activities performed without proper rest or progression. To manage these injuries effectively, the RICE method (Rest, Ice, Compression, Elevation) and basic first aid principles (P3K) are applied, with a focus on extending rest periods during the recovery process (Adirinarso, 2023).

School-aged children tend to be active and physically engaged, which makes them more susceptible to injuries. During this developmental stage, teachers are responsible for their students, and if an injury occurs, they are expected to respond appropriately. Therefore, teachers need to possess up-to-date knowledge and skills to provide proper interventions for their students (Pratama et al., 2020). Enhancing teachers' knowledge is one of the key efforts to improve their capacity in the field of education (Haris & Indrawati, 2023).

PJOK teachers are required to always be creative and innovative in designing learning approaches that are in line with the characteristics of students in each school. (Kurniawan et al., 2023). Referring to the provisions of Law No. 14 of 2005 on Teachers and Lecturers, Article 1, a teacher's competencies consist of four aspects: pedagogical, personal, social, and professional. Furthermore, in the regulation concerning teachers' responsibilities for student safety (UU No. 14 Tahun 2005 tentang guru dan dosen pasal 1, n.d.), Article 2 Paragraph 5 states, "Protect students from any actions that may interfere with their development, learning process, health, and safety."

This implies that teachers must remain vigilant regarding the safety and well-being of students while they are at school.

In the study by Rinaldo (2024), teachers' knowledge and skills in first aid can help students respond quickly and effectively when they encounter difficulties at school. Prompt and appropriate handling can reduce the negative impact of injuries. This study aimed to describe elementary school teachers' knowledge of first aid within the school environment. This research was a descriptive survey using a quantitative approach, a descriptive design, and univariate analysis. The study population consisted of all active teachers at SDN 07 Talang Kelapa, totalling 25 individuals. All 25 respondents participated in the study using the complete sampling method. The findings revealed that more than half of the elementary school teachers had good knowledge of first aid at school, with 15 respondents (60.0%) demonstrating a good level of understanding.

In a study conducted by Ramadhan et al. (2021) titled "*A Survey on PJOK Teachers' Knowledge of Sports Injury Management Using the RICE Method*", it was found that many teachers still lack understanding of first aid. For instance, when a student suffers a bruise, most teachers tend to apply warm ointments such as balm or similar products, which can worsen the injury due to the lack of proper training. A similar case was reported in a study by (Aryadana & Supriyono, 2022) titled "*Identification and Management of Injuries in Elementary School Physical Education in Tenganan District*," which concluded that while first aid treatment for injured students was generally appropriate, some practices were still incorrect and ineffective. For example, in the case of bruises, cold therapy should be applied first, yet some teachers administered heat therapy instead. The study also highlighted that the risk of injury in Tenganan District was partly due to the locations used for physical education, such as paved schoolyards or public fields located a considerable distance from the schools. Injuries often occurred during the walk to the field, as children would run, play, and sometimes fall. Additionally, the public fields used were multipurpose areas shared with the community, often containing hazards such as potholes, broken glass, or splinters of bamboo, posing significant safety risks during physical education activities.

Based on data from previous studies, it can be concluded that many physical education (PJOK) teachers still lack adequate competence in knowledge and skills related to sports injury management. In the city of Semarang, particularly in the Dewi Kunthi cluster, which consists of eight public elementary schools, there are similar environmental conditions and learning patterns, where physical education activities are commonly conducted in school yards or public fields. These conditions pose potential risks for injury, as highlighted in earlier research findings. Therefore, there is a need to enhance relevant knowledge and skills among teachers, especially elementary school physical education teachers, in handling sports injuries. This is essential to ensure the safety and comfort of students during learning activities.

Therefore, this study aims to explore the knowledge and skills of physical education teachers in the Dewi Kunthi Cluster, Semarang City, in handling sports injuries. The results of this research are expected to provide a clear overview of the teachers'

capabilities in managing challenging situations and serve as a foundation for developing educational programs or workshops that can enhance teachers' competencies in relevant areas.

It is expected that enhancing the knowledge and skills of physical education teachers will create a safer and more comfortable learning environment for students and reduce the risk of serious injuries during school activities. Furthermore, this study is anticipated to have a positive impact on the advancement of physical education at the elementary school level, particularly in the area of sports injury management.

## **METHODS**

### **Research Design**

This study employs a descriptive qualitative method. Sugiyono (2020:9) explains that qualitative research is a method based on the philosophy of positivism or interpretivism, used to investigate natural conditions of objects, where the researcher serves as the key instrument. Data collection techniques are carried out through triangulation (a combination of observation, interviews, and documentation). The data obtained tends to be qualitative, and data analysis is conducted inductively or qualitatively. The results of qualitative research aim to understand meaning, grasp uniqueness, construct phenomena, and generate hypotheses.

### **Participants**

This research was conducted with a total of 8 participants, including 1 physical education teacher in each public elementary school in the Dewi Kunthi cluster, Gunung Pati sub-district, Semarang city, namely public elementary schools Mangunsari 01, public elementary schools Ngijo 02, public elementary schools Patemon 01, public elementary schools Sekaran 02, public elementary schools Kalisegoro 01, public elementary schools Patemon 02, public elementary schools Ngijo 01, public elementary schools Sekaran 01

### **Data Collection Techniques**

Data Collection Techniques. In qualitative research, there are 3 ways of collecting data, namely: interviews, observation, and documentation.

#### **1. Observation**

Observation is an activity that involves observing, recording, examining, and understanding all necessary aspects by directly visiting the research site. Observation is a primary technique in qualitative research, as the main data sources are the physical and verbal behaviours of the research subjects. A comprehensive observation process is used to obtain field notes on the general situation surrounding the research subjects, such as during learning activities, as well as on the availability of learning facilities and infrastructure. The researcher observes and directly witnesses the actions of the participants by visiting the research site and participating in their activities. In this study, the subjects of observation are elementary school physical education teachers. The observation includes several indicators that are marked with a checklist based on what has been observed.

## 2. Interview

An interview is a conversation conducted between two parties, namely the interviewer and the informant. According to Suharsini Arikunto (2013:135), to develop an interview data collection instrument, it is necessary to understand several stages as follows:

- a. Analyzing each variable.
- b. Describing the variables in detail.
- c. Finding indicators.
- d. Compiling indicators into instruments with relevant sources.

The collection method used was the interview method. The interview guide first asked questions that had been prepared, then one by one delved deeper into exploring further information.

The results of the interview depend on the informant, but it does not rule out the possibility of the researcher asking deeper questions to extract further information; thus, the answers obtained can cover all variables, with more complete information. The interview technique is carried out to explore data information known by someone under study, and obtain information about past, present, and future matters in the form of responses, opinions, beliefs, guidelines, and the results of a person's thoughts about everything that is questioned about the problem (Wardani Vera, 2017: 92).

In this study, interviews were conducted to obtain information about the knowledge and skills of public elementary school physical education teachers in the Dewi Kunthi cluster of Semarang city. The interview was conducted with a grid instrument containing questions.

## 3. Documentation

Arikunto (2006, p. 158). Documentation is looking for data on things related to research in the form of notes, transcripts, books, newspapers, magazines, minutes, report cards, agendas and so on. The following is a Documentation Guidelines Instrument:

1. School photos of public elementary schools in Dewi Kunthi cluster
2. Physical education teachers
3. Facilities and infrastructure
4. UK's facilities
5. questionnaires

In this research, the documentation method is applied to ensure the authenticity of the data and present solid evidence related to the phenomenon under study in the past. This allows the researcher to analyse and understand the historical context and impact of the object under study. With this approach, it is expected that precise and relevant information can be obtained, which not only strengthens the research results but also provides a deeper understanding of the changes that have occurred over time.

## Data Analysis Techniques

Data Analysis Technique According to Noeng Muhadjir (in Rijali, 2018), data analysis is an effort to find and compile the results of observations of a study, both interviews and

others, systematically and structured to increase understanding of the case under study, to present it as reference material or findings for others. To achieve this, the analysis continues with an effort to interpret a study. There are 3 stages of data analysis: data reduction, data presentation, and conclusion drawing (Sooegiyono, 2020: 134-141).

#### 1. Data Reduction

Reduction is the process of simplifying the data obtained during the research until it is completed by combining, analyzing by classifying, and classifying the data, then arranging it in order and clearly (Sugiyono, 2015: 338). At this stage, the researcher reduces the data obtained from observations, interviews, and documentation regarding the handling of sports injuries.

#### 2. Presentation of Data

Presentation of data is a sequential arrangement of data based on the thoughts, opinions of the necessary data. Presentation of data has criteria that are easy to see, easy to read, and understand what is going on and the actions that will be taken.

#### 3. Conclusion

The conclusion is a summary of the research results, which explains every process by connecting or comparing so that an answer can be drawn from the research conducted. Conclusions are drawn repeatedly from useful data to ensure that the conclusions follow the reality in the field. The following are the steps in concluding:

- a. Looking for data themes.
- b. Interpreting the findings.
- c. Rechecking the data with informants.

## RESULTS AND DISCUSSION

### Results of knowledge exploration

Based on the research findings on the knowledge of elementary school physical education teachers in handling sports injuries at the Dewi Kunthi cluster, it was found that their knowledge falls into the "very good" category (89.38%). This is due to the implementation of proper warm-ups and strict supervision during PE lessons. Injuries usually occur due to internal factors such as fatigue and lack of student seriousness, as well as external factors like unsafe field conditions. To prevent injuries, teachers conduct structured warm-ups, ensure the field is safe, provide safety instructions, and confirm that sports equipment is safe to use. Teachers acquire knowledge about injury management from university education, training, seminars, the internet, and discussions with colleagues. Most teachers feel confident in handling minor injuries and respond calmly and promptly when injuries occur, including stopping activities and administering first aid. For more serious injuries, teachers coordinate with school staff, medical personnel, and parents. The school's health unit (UKS) is utilized for initial treatment, but for severe injuries, referrals to health facilities are recommended. Teachers also demonstrate a strong enthusiasm for continuous learning and improving their skills through regular training involving experts.



## **Skill exploration results**

Based on the research findings on the skills of elementary school physical education teachers in handling sports injuries at the Dewi Kunthi cluster, it was found that the majority of teachers (6 out of 8) scored highly ( $\geq 87.5\%$ ), indicating a very good level of competence in managing minor injuries such as abrasions, small cuts, bruises, and sprains. SD Negeri Patemon 02 had the lowest score (68.75%), particularly in the categories of bruises and sprains, indicating a need for skill improvement in these areas. Injuries with generally high scores were abrasions and bruises, reflecting a good level of preparedness among teachers to handle common injuries in the elementary school environment. The overall skill level in handling sports injuries is categorized as very good, as evidenced by the teachers' ability to both demonstrate and explain the treatment of sports injuries, including abrasions, small cuts, bruises, and sprains.

## **Discussion**

Based on in-depth interviews with eight elementary school physical education teachers in the Dewi Kunthi cluster, Semarang City, it was revealed that there is a high level of awareness and concern among educators regarding student safety during physical education activities. The descriptive qualitative approach used in this study enabled a comprehensive exploration of the teachers' experiences and strategies in managing and preventing sports injuries.

### **Causes of Injury: The Interaction Between Internal and External Factors**

An analysis of the causes of injury reveals a complex interaction between internal and external factors. Internal factors include aspects such as students' physical readiness, lack of focus and seriousness during warm-ups, and unanticipated fatigue. Meanwhile, external factors involve the condition of facilities and infrastructure, such as slippery, uneven, or rocky fields, as well as inadequate or potentially hazardous sports equipment. These findings are consistent with previous research indicating that injuries among elementary school students cannot be separated from the physical environment where sports activities take place, as well as the mental and physical readiness of children, which is often not yet fully stable (Aryadana & Supriyono, 2022).

### **Teachers' readiness to handle injuries**

The majority of teachers felt they had a high level of understanding (85–95%) about injury management, as evidenced by concrete actions such as providing first aid, resting students, and using UKS facilities. These actions are following the principles of First Aid in Physical Education recommended by WHO (Of et al., 2019).

### **Injury Prevention Strategy: Systematic, Comprehensive and Educational**

Physical Education teachers have developed a systematic approach to injury prevention. This strategy is not only limited to a thorough and appropriate warm-up, but also includes efforts to sterilise the field from dangerous objects, safety education for students, and enforcing rules for wearing sports equipment that meet standards. (Of et al., 2019) emphasizes the importance of building a safe sport environment in the context

of physical education. Teachers have a central role in creating a safe learning environment through proactive and educational actions.

Implementing preventive measures such as systematic warm-ups and close supervision during activities can minimize the risk of sports injuries. Some teachers even emphasized the importance of student discipline in following instructions as a key factor in maintaining safety. This finding is reinforced by Soegiyanto's research (2021), which states that the implementation of a good warm-up can reduce the risk of injury by 60-80% in elementary school students. Teachers who are proactive in supervising and creating a disciplined learning atmosphere tend to be able to control potential injuries in the field.

### **Teachers' Understanding of Injury Management: High, but Practice Needs Strengthening**

Most teachers reported a high level of understanding of injury management, with estimates ranging from 85% to 95%. This indicates confidence in dealing with minor injuries. However, the results of the skills exploration showed that there were teachers who still needed strengthening in practical skills, especially in the aspects of handling bruises and sprains. Yanti et al. (2022) highlighted that theoretical understanding must be accompanied by adequate practical skills so that injury management can be carried out effectively and does not risk aggravating students' conditions.

### **Emergency Management: Responsive and Coordinated**

In dealing with emergencies, teachers show good responsiveness. They temporarily stop learning, calm other students, and focus their attention on handling the injury. If the condition is considered serious, teachers immediately coordinate with the principal and medical facilities such as health centres, as well as contact parents. This procedure shows an understanding of moral and professional responsibility in ensuring student safety. Sudrajat & Fathurrohman (2019) emphasized that the ability of teachers in emergency situation management is an integral part of the managerial competence of an educator.

### **Utilization of UKS and School Facilities: Supporting Minor Injury Management**

UKS facilities in primary schools are considered adequate for the treatment of minor injuries such as abrasions, bruises or small cuts. Equipment such as plasters, antiseptics and bandages is optimally utilized. However, some teachers also expressed limited facilities for more severe injuries, making it important to immediately refer to external medical agencies if necessary. This shows the importance of cross-sectoral cooperation between schools and local health facilities in supporting student safety during physical education. Teachers demonstrated responsive and calm decision-making skills when injuries occurred, and they optimally utilized the UKS facilities for minor injuries. Literature by Sudrajat & Fathurrohman (2019) confirms that teachers' managerial competence in emergencies is crucial, and one of the indicators is the ability to use UKS facilities quickly and appropriately.

### **Continuous Professional Development: Needs to be Facilitated in a Structured Way**

All teachers showed a strong desire to continue developing their injury management skills through training, seminars, peer discussions and online media.



However, these efforts are still individual and not institutionally structured. Therefore, it is necessary to facilitate periodic training programs by the education office or sports professional institutions. Rohendi & Fatmawati (2021) suggest that injury management training be part of a continuous professional development program for PJOK teachers.

## CONCLUSION

This study reveals that Physical Education, Sports and Health (PJOK) teachers at the primary school level have a high awareness of the importance of preventing and treating sports injuries in students. Through a descriptive qualitative approach, it was found that the majority of teachers have implemented various preventive strategies that include structured warm-ups, active supervision, and efforts to sterilize the learning environment from potential physical hazards.

Even though injury cases are rare, teachers still show readiness in dealing with emergencies, with the initial steps of identifying injuries, providing first aid, and coordinating with medical authorities if needed. Teachers' level of understanding of injury management is also high, supported by academic experience, training, and learning resources from peers and online media.

However, the findings also show that not all teachers have equal practical skills, especially in dealing with injuries such as bruises or sprains. In addition, limited UKS facilities and the unavailability of routine training are challenges in improving the quality of injury management as a whole.

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